A STUDY OF THE MASSACHUSETTS WORKERS' COMPENSATION RATING METHODOLOGY FOR THE

MASSACHUSETTS WORKERS' COMPENSATION ADVISORY COUNCIL

July 1, 1994

Wyatt

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July 1, 1994

Mr. Matthew A. Chafe
Executive Director
Department of Industrial Accidents
Workers' Compensation Advisory Council
600 Washington Street
Boston, MA 02111

Dear Mr. Chafe:

We have completed our study of the Massachusetts Workers' Compensation Rating Methodology. This report contains the details of our review, as well as our findings and conclusions.

This report is intended for the Massachusetts Workers' Compensation Advisory Council. If this study is distributed beyond the Advisory Council, the study must be provided in its entirety.

We appreciate the courtesies and cooperation extended to us during the course of this assignment. We especially wish to thank those employers that so graciously volunteered to be a part of the study. Should you have any questions regarding this report, we will be available to discuss them with you at your convenience.

Respectfully submitted,

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The Massachusetts Workers' Compensation Advisory Council has requested The Wyatt Company to perform a study of the advantages and disadvantages of employee hours as an exposure base for workers' compensation premiums. This study fulfills the mandate imposed on the Advisory Council by Section 17 of Chapter 23E of the General Laws. The study consists of a review of prior research in the area of workers' compensation exposure bases; a survey of Massachusetts employers to collect data on employee hours and union status; and an analysis of the collected data to determine the effectiveness of the current exposure base (total payroll) compared to the most commonly proposed alternative (employee hours).

The research that has emerged in the area of workers' compensation exposure bases has been performed primarily by the insurance industry or its representative rating bureau. These studies have mainly focused on whether the use of the current exposure base of total payroll discriminates against high wage or union employers and results in excessive premiums. The results have shown that high wage and union construction firms tend to have slightly higher than necessary premiums, with premiums being 1% to 2% too high. However, one study did show that average claim size increases with wage level and actually continues to increase for wage levels that exceeded the maximum allowable indemnity benefit. The insurance industry contends that whatever discrepancies exist are mostly compensated for by the lower experience modification factors of union and high wage employers. Changing a system that only affects 20% of all employers in a modestly unfavorable way would be inequitable to the 80% of all employers for whom the current rating system performs well.

In order to alleviate the perception of inequity in premiums, states have responded in various ways. One state created new construction classifications based on wage scale. Other states adopted loss sensitive rating programs (e.g., LRAP) which were eventually eliminated as the experience rating plan underwent a revision to become more responsive to smaller employers and thus achieved the same result. In Massachusetts and Florida, construction classification credit programs provide high wage construction firms with credits up to 25% of premium.

The goal of this study is to determine whether the use of employee hours as an exposure base would result in more equitable workers' compensation premiums. A survey was constructed to collect information on employee hours and union status from employers in Massachusetts. This data was then correlated with the employers' loss history and compared to the correlation of losses and payroll. Our analysis showed the following:

1. The correlation between payroll and losses in most cases was higher than the correlation between employee hours and losses. This result was consistent for both indemnity and medical losses.

2. The correlation measures for both payroll and employee hours were higher for union and high wage employers than for non-union and low wage employers.

3. The correlation measures were significantly higher for employers categorized as manufacturing or all other than for construction firms.

4. For low wage construction firms, neither employee hours nor payroll performed especially well in predicting loss exposure. It appears there are additional factors that affect the loss exposure of these employers which are not quantified by the current rating methodology.

The data collected for the purpose of this study do not indicate that the use of employee hours as an exposure base would lead to significant improvements in developing equitable workers' compensation premiums. Whatever disparity exists is modest in degree and most likely corrected through the revised experience rating plan or the construction classification credit program.

We have enjoyed our work in completing this assignment. Should you have any questions regarding this study, please do not hesitate to contact any one of us.

Respectfully submitted,

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SECTION II

INTRODUCTION

INTRODUCTION

The issue of what constitutes the most appropriate exposure base for developing workers' compensation premiums has been debated for quite some time. On one side are usually unionized employers, who argue that the use of total payroll as the exposure base results in unionized employers subsidizing non-union employers, which presumably pay lower wages. They are supported in their argument by union employees who argue that in certain industries, such as construction, the cost of workers' compensation in relation to the payroll of the employer is so high that the use of total payroll as the exposure base serves as a disincentive to hiring union employees. Rather than basing workers' compensation premiums on payroll, and thus wages, they usually propose the use of wage-neutral exposure bases such as employee hours or number of employees.

The insurance industry, on the other hand, maintains that the use of payroll is the best possible exposure base to use for workers' compensation since benefits are based on wages and hence there is a direct relationship between losses and payroll. In addition, total payroll has the advantage of being readily available and is easy to verify. Other possible exposure bases, they argue, would not necessarily be inappropriate to develop workers' compensation premiums, but would require significant additional costs to develop new data collection and verification procedures. Since the current exposure base has not been shown to result in excessive premiums for high wage or union employers, there is not sufficient reason to alter the current exposure base. Doing so, they maintain, would result in 20% of all employers receiving lower premiums while 80% receive higher premiums.

The goal of this study is to review the current rating methodology, summarize previous studies which have addressed the impact of the exposure base on high and low wage employers, and investigate the accuracy of employee hours and payroll as predictors of loss experience.

SECTION III

RATING METHODOLOGY

RATING METHODOLOGY

Under the current workers' compensation rating methodology, the premiums charged to employers depend on several factors, only one of which is the exposure base. The rating methodology begins with the computation of manual premium:

$$\text{Manual Premium} = (\text{Rate} \times \text{Payroll})/100.$$

Rates are developed by classification, with each classification being specific to a type of occupation. Rates in Massachusetts are subject to approval by the Commissioner of Insurance. As most employers have more than one classification, the manual premium is really the sum of this formula computed for each classification code.

The next step is to compute the standard premium of the employer. The standard premium is defined as the manual premium multiplied by the employer's experience modification factor. The experience rating factor is calculated by the Workers' Compensation Rating and Inspection Bureau of Massachusetts (WCRB) and reflects the expectation that an employer's losses will be above or below the average for an employer with the same classifications. A factor of .90, for instance, indicates that the employer is expected to generate losses 10% below the average. A factor of 1.20 indicates that losses are expected to be 20% higher than average. The standard premium is given as :

$$\text{Standard Premium} = \text{Manual Premium} \times \text{Experience Modification}$$

Once the standard premium has been computed, the premium discount is subtracted to yield the net premium. The size of the premium discount can vary depending on the specific table an insurer is using to discount premiums, but the general idea is to give larger employers, as defined by premium size, a reduction in their premium. Ideally, the premium discount is designed to reflect the fact that some of the insurer's expenses are fixed and do not vary proportionately with premium. As a general rule, an insurer's expenses in servicing a large employer are a lower percentage of the standard premium than for a smaller employer. Accordingly, larger employers have larger premium discounts. Thus, the "net" premium charged to an employer is:

$$\text{Net Premium} = \text{Standard Premium} - \text{Premium Discount}$$

Typically, the premium discount for an employer with $100,000 in standard premium will be in the range of 5% to 10%, depending on the discount table used by the insurer. A lower discount is usually given by mutual companies to reflect the fact that they also distribute dividends to their policyholders.

Although these steps constitute the basic building blocks in developing workers' compensation premiums, there can be other surcharges and credits which might apply to an employer. In Massachusetts, for example, there exists ARAP surcharges, merit rating, and construction classification credits. All of these result in some modification of the premium charged to the employer.

The elements of the current rating methodology for workers' compensation can be summarized as:

1. **Classification** — Identifies the nature of the business of the employer.

2. **Manual Rate** — A charge per $100 of payroll that represents the average losses and expenses of all employers engaged in businesses defined by the specific classification.

3. **Total Payroll** — Calculated in increments of $100 and applied to the manual rates to derive the manual premium of the employer.

4. **Experience Rating Factor** — A factor that indicates the expected deviation from the average loss level for a specific employer.

5. **Premium Discount** — A credit based on premium size that is subtracted from standard premium to derive the net premium charged to the employer.

6. **Miscellaneous Adjustments** — Various credits or surcharges may exist for certain types of employers. These types of premium adjustments are not general in nature, but apply to select groups of employers.

SECTION IV

RECOGNITION OF DIFFERENCES IN EXPECTED LOSSES

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The process of developing workers' compensation premiums is relatively complicated, but this is primarily because there are several different methods being used to quantify identifiable differences in loss potential between employers. The primary goal of any rating methodology is to develop premium charges based on factors that can be shown to have a direct relationship to the expected losses of the employer. As each employer differs with respect to type of business, size, attitude towards safety and wage scales, the premium must also adjust to reflect these differences to the extent they affect loss potential. This is generally referred to as the principle of equity. The different methods by which the current system quantifies differences in expected losses are described below.

A. Classifications and Manual Rates

The starting point used to differentiate employers is the classification of the nature of the employer's business. A firm constructing high-rise buildings would have a significantly higher exposure to loss than, say, a law firm. Accordingly, a construction firm may have a manual rate of $35.00 per $100 of payroll, whereas the law firm may have a rate of $2.00 per $100 of payroll. A difference in rates such as this would indicate that construction firms generally have more losses (as represented by a higher incidence of claims or a higher average cost per claim) than office and clerical workers.

With over 560 different classifications used in Massachusetts, one could argue that the classification of occupation is one of the more effective means of separating employers based on exposure to loss. In fact, the results discussed in Section VI indicate that the classification of the employer's business leads to significant improvements in the ability of the exposure base, whether payroll or employee hours, to predict loss potential. However, because the rates for certain construction classifications can be rather high ($35 per $100 of payroll is not uncommon), any perceived inequity in the current rating system would be heightened by the use of payroll as an exposure base.

B. Total Payroll

In addition to the nature of the business of the employer, the size of the employer must also be considered in the development of premium. All else being equal, a firm that

employs 50 workers will have twice the amount of losses as a firm that employs 25 workers in the same classification. Thus, payroll measures the relative size of the two employers.

To the extent that payroll also measures difference in loss potential due solely to wage scale, it has the added advantage of varying directly with losses. Two employees engaged in the same occupation but at different wages would normally receive different benefits for the same injury. A difference such as this would be reflected in payroll.

Although most states use payroll as the exposure base, employee hours is used as the exposure base in the State of Washington, which has a monopolistic state fund. Another possible measure is the number of employees. In terms of measuring the size of the employer, either of these alternate exposure bases could be used since they both measure the length of time to which employees are exposed to the possibility of injury. Payroll is the preferred choice of the insurance industry primarily because it is readily available, easy to verify, and bears an inherent relationship to workers' compensation benefits, some of which are based on wage (payroll) level. The use of employee hours, on the other hand, has none of these advantages.

C. Experience Modification Factor

The experience modification factor of the employer further adjusts the premium to reflect the historical loss experience of the employer. The experience modification factor is based on three years of historical loss experience, which are aggregated and compared to the expected losses for an average employer over the same time period. If the employer is engaging in activities that are more hazardous than what a typical employer in the same classification would engage in, the experience modification factor, in theory, would adjust the premium of the employer to account for this "extra" exposure to the extent the additional exposure is represented by higher than expected losses.

Similarly, if one employer rates safety and loss prevention highly and implements programs and procedures to minimize occupational injuries, while another employer with similar classifications does not rate safety as highly and thus exposes its employees to a greater probability of injury, the experience modification factor would reflect these differing attitudes and adjust one employer's premiums upward while adjusting the other's downward. Each employer may have a manual rate of $35 per $100 of payroll, but the

safety-conscious employer may have an experience modification factor of .80, thus adjusting his rate to $28 per $100 of payroll. The less safety-conscious employer may have an experience modification factor of 1.20, which adjusts his rate to $42 per $100 of payroll.

The experience modification factor thus takes into account all the factors that bear on the loss potential of the employer and which are not quantified by the classification of the employer. As such, it is regarded as one of the critical links in developing an appropriate premium that recognizes the different loss potential among employers engaged in similar types of businesses. If payroll does lead to excessive rates for high wage or union employers, the assumption is that any inequity would be corrected by the experience modification factor.

D. Premium Discount

The classification of the employer, the payroll size, and the experience modification factor are all part of a rating methodology that attempts to align the premium charged to the employer with the loss potential of the employer. However, the premium that an employer pays usually covers more than losses. It also covers the expenses of the insurer, as well as the profit and contingency loading of the insurer. The expected profit, for instance, is loaded into the rate as a percentage of premium, e.g., 2.5% of the premium may be the amount the insurer needs as an incentive to continue writing workers' compensation business.

The average expense of the insurer is also loaded into the manual rate as a percentage of premium. Certain expenses of the insurer, though, do not vary directly with premium size, such as the cost of issuing a policy or agent commissions, which may actually decline as a percentage of the premium. To reflect the different expense needs associated with larger premium sizes, each employer receives a premium discount based on its premium size. Two employers that are in the same classification and have equal numbers of employees, but have different wage scales, would receive different premium discounts. The high wage employer may have a higher manual premium, but it will also receive a higher premium discount, assuming its experience modification factor is the same. To the extent that the experience modification factor does not adequately correct for excessive premiums, the remaining inequity would be diminished by the availability of a larger premium discount for the high wage employer.

What should become clear from this discussion is that the current workers' compensation rating methodology is a highly refined system designed to distinguish between employers with different expected loss and expense levels. A working assumption should be that any modifications to the existing system, such as converting to a new exposure base, ought to be proven to offer more accuracy than what is currently provided by the existing rating methodology.

SECTION V

PREVIOUS DEBATE AND ISSUES

PREVIOUS DEBATE AND ISSUES

The general criteria used to select an exposure base to develop insurance premiums are:

1. The exposure base must vary with the expected loss level of the insured and be an accurate measure of loss potential.

2. The exposure base must be readily available and verifiable.

3. The exposure base must not be susceptible to manipulation.

The first criteria is the most important in that it establishes that the exposure base must increase or decrease as the loss potential of the insured increases or decreases. As the true exposure cannot be known, the selected exposure base must be an adequate proxy for the true exposure.

In workers' compensation the true exposure on any given day may be affected by weather conditions, the different attitudes/moods of each employee, the absence/presence of supervisors, the production schedule of the employer, etc. Each of these factors may have a different impact on losses, but quantifying the impact is impossible. Thus, some alternative, such as total payroll, must be used as a substitute for the true exposure. The real issue in the debate over workers' compensation exposure bases is whether payroll, or some alternative such as employee hours, serves as the most effective substitute for the true exposure of the employer. A review of the arguments and pertinent research associated with each alternative is presented below.

A. Employee Hours

Although total payroll is the current exposure base used in Massachusetts, it is not the only possible exposure base, nor the only one in use in the country. The State of Washington, for example, currently uses man-hours (referred to here as employee hours) as the exposure base. Between the 1940's and 1970's, limited payroll was used in most states as the exposure base for workers' compensation premiums. Limited payroll includes only those wages that would produce the maximum allowable indemnity benefit.

Exactly which exposure base (employee hours, total payroll, or limited payroll) is most appropriate for workers' compensation is not clear. The State of Washington, for instance, has not actually measured the accuracy of employee hours relative to other possible exposure bases. The National Council on Compensation Insurance (NCCI) has consistently maintained the superiority of total payroll, but it has not measured the accuracy of its preferred choice compared to possible alternatives. There are certain intuitive arguments that make each exposure base appealing.

For high-wage and unionized construction firms, manual rates are so high that any difference in wage scale tends to be an important factor in bidding for projects. The firm that pays $10/hour on average is alleged to be at a competitive advantage compared to the firm that pays $15/hour, since the workers' compensation premiums for the latter would be 50% higher than the former and would require the former to bid higher in order to complete projects profitably. The suggested solution is to eliminate total payroll as the exposure base and, instead, use employee hours as the exposure base. This has the advantage of being wage-neutral in that premiums would be based on the number of hours expended to complete a project and not on wage level.

This argument is not without some merit. The NCCI, which is the rating bureau comparable to the WCRB in several other states, admits that the use of employee hours would be an acceptable exposure base, but rejects it for other reasons. The advantage of employee hours is that the probability of an employee accident (frequency) is directly proportional to the length of time that employee is working. If one employee is compensated at the rate of $600 per 35 hour work-week, while another is compensated at the rate of $600 per 40 hour work-week, the latter employee would certainly have a higher loss potential than the former. The use of payroll would not reflect this difference because in each case $600/$100 would be used as the exposure base for developing premiums. The use of employee hours would correct for this deficiency and develop a premium in the latter case that is 14% higher than in the former case.

The example noted above also highlights one of the advantages of payroll often cited by opponents of employee hours. Workers' compensation benefits vary directly with wages,

thus high wage employees receive more in benefits than low wage employees.[1] However, the relationship between losses and payroll is not as complete as it may seem. First, only indemnity (wage loss) benefits are based on wage level. As these benefits comprise approximately 80% of workers' compensation losses in Massachusetts, there is an additional 20% of benefits in the form of medical costs that are not based on wage level. With the workers' compensation reform law of 1991, the percentage of benefits attributable to medical costs is expected to rise in the future. Secondly, indemnity benefits are limited to 100% of the statewide average weekly wage. Thus, the relationship between wage level and benefits extends only so far. Often overlooked is the fact that wage loss benefits, as defined in the Workers' Compensation Act, are based on loss of "weekly wages.[2]" In the example above, the two employees would both receive the same weekly benefit, subject to the applicable limitations, even though one employee worked 5 hours longer per week for the same weekly wage.

Unfortunately, the research into the effectiveness of employee-hours as an exposure base has been limited. The research that has emerged has focused on the question of whether or not the current exposure base of total payroll results in discrimination against high wage and union employers. Discrimination is defined by examining the ratio of losses to premium (loss ratio) for high wage employers and comparing it to the same ratio for low wage employers. If the premiums charged to high wage employers are excessive, high wage employers will show a bias towards a lower loss ratio.

The first significant study of this issue to emerge was conducted by the NCCI at the request of the State of Oregon. A sample of employers was divided into high wage and low wage groups as well as union and non-union groups. The ratio of losses to premium for these groups was then measured. The conclusion was that there was a small difference in the loss ratios of union and high wage employers, which had a slightly lower loss ratio than low wage and non-union employers. This suggested that if differences in loss potential exist, they were essentially corrected by the experience rating system and any residual effect was relatively minor in nature.

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[1] Disability benefits are usually a percentage of gross wages. For temporary total injuries, disability benefits are 60% of pre-injury gross wages, while for other types of injuries disability benefits are 66.7% of pre-injury gross wages.

[2] See Chapter 152, Section 35D of the General Laws.

A second study was conducted and published by the NCCI in 1991. This study focused on the issue of the average claim size in relation to the wage level of the employer. The study stratified employers by wage level, and then examined how the average claim size varied with wage level. The a priori assumption was that claim sizes would vary directly with wage level up to the maximum allowable weekly benefit and then level off. Interestingly, the study found that even after wage levels had eclipsed the maximum allowable benefit, the average claim size continued to increase with wage level with a slight tempering effect due to the benefit maximum. The study suggested the following:

1. High wage employees tend to receive disability benefits for longer periods of time and also access more expensive medical care; and

2. High wage employers have higher claim costs than low wage employers and thus most of the difference in premiums is justified.

The study did indicate a modest difference in loss ratios, with high wage employers showing a slightly lower loss ratio. However, the magnitude of the difference was comparable to the difference found in the Oregon study. The study concluded that whatever differences existed were being adequately compensated for by the experience rating system.

B. Total Payroll

Payroll as an exposure base has been used since the advent of the workers' compensation system in the early 1900's. Payroll has the decided advantage of being available for other purposes and is generally recorded in a manner that allows insurers to verify the amounts used to develop premiums. Payroll also allows for continuity with the existing system in that insurers and rating bureaus have invested considerable sums in the development of systems to collect data and promulgate rates on the basis of payroll. Converting to a new system of developing premiums would entail considerable cost, which would ultimately be absorbed by policyholders. Some would argue that in any analysis of exposure bases, preference must be given to the existing method if significant improvements cannot be substantiated. Since employee hours has not been proven to offer a significant advantage over payroll in measuring loss potential and is not recorded by most employers, there is not yet sufficient justification to warrant its adoption.

The main argument underlying the use of payroll is that it measures both hours worked and potential loss severity as measured by wage level. Since it measures both the relative frequency of accidents and the relative severity of accidents, it has a distinct advantage over employee hours in that employee hours is a frequency-based measure that does not recognize potential loss severity. If "exposure" is thought of as the sum of the probabilities of an accident occurring over the policy term, multiplied by the average claim size, then total payroll would include a measure of both potential frequency and severity. The only concern, as mentioned previously, is that payroll may not accurately reflect potential differences in frequency between employers engaged in similar types of businesses but which have different wage levels.

Proponents of total payroll argue that the exposure to loss not recognized by the classification system or wage level is adequately compensated for by the experience modification factor. The implication is that if two employers are engaged in the same type of business and all other factors, including loss history, are equal, then the higher wage employer will have a lower experience modification factor. This argument is hard to refute given that the experience modification factor takes into account all factors that influence losses but are not separately quantified. However, it should be kept in mind that the experience rating system is based on payroll and loss experience that is at least 12 months out of date and thus may not accurately reflect any changes in the employer's wage scale in the interim. Thus, if an employer moves from being low wage to high wage, the experience modification factor would remain at an inflated level for three years, and thus result in excessive premiums. Of course, for employers that move from being high wage to low wage, the experience modification factor would be artificially low for three years, resulting in inadequate premiums.

From the insurance industry's standpoint, the use of total payroll has an extremely important advantage in that it is inflation sensitive. As wages increase, the Department of Employment and Training promulgates new levels of the statewide average weekly wage every October 1, with the result being that the maximum allowable workers' compensation wage loss benefits also increase. In addition, medical costs are increasing at a substantial rate each year. As wages increase, and payroll follows, there is less of a need for insurers to file for rate increases since premiums will increase automatically with higher wages. If employee hours is used as the exposure base, the assertion is that the insurance industry would need to file for more frequent rate increases in times of

rising costs. Given the historical regulatory lag in approving and contesting rate cases, it follows that the industry may be in a perpetually losing position when claim costs are rising. In such circumstances, the availability of workers' compensation coverage may become restricted.

C. Alternatives

1. Limited Payroll

The conversion to total payroll as an exposure base is a relatively recent event when evaluated over the history of the workers' compensation system. Between the 1940's and the 1970's, the preferred basis of premium computation was limited payroll, which is defined as the payroll per employee that did not exceed some pre-determined limit. The limit was usually set based on the maximum benefit allowed by the Workers' Compensation Act. The intent was to base premium charges on only the level of payroll that could be recovered in the form of benefits. Since benefits are capped at 100% (in some states it may be 150%) of the statewide average weekly wage, the payroll used to develop premiums was limited to this level. At the time, this was considered an enhancement over the use of total payroll.

The primary drawback to limited payroll was that the payroll limitation required constant updating, especially when wage and cost levels increased rapidly due to inflation. For this reason, it was eventually abandoned as each state converted to total payroll as the exposure base.

The impact of limited payroll was to redistribute premiums from high wage employers to low wage employers. Under the current ratemaking methodology, the targeted premium level must remain constant. Any changes to the rating methodology must be compensated for by increasing or decreasing the manual rates. A limitation on payroll would cause those employers under the limitation to pay additional premiums to compensate for the premium removed from the high wage employers. Conversely, removing the limitation allowed manual rates to decrease as overall premium charges increased for high wage employers and declined for low wage employers.

2. Large Risks

In any discussion of exposure bases, it should be kept in mind that for larger risks, the issue of the most appropriate exposure base is less important. Large risks generally have available to them premium options that are not available to smaller risks. Foremost among these options is the availability of loss sensitive rating plans that adjust the premium to reflect losses incurred during the policy period. Under these types of plans, whether high deductibles or retrospective rating plans, the exposure base and manual rate become minor considerations in the overall cost and the exposure of the employer is actually measured by the losses incurred during the policy period.

If two employers engaged in the same type of business have the same number of employees, but different wage scales, the fact that one payroll is higher than the other will lead to higher losses only to the extent that the higher wage levels result in higher overall benefits. The Oregon study, for instance, excluded large employers from the sample groups on the premise that the existence of loss sensitive rating plans would be an adequate remedy for any inequity in the rating methodology.

3. Refined Classifications

The approach adopted in California was to divide certain construction classification into separate additional classifications based on wage scale. High wage and low wage employers thus had separate rates and rating values, even though they engaged in the same business. The result was that rates were based on wage level as well as the nature of the business of the employer, which is a deviation in principle from the general system of classifying employers based on the nature of their business. The creation of additional classifications was in fact a practical solution to the perceived inequity of high and low wage employers being compared to each other. It is important to note that the perceived inequity was corrected through modifications to the system of classifications rather than the actual exposure base.

4. Massachusetts Construction Classification Premium Adjustment Program

A program adopted in both Massachusetts and Florida is the application of a premium credit based on wage scale. The details of the program are attached in Appendix V. In Massachusetts, a construction firm can submit both payroll and employee hours to the insurer in order to qualify for a credit. If the ratio of these two numbers fall within a certain range, a credit is applied to the manual premium. Currently, the credit is 5% for employers with an average hourly wage of $18.00 up to 25% for employers with an average hourly wage of more than $28.00. Rather than create new classifications, Massachusetts and Florida offered premium credits as a solution. This involved minimal additional data collection and did not require defining and making rates for new classifications.

The Massachusetts construction classification credit program has been in existence since January 1, 1991 but has received very limited use within the Commonwealth. Of the $253 million in construction premium in Massachusetts only $2.6 million, or 1.0%, of the total was given back in the form of credits. The apparent lack of use may be attributable to a number of factors, one of which may be that insurers are not making their policyholders aware of the program. It is conceivable that few construction firms actually fall into the wage level categories required by the program, thus making the program ineffectual. It should also be kept in mind that the program was instituted during a period of economic decline within the construction industry, which tends to be highly cyclical. The initial use of the program may have been limited due to the fact that the employment level within the construction industry was at a low point.

Refined classifications and wage level credits are possible solutions to the perception that the current rating methodology discriminates against high wage employers. Unfortunately, both solutions are compromises that may have adverse effects on other employers. When rates are developed by the WCRB, the objective is to reach an overall premium level that provides insurers with the level of profit they need as incentive to write workers' compensation business. This means that if credits are offered to high wage employers which are not substantiated by an actual difference in loss experience, the credits would be recouped by raising the rates of other classifications. The same reasoning would hold for refined classifications.

The development of the construction classification credit program did not include an analysis of the potential use of the program, how many employers would be affected, and what the effect on rates would be. It cannot be concluded, then, that the current table of credits offsets any real inequity in the system, although it does offset any perception of inequity.

5. LRAP and Experience Rating

During the mid 1980's when the issue of the appropriate exposure base was receiving considerable attention, the NCCI implemented the Loss Ratio Adjustment Program (LRAP) in the states of Illinois, Maryland, Nebraska and Oregon. The goal of this program was to adjust the premium charged a construction firm to more accurately reflect its own loss experience. Employers with good loss experience in relation to their premium received additional credits. Those with poor loss experience received surcharges. LRAP was viewed as an enhancement to the experience rating program by correcting for differences in loss potential not recognized by the experience rating plan, such as the existence of higher premiums for high wage employers. The LRAP program was implemented for construction firms and was also a direct response to the perceived inequity of using total payroll as the exposure base to develop workers' compensation premiums.

Eventually the LRAP program was abandoned as the NCCI proceeded with the adoption of a revision to the experience rating plan. The new experience rating system is designed to be more responsive to smaller and medium sized employers and less responsive to larger employers. Thus, any inequities not adequately addressed by the former experience rating plan are more adequately addressed by the revised experience rating plan. The revision was made after the NCCI conducted a study to determine how accurately the experience rating plan reflected the loss potential of the policyholder. Since the plan is now more responsive to differences between employers, there is less need of an revised experience rating program. Massachusetts implemented the revised experience rating program over a two year period beginning in 1991.

SECTION VI

METHODOLOGY

METHODOLOGY

The studies that have emerged in the area of exposure bases have primarily concentrated on whether the current rating system contains any inherent biases against high wage or union employers. Few studies, if any, have actually measured the ability of payroll or alternative exposure bases to measure loss exposure. Although the State of Washington is the only state to use employee hours as a basis for developing premiums, we are not aware of the existence of any study documenting the effectiveness of this exposure base. In order to test the effectiveness of employee hours as a possible measure of an employer's exposure to workers' compensation claim costs, we constructed a database of payroll information, employee hours, and claim costs by individual employer. From this database, we measured whether the statistical correlation between losses and employee hours was higher or lower than the correlation between losses and payroll. Correlation is a number between -1.0 and +1.0 that indicates the degree of linear relationship between two variables. Since both exposure bases would bear a linear relationship with premiums, this is the preferred method by which to measure the ability of the two bases to predict loss exposure.

The first step was to obtain employee hours data from employers in Massachusetts. Employers are not required to maintain and record this information, thus, the employee hours data supplied by employers should be regarded as estimates. A group of employers was identified based on data supplied by an outside firm. Those firms in Massachusetts with an employee count greater than 50 were selected to receive a survey form. It was our assumption that firms over a certain size were more likely to be unionized and thus more likely to be high wage employers. On the other hand, the variance around the mean level of losses for small employers was expected to be so high as to make any relationship between losses and payroll hard to determine. The cutoff point, therefore, represented a compromise between two different problems associated with the extremes of exposure size.

In total, 8,448 employers were chosen to receive a survey that requested information on the number of part-time and full-time employees as well as the average number of hours worked by each employee for each of the last five years. The survey can be found in Appendix I. Employers were also requested to estimate the percentage of their employee count that is unionized. Of the employers that received surveys, 1,368 responded, and of those, 1,173 submitted complete data that could be used in our analysis. Those discarded from the sample

either responded with incomplete surveys, were not in existence during the data period or submitted responses that somehow could not be used.

Once the surveys were received, they were entered into a computer database and the names of survey respondents were submitted to the WCRB, which had agreed to supply us with five years of payroll and loss data for each of the 1,173 employers that responded to the survey with usable data. Out of the total number of firms submitted, the WCRB was able to provide data on 701 of these employers. The primary database accessed by the WCRB was the unit statistical plan which collects payroll and loss data by policyholder. Because the matching was executed on the basis of name spelling, there were certain employers the WCRB could not locate as being named insureds on workers' compensation policies. If a firm had changed its name since 1991 or was insured under a parent company name, for instance, the WCRB would not be able to locate the payroll and loss data of the company.

As per an agreement between the WCRB and Wyatt, data on individual policyholders cannot be published. The data provided by the WCRB are only publishable by Wyatt in aggregate form as are subtotals of the data.

The correlation between payroll and losses and between employee hours and losses was measured as follows:

1. Without adjustment to either exposure base;
2. With adjustment for the average classification relativity; and
3. With adjustment for the average relativity and the experience modification factor.

After the database of payroll, wage, and loss information was constructed, certain adjustments were made to the payroll and employee hour data to reflect classification differences and experience modification factors. Specifically, the manual premium for each employer was divided by the employer's payroll to determine an average rate per $100 of payroll. The average rate was then divided by the rate for classification 8810 to determine an "average relativity." Both payroll and employee hours were then multiplied by this relativity to determine the "relativity adjusted" exposures. The objective of such an adjustment is to remove the difference in loss potential that can be identified based on the classification of the employer. For a construction firm, each $100 of payroll has significantly higher exposure to loss than each $100 of payroll for a law firm. Any correlation between the losses of these firms and payroll

would lead to spurious results as payroll, or employee hours, cannot measure the exposure to loss that results from the business of the employer.

Subsequent to the relativity adjustment, the experience modification factor was applied to the adjusted payroll and employee hours. Again, the goal was to remove those differences in loss potential that can be identified by the current rating methodology without regard to the exposure base.

After these adjustments were made, the correlation between the adjusted exposure bases and the loss data was measured. A correlation of 1.0 indicates a perfect positive linear relationship between two variables, meaning that as one variable increases the other variable increases by a proportional amount. A correlation of -1.0 indicates that as one variable increases, the other decreases by a proportional amount. If one exposure is more accurate in measuring loss potential, the expectation is that it would have a correlation with losses closer to 1.0 than other exposure bases.

In order to limit possible unintended effects on the correlation measurement due to a significant mismatch between the data collected through the survey and the data provided by the WCRB, correlation measures were derived only for those employers between the 10th percentile and the 90th percentile of the sample distribution of average hourly wages. It was assumed that any mismatch would result from excessive payroll (extremely high wages) or excessive estimates of the average number of hours worked per week (extremely low wages).

SECTION VI

SURVEY RESULTS

SURVEY RESULTS

The first measure derived is the correlation between the respective exposure bases and employer's actual first report[3] losses in policy year 1991. Table I indicates that for the sample group the initial correlation, without adjustments for the classification system or experience modification factor, is almost equal for employee hours and payroll (.494 vs. .493). After accounting for the classification system, the correlation between losses and payroll is higher than for losses and employee hours. After accounting for the experience modification factor, the payroll correlation remains higher. However, it should be noted that the difference in correlation produced by the classification system (.089) is narrowed by the use of the experience modification factor (.073).

Table I
Massachusetts Workers' Compensation Advisory Council

All Employers — 1991

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.493	.793	.861
Employee Hours	.494	.704	.788

These results indicate that the use of payroll serves as a better predictor of loss exposure than employee hours when all types of employers are considered. It must be kept in mind that a somewhat higher correlation for payroll might be expected. This is due to the fact that the payroll data supplied by the WCRB has been audited and verified, whereas employee hours, out of necessity, has been estimated.

While the results of Table I indicate support for the use of payroll, the main issue is whether the union status of the employer, or its wage scale, has a material impact on the ability of the exposure base to predict loss exposure. In order to measure the predictive ability of the two exposure bases based on wage scale, the sample group of employers was separated into high

[3] First report is generally defined as 18 months subsequent to the inception of the policy.

wage and low wage groups. The low wage group consisted of the employers between the 10th percentile and the 50th percentile of the average hourly wage distribution of the sample group. Similarly, the high wage group consisted of those employers between the 50th and 90th percentile. The results are shown in Table II and Table III.

Table II
Massachusetts Workers' Compensation Advisory Council

High Wage Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.518	.837	.909
Employee Hours	.561	.800	.866

Table III
Massachusetts Workers' Compensation Advisory Council

Low Wage Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.365	.578	.618
Employee Hours	.276	.499	.567

These results suggest that for both high and low wage employers, payroll is a moderately better predictor of losses. The degree of difference in the correlations, though, does not indicate that either exposure base is substantially superior in predictive ability. Somewhat surprising is the fact that both exposure bases are better predictors for high wage employers than low wage employers. This may be due, in part, to the presence of a minimum weekly benefit that results in higher workers' compensation benefits than what an employee could earn in "net" wages. In Massachusetts, the minimum disability benefit is 20% of the statewide average weekly wage. If ⅔ of the employee's average weekly wage is less than this amount, there will be a lower

correlation as loss exposure remains constant until the employee's wages have exceeded the minimum benefit level.

In order to measure the impact of the union status of the employer, the sample group was separated into those employers that responded as being at least partially unionized, and those that responded as being completely non-union. Tables IV and V show the results.

Table IV
Massachusetts Workers' Compensation Advisory Council

Union Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.501	.804	.885
Employee Hours	.526	.692	.828

Table V
Massachusetts Workers' Compensation Advisory Council

Non-Union Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.401	.733	.782
Employee Hours	.459	.731	.771

The correlations indicate that payroll performs better than employee hours after the adjustments are made. It also appears that both exposure bases are better at predicting the loss exposure of union employers than non-union employers. If the assumption is made that union employers are typically high wage payers, these findings substantiate the findings of Tables II and III. It should be kept in mind that the sample of union employers consisted of only 96 survey respondents, while the sample of non-union employees consisted of 409 survey respondents.

Of special interest are the findings of Table IV. The argument typically made by the insurance industry and the rating bureaus is that any discrimination against union or high wage employers that exists in the manual rates would be compensated for by a lower experience modification factor. Table IV shows that the impact of the experience rating plan has a relatively larger impact on union employers (increasing the correlation by .136 for employee hours and .085 for payroll) than non-union employers (increases of .040 for employee hours and .051 for payroll). It should be noted that these results are based on experience modification factors calculated prior to the implementation of the revised experience rating plan. Thus, the increased responsiveness of the revised plan is not reflected in the data.

Some authors have suggested that a combination of payroll and employee hours may be the most accurate measure of an employer's loss exposure. Indemnity losses, the argument goes, are best measured by payroll since there is an inherent relationship between indemnity benefits and wage levels. Medical losses, which are not based on payroll or wages, are thought to be better measured by employee hours. In order to test these assumptions, losses were separated into medical and indemnity and correlated with the respective exposure bases. The results are shown in Table VI and Table VII.

Table VI
Massachusetts Workers' Compensation Advisory Council

Indemnity Losses — All Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.478	.776	.857
Employee Hours	.475	.680	.775

Table VII
Massachusetts Workers' Compensation Advisory Council

Medical Losses — All Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.492	.770	.789
Employee Hours	.507	.707	.754

The results do not necessarily support the use of separate exposure bases for medical and indemnity losses, but do add support to the argument that payroll is less effective in measuring medical losses. Table VII indicates less of a difference in the correlation for medical losses than for indemnity losses. In both cases, though, it appears that the accuracy of payroll is sufficiently high to warrant its continued use as a single exposure base. Note that this does not suggest that some combination of payroll and employee hours would not perform better than payroll.

The sample group was further separated into the categories of manufacturing, construction, and all other. This was possible from the industry group code provided by the WCRB. If the predominant classification of an employer is construction, for instance, the employer would be classified as industry group 2. Manufacturers are categorized as industry group 1, and all other classifications categorized as industry group 3. Tables VIII, IX, and X show the respective correlations for the various industry groups.

Table VIII
Massachusetts Workers' Compensation Advisory Council

Manufacturing Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.791	.843	.912
Employee Hours	.609	.669	.845

Table IX
Massachusetts Workers' Compensation Advisory Council

Construction Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.379	.475	.510
Employee Hours	.484	.452	.498

Table X
Massachusetts Workers' Compensation Advisory Council

All Other Employers

Correlation	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod. Adjustment
Payroll	.524	.812	.820
Employee Hours	.553	.792	.758

It appears that for manufacturing and all other employers, the use of payroll is an effective measure and leads to higher correlations than employee hours. For construction firms, however, there is a significant reduction in the effectiveness of either exposure base to measure loss exposure, with the difference in post-adjustment correlations being relatively minor (.012). This may be part of the reason as to why construction firms are the least inclined to the use of payroll as an exposure base. Prior to the adjustments, it does appear that the use of payroll for these employers is an effective measure of loss exposure. Employee hours, however, would appear to offer more predictive ability as the correlation of .484 is significantly higher than the correlation of .379 for payroll. The classification system and experience modification factor seem to correct for this disparity, with the post-adjustment correlations being extremely close.

Two additional facts are evident from Table IX. First, the lower correlation of payroll is corrected by the presence of the classification system and the experience modification factor, which increases the correlation from .379 to .510.

Secondly, it does not appear that either the classification system or the experience rating mechanism significantly improve the correlation of employee hours. This is somewhat surprising since these factors are intended to distinguish between differences in loss exposure regardless of the exposure base. These results suggest two possible explanations for the lower correlations of construction firms:

1. Construction firms may have more random variation in loss experience than other types of employers. A high variance in aggregate losses would lower the correlation measure, while a low variance would increase the correlation measure.

2. The loss experience of construction firms may be susceptible to factors not currently quantified by the rating system. Among these factors might be the level of employment within the construction industry or conversion to non-union employees.

While neither of these explanations can be proven in the current study, the low correlation for construction firms does indicate that accounting for other factors might lead to improvements in the correlation measure.

Within industry groups, there may be wide discrepancies in wage levels. In order to determine whether the wage scale within an industry affected the ability of the exposure base to measure loss potential, employers within each industry group were separated into high wage and low wage employers. The correlation results are shown in Tables XI, XII, and XIII.

Table XI
Massachusetts Workers' Compensation Advisory Council

Manufacturing Employers

	High Wage		Low Wage	
	Payroll	Employee Hours	Payroll	Employee Hours
Without Adjustment	.865	.845	.389	.263
Relativity Adjustment	.892	.837	.563	.439
Relativity and Exp. Mod. Adjustment	.951	.936	.628	.561

Table XII
Massachusetts Workers' Compensation Advisory Council

Construction Employers

	High Wage		Low Wage	
	Payroll	Employee Hours	Payroll	Employee Hours
Without Adjustment	.592	.641	.515	.575
Relativity Adjustment	.841	.780	.070	.023
Relativity and Exp. Mod. Adjustment	.860	.806	.161	.147

Table XIII
Massachusetts Workers' Compensation Advisory Council

All Other Employers

	High Wage		Low Wage	
	Payroll	Employee Hours	Payroll	Employee Hours
Without Adjustment	.564	.606	.401	.344
Relativity Adjustment	.841	.832	.731	.694
Relativity and Exp. Mod. Adjustment	.846	.795	.736	.681

These results indicate that payroll and employee hours are especially good indicators of loss potential for high wage employers, regardless of the industry group. Neither payroll nor employee hours provides the same level of accuracy for low wage employers. Most of the debate regarding exposure bases in workers' compensation has focused on high wage employers. The data used for this study indicate that both exposure bases provide a high level of accuracy for high wage employers, yet both exposure bases provide a lower level of accuracy for low wage employers.

The results of Table XII must be interpreted with caution. The sample size of the construction group was smaller than the other industry groups, and thus the results taken by themselves do not have a high degree of statistical significance. However, the same analysis for policy year 1990 (discussed below) shows similar results. Unionized and high wage construction firms have

high correlations for both exposure bases and low (or negative) correlations for low wage and non-union construction firms.

The data presented thus far consist of payroll and loss information for policy 1991 at first report. In order to test whether the results are consistent across policy years, a similar analysis was prepared for policy year 1990 at second report, which is 30 months subsequent to the inception of a policy. The results are shown in Appendix II and correspond closely with the results obtained for policy year 1991.

Although individual policy data cannot be shown, the aggregate characteristics of the sample groups that underlie the correlation measures for 1991 and 1990 are shown in Appendix II and III. Significance levels (p-values) and the t-statistics for which they were calculated are shown in Appendix IV. A two-sided t-test indicates that most of the correlations have a high degree of statistical significance for the hypothesis that the correlations are different from zero.

SECTION VIII

REFERENCES

REFERENCES

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APPENDIX I

SURVEY FORM

MASSACHUSETTS WORKERS' COMPENSATION
ADVISORY COUNCIL
600 WASHINGTON STREET
BOSTON, MASSACHUSETTS 02111
(617) 727-4900 EXT. 378

JEANNE-MARIE BOYLAN
CHAIRMAN
EDWARD SULLIVAN, JR.
VICE-CHAIRMAN

MATTHEW A. CHAFE
EXECUTIVE DIRECTOR

April 1, 1994

Workers' Comp Advisory Council
600 Washington St.
Boston MA 02111

Dear Sir/Madam:

The Workers' Compensation Advisory Council is an appointed public body charged with monitoring and reporting on all aspects of the workers' compensation system. We are concerned about the cost and availability of workers' compensation insurance.

Currently, we are performing a study to examine the rating methodology for workers' compensation insurance in the Commonwealth of Massachusetts in order to determine appropriate and fair premiums. We have asked an independent consulting firm to complete this study by collecting certain information from companies that purchase workers' compensation policies.

Enclosed is a survey form that requests certain data regarding the number of employees and the average number of hours they worked over a five year period. The survey is very brief and will only take a few minutes to fill out. After you have completed the survey, please mail it in the enclosed self-addressed, stamped envelope.

Any identifiable employer information provided will be kept confidential. Your cooperation in this matter will be greatly appreciated and a prompt response will contribute to the success of the study.

Thank you for your participation. If you have any questions, you may feel free to contact Ann Cariglia at (617) 237-3900.

MAC/ac
enc. 9999

WORKERS' COMPENSATION ADVISORY COUNCIL SURVEY

Company Name: _____
Address: _____
_____

Contact Person: _____
Telephone: _____

---

1. Number of full time employees:

1991: _____
1990: _____
1989: _____
1988: _____
1987: _____

2. Number of part time employees:

1991: _____
1990: _____
1989: _____
1988: _____
1987: _____

* A full time employee may be either an hourly or salaried employee that worked any portion of a year. This includes employees who terminated, retired, or became disabled during the year.

3. Average number of hours worked per week for full time employees (include overtime):

1991: _____
1990: _____
1989: _____
1988: _____
1987: _____

4. Average number of hours worked per week for part time employees:

1991: _____
1990: _____
1989: _____
1988: _____
1987: _____

* Average number of hours worked per week is the number of hours for which an employee receives compensation. This includes both hourly and salaried employees.

5. Does your workforce include any union employees in the following years?

	Yes	No	Approximate % of Workforce Unionized
1991:	_____	_____	_____
1990:	_____	_____	_____
1989:	_____	_____	_____
1988:	_____	_____	_____
1987:	_____	_____	_____

* Approximate percentage of workforce that is unionized is the percentage of all employees, both hourly and salaried, both full and part time, who belong to a union.

Thank you for cooperating in our survey.

PLEASE RETURN THIS IN THE ENCLOSED ENVELOPE, OR FAX YOUR RESPONSE TO (617) 235-0311 BY APRIL 22, 1994.

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APPENDIX II

CORRELATION MEASURES AND SAMPLE STATISTICS — 1990

Results of 1990 Correlation

Total Group

Loss/ $100 of Payroll	
Mean	2.504
Median	0.481
Mode	0.000
Standard Deviation	5.054
Kurtosis	18.466
Skewness	3.818
Count	502.000
Coefficent of Variation	2.018
Correlation	0.467
T-Value	11.802

Loss/ 100 Hours	
Mean	28.972
Median	5.196
Mode	0.000
Standard Deviation	64.775
Kurtosis	28.607
Skewness	4.652
Count	502.000
Coefficent of Variation	2.236
Correlation	0.398
T-Value	9.696

Loss/ [$100 of Payroll x Relativity]	
Mean	0.246
Median	0.060
Mode	0.000
Standard Deviation	0.428
Kurtosis	11.621
Skewness	3.031
Count	502.000
Average Relativity	9.851
Coefficent of Variation	1.739
Correlation	0.792
T-Value	28.973

Loss/ [100 Hours x Relativity]	
Mean	2.863
Median	0.616
Mode	0.000
Standard Deviation	5.438
Kurtosis	16.360
Skewness	3.604
Count	502.000
Average Relativity	9.851
Coefficent of Variation	1.900
Correlation	0.654
T-Value	19.343

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.255
Median	0.064
Mode	0.000
Standard Deviation	0.453
Kurtosis	13.063
Skewness	3.218
Count	502.000
Average Relativity	9.851
Avg. Experience Mod. Factor	0.967
Coefficent of Variation	1.779
Correlation	0.853
T-Value	36.546

Loss/ [100 Hours x Relativity x Mod]	
Mean	3.014
Median	0.662
Mode	0.000
Standard Deviation	6.027
Kurtosis	21.197
Skewness	4.083
Count	502.000
Average Relativity	9.851
Avg. Experience Mod. Factor	0.967
Coefficent of Variation	2.000
Correlation	0.718
T-Value	23.053

Results of 1990 Correlation

High Wage Employers

Loss/ $100 of Payroll	
Mean	2.242
Median	0.303
Mode	0.000
Standard Deviation	5.308
Kurtosis	24.159
Skewness	4.453
Count	251.000
Coefficent of Variation	2.367
Correlation	0.500
T-Value	9.118

Loss/ 100 Hours	
Mean	33.778
Median	4.109
Mode	0.000
Standard Deviation	80.558
Kurtosis	21.543
Skewness	4.235
Count	251.000
Coefficent of Variation	2.385
Correlation	0.519
T-Value	9.568

Loss/ [$100 of Payroll x Relativity]	
Mean	0.226
Median	0.037
Mode	0.000
Standard Deviation	0.434
Kurtosis	14.393
Skewness	3.366
Count	251.000
Average Relativity	8.518
Coefficent of Variation	1.916
Correlation	0.810
T-Value	21.788

Loss/ [100 Hours x Relativity]	
Mean	3.439
Median	0.596
Mode	0.000
Standard Deviation	6.682
Kurtosis	11.742
Skewness	3.198
Count	251.000
Average Relativity	8.518
Coefficent of Variation	1.943
Correlation	0.754
T-Value	18.092

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.243
Median	0.047
Mode	0.000
Standard Deviation	0.477
Kurtosis	15.136
Skewness	3.502
Count	251.000
Average Relativity	8.518
Avg. Experience Mod. Factor	0.937
Coefficent of Variation	1.962
Correlation	0.879
T-Value	29.055

Loss/ [100 Hours x Relativity x Mod]	
Mean	3.732
Median	0.652
Mode	0.000
Standard Deviation	7.548
Kurtosis	14.472
Skewness	3.528
Count	251.000
Average Relativity	8.518
Avg. Experience Mod. Factor	0.937
Coefficent of Variation	2.022
Correlation	0.812
T-Value	21.938

Results of 1990 Correlation

Low Wage Employers

Loss/ $100 of Payroll	
Mean	2.766
Median	0.774
Mode	0.000
Standard Deviation	4.783
Kurtosis	10.674
Skewness	3.014
Count	251.000
Coefficent of Variation	1.729
Correlation	0.235
T-Value	3.812

Loss/ 100 Hours	
Mean	24.167
Median	5.841
Mode	0.000
Standard Deviation	43.271
Kurtosis	12.575
Skewness	3.243
Count	251.000
Coefficent of Variation	1.790
Correlation	0.234
T-Value	3.795

Loss/ [$100 of Payroll x Relativity]	
Mean	0.266
Median	0.078
Mode	0.000
Standard Deviation	0.422
Kurtosis	9.067
Skewness	2.713
Count	251.000
Average Relativity	11.184
Coefficent of Variation	1.588
Correlation	0.628
T-Value	12.740

Loss/ [100 Hours x Relativity]	
Mean	2.286
Median	0.650
Mode	0.000
Standard Deviation	3.735
Kurtosis	11.997
Skewness	3.041
Count	251.000
Average Relativity	11.184
Coefficent of Variation	1.633
Correlation	0.535
T-Value	9.990

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.266
Median	0.091
Mode	0.000
Standard Deviation	0.428
Kurtosis	9.988
Skewness	2.840
Count	251.000
Average Relativity	11.184
Avg. Experience Mod. Factor	0.997
Coefficent of Variation	1.608
Correlation	0.637
T-Value	13.027

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.295
Median	0.793
Mode	0.000
Standard Deviation	3.846
Kurtosis	14.685
Skewness	3.334
Count	251.000
Average Relativity	11.184
Avg. Experience Mod. Factor	0.997
Coefficent of Variation	1.676
Correlation	0.567
T-Value	10.861

Results of 1990 Correlation

Union

Loss/ $100 of Payroll	
Mean	4.739
Median	1.477
Mode	0.000
Standard Deviation	7.260
Kurtosis	8.684
Skewness	2.663
Count	104.000
Coefficent of Variation	1.532
Correlation	0.507
T-Value	5.996

Loss/ 100 Hours	
Mean	61.979
Median	18.437
Mode	0.000
Standard Deviation	105.353
Kurtosis	10.995
Skewness	3.016
Count	104.000
Coefficent of Variation	1.700
Correlation	0.501
T-Value	5.900

Loss/ [$100 of Payroll x Relativity]	
Mean	0.302
Median	0.131
Mode	0.000
Standard Deviation	0.398
Kurtosis	4.608
Skewness	2.106
Count	104.000
Average Relativity	13.957
Coefficent of Variation	1.320
Correlation	0.821
T-Value	14.667

Loss/ [100 Hours x Relativity]	
Mean	3.952
Median	1.495
Mode	0.000
Standard Deviation	5.677
Kurtosis	7.815
Skewness	2.523
Count	104.000
Average Relativity	13.957
Coefficent of Variation	1.437
Correlation	0.679
T-Value	9.422

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.316
Median	0.129
Mode	0.000
Standard Deviation	0.415
Kurtosis	4.904
Skewness	2.130
Count	104.000
Average Relativity	13.957
Avg. Experience Mod. Factor	0.991
Coefficent of Variation	1.313
Correlation	0.891
T-Value	20.028

Loss/ [100 Hours x Relativity x Mod]	
Mean	4.251
Median	1.739
Mode	0.000
Standard Deviation	6.414
Kurtosis	11.902
Skewness	2.998
Count	104.000
Average Relativity	13.957
Avg. Experience Mod. Factor	0.991
Coefficent of Variation	1.509
Correlation	0.764
T-Value	12.082

Results of 1990 Correlation

Non-Union

Loss/ $100 of Payroll	
Mean	1.924
Median	0.316
Mode	0.000
Standard Deviation	4.144
Kurtosis	23.662
Skewness	4.331
Count	377.000
Coefficent of Variation	2.154
Correlation	0.291
T-Value	5.881

Loss/ 100 Hours	
Mean	20.602
Median	3.658
Mode	0.000
Standard Deviation	46.086
Kurtosis	31.669
Skewness	4.849
Count	377.000
Coefficent of Variation	2.237
Correlation	0.313
T-Value	6.373

Loss/ [$100 of Payroll x Relativity]	
Mean	0.235
Median	0.037
Mode	0.000
Standard Deviation	0.444
Kurtosis	12.699
Skewness	3.207
Count	377.000
Average Relativity	8.709
Coefficent of Variation	1.886
Correlation	0.681
T-Value	17.999

Loss/ [100 Hours x Relativity]	
Mean	2.634
Median	0.487
Mode	0.000
Standard Deviation	5.468
Kurtosis	18.980
Skewness	3.917
Count	377.000
Average Relativity	8.709
Coefficent of Variation	2.076
Correlation	0.651
T-Value	16.592

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.243
Median	0.044
Mode	0.000
Standard Deviation	0.472
Kurtosis	14.087
Skewness	3.398
Count	377.000
Average Relativity	8.709
Avg. Experience Mod. Factor	0.961
Coefficent of Variation	1.940
Correlation	0.741
T-Value	21.372

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.756
Median	0.550
Mode	0.000
Standard Deviation	6.028
Kurtosis	24.160
Skewness	4.406
Count	377.000
Average Relativity	8.709
Avg. Experience Mod. Factor	0.961
Coefficent of Variation	2.187
Correlation	0.713
T-Value	19.704

Results of 1990 Correlation

Indemnity Losses
All Employers

Loss/ $100 of Payroll	
Mean	1.880
Median	0.191
Mode	0.000
Standard Deviation	5.054
Kurtosis	18.466
Skewness	3.818
Count	502.000
Coefficent of Variation	2.688
Correlation	0.449
T-Value	11.233

Loss/ 100 Hours	
Mean	28.871
Median	2.223
Mode	0.000
Standard Deviation	52.354
Kurtosis	34.348
Skewness	4.979
Count	502.000
Coefficent of Variation	2.394
Correlation	0.381
T-Value	9.213

Loss/ [$100 of Payroll x Relativity]	
Mean	0.178
Median	0.025
Mode	0.000
Standard Deviation	0.329
Kurtosis	10.582
Skewness	2.971
Count	502.000
Average Relativity	9.851
Coefficent of Variation	1.851
Correlation	0.774
T-Value	27.347

Loss/ [100 Hours x Relativity]	
Mean	2.088
Median	0.292
Mode	0.000
Standard Deviation	4.297
Kurtosis	17.704
Skewness	3.757
Count	502.000
Average Relativity	9.851
Coefficent of Variation	2.058
Correlation	0.637
T-Value	18.488

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.184
Median	0.030
Mode	0.000
Standard Deviation	0.350
Kurtosis	12.580
Skewness	3.200
Count	502.000
Average Relativity	9.851
Avg. Experience Mod. Factor	0.967
Coefficent of Variation	1.898
Correlation	0.843
T-Value	35.031

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.202
Median	0.321
Mode	0.000
Standard Deviation	4.781
Kurtosis	23.857
Skewness	4.308
Count	502.000
Average Relativity	9.851
Avg. Experience Mod. Factor	0.967
Coefficent of Variation	2.171
Correlation	0.705
T-Value	22.242

Results of 1990 Correlation

Medical Losses
All Employers

Loss/ $100 of Payroll	
Mean	0.624
Median	0.195
Mode	0.000
Standard Deviation	1.197
Kurtosis	43.130
Skewness	5.353
Count	502.000
Coefficent of Variation	1.919
Correlation	0.500
T-Value	12.922

Loss/ 100 Hours	
Mean	7.101
Median	2.072
Mode	0.000
Standard Deviation	14.999
Kurtosis	60.617
Skewness	6.278
Count	502.000
Coefficent of Variation	2.112
Correlation	0.433
T-Value	10.737

Loss/ [$100 of Payroll x Relativity]	
Mean	0.068
Median	0.025
Mode	0.000
Standard Deviation	0.122
Kurtosis	22.959
Skewness	4.117
Count	502.000
Average Relativity	9.851
Coefficent of Variation	1.785
Correlation	0.798
T-Value	29.641

Loss/ [100 Hours x Relativity]	
Mean	0.775
Median	0.269
Mode	0.000
Standard Deviation	1.407
Kurtosis	18.628
Skewness	3.870
Count	502.000
Average Relativity	9.851
Coefficent of Variation	1.816
Correlation	0.670
T-Value	20.167

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.070
Median	0.027
Mode	0.000
Standard Deviation	0.127
Kurtosis	23.390
Skewness	4.208
Count	502.000
Average Relativity	9.851
Avg. Experience Mod. Factor	0.967
Coefficent of Variation	1.806
Correlation	0.826
T-Value	32.749

Loss/ [100 Hours x Relativity x Mod]	
Mean	0.812
Median	0.291
Mode	0.000
Standard Deviation	1.513
Kurtosis	18.924
Skewness	3.962
Count	502.000
Average Relativity	9.851
Avg. Experience Mod. Factor	0.967
Coefficent of Variation	1.864
Correlation	0.711
T-Value	22.605

Results of 1990 Correlation

Manufacturing Employers

Loss/ $100 of Payroll	
Mean	2.949
Median	0.885
Mode	0.000
Standard Deviation	5.008
Kurtosis	13.175
Skewness	3.190
Count	177.000
Coefficent of Variation	1.698
Correlation	0.811
T-Value	18.330

Loss/ 100 Hours	
Mean	34.622
Median	9.393
Mode	0.000
Standard Deviation	64.232
Kurtosis	14.845
Skewness	3.474
Count	177.000
Coefficent of Variation	1.855
Correlation	0.565
T-Value	9.052

Loss/ [$100 of Payroll x Relativity]	
Mean	0.252
Median	0.087
Mode	0.000
Standard Deviation	0.422
Kurtosis	18.602
Skewness	3.660
Count	177.000
Average Relativity	11.872
Coefficent of Variation	1.678
Correlation	0.851
T-Value	21.433

Loss/ [100 Hours x Relativity]	
Mean	2.950
Median	0.936
Mode	0.000
Standard Deviation	5.487
Kurtosis	21.252
Skewness	4.047
Count	177.000
Average Relativity	11.872
Coefficent of Variation	1.860
Correlation	0.640
T-Value	11.017

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.256
Median	0.087
Mode	0.000
Standard Deviation	0.448
Kurtosis	21.678
Skewness	3.993
Count	177.000
Average Relativity	11.872
Avg. Experience Mod. Factor	0.994
Coefficent of Variation	1.754
Correlation	0.890
T-Value	25.785

Loss/ [100 Hours x Relativity x Mod]	
Mean	3.204
Median	0.953
Mode	0.000
Standard Deviation	6.025
Kurtosis	25.203
Skewness	4.504
Count	177.000
Average Relativity	11.872
Avg. Experience Mod. Factor	0.994
Coefficent of Variation	1.993
Correlation	0.754
T-Value	15.193

Results of 1990 Correlation

Construction Employers

Loss/ $100 of Payroll	
Mean	8.036
Median	0.792
Mode	0.000
Standard Deviation	12.888
Kurtosis	1.800
Skewness	1.703
Count	20.000
Coefficent of Variation	1.604
Correlation	0.767
T-Value	5.074

Loss/ 100 Hours	
Mean	100.263
Median	9.646
Mode	0.000
Standard Deviation	182.232
Kurtosis	3.852
Skewness	2.152
Count	20.000
Coefficent of Variation	1.818
Correlation	0.433
T-Value	2.038

Loss/ [$100 of Payroll x Relativity]	
Mean	0.310
Median	0.052
Mode	0.000
Standard Deviation	0.484
Kurtosis	2.030
Skewness	1.764
Count	20.000
Average Relativity	20.490
Coefficent of Variation	1.558
Correlation	0.837
T-Value	6.490

Loss/ [100 Hours x Relativity]	
Mean	3.728
Median	0.673
Mode	0.000
Standard Deviation	6.360
Kurtosis	3.800
Skewness	2.108
Count	20.000
Average Relativity	20.490
Coefficent of Variation	1.706
Correlation	0.731
T-Value	4.542

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.312
Median	0.050
Mode	0.000
Standard Deviation	0.485
Kurtosis	3.005
Skewness	1.898
Count	20.000
Average Relativity	20.490
Avg. Experience Mod. Factor	0.984
Coefficent of Variation	1.552
Correlation	0.866
T-Value	7.332

Loss/ [100 Hours x Relativity x Mod]	
Mean	3.755
Median	0.637
Mode	0.000
Standard Deviation	6.502
Kurtosis	6.338
Skewness	2.445
Count	20.000
Average Relativity	20.490
Avg. Experience Mod. Factor	0.984
Coefficent of Variation	1.732
Correlation	0.707
T-Value	4.241

Results of 1990 Correlation

All Other Employers

Loss/ $100 of Payroll	
Mean	1.883
Median	0.279
Mode	0.000
Standard Deviation	3.831
Kurtosis	15.591
Skewness	3.566
Count	305.000
Coefficent of Variation	2.034
Correlation	0.517
T-Value	10.522

Loss/ 100 Hours	
Mean	21.019
Median	2.951
Mode	0.000
Standard Deviation	45.102
Kurtosis	18.987
Skewness	3.912
Count	305.000
Coefficent of Variation	2.146
Correlation	0.455
T-Value	8.897

Loss/ [$100 of Payroll x Relativity]	
Mean	0.238
Median	0.040
Mode	0.000
Standard Deviation	0.428
Kurtosis	9.075
Skewness	2.821
Count	305.000
Average Relativity	7.980
Coefficent of Variation	1.796
Correlation	0.841
T-Value	27.039

Loss/ [100 Hours x Relativity]	
Mean	2.756
Median	0.521
Mode	0.000
Standard Deviation	5.359
Kurtosis	15.156
Skewness	3.508
Count	305.000
Average Relativity	7.980
Coefficent of Variation	1.945
Correlation	0.747
T-Value	19.535

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.250
Median	0.049
Mode	0.000
Standard Deviation	0.455
Kurtosis	9.544
Skewness	2.916
Count	305.000
Average Relativity	7.980
Avg. Experience Mod. Factor	0.950
Coefficent of Variation	1.817
Correlation	0.828
T-Value	25.672

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.959
Median	0.556
Mode	0.000
Standard Deviation	6.014
Kurtosis	20.703
Skewness	4.003
Count	305.000
Average Relativity	7.980
Avg. Experience Mod. Factor	0.950
Coefficent of Variation	2.032
Correlation	0.711
T-Value	17.584

Results of 1990 Correlation

Manufacturing Employers -- High Wage

Loss/ $100 of Payroll	
Mean	2.927
Median	0.706
Mode	0.000
Standard Deviation	5.559
Kurtosis	15.345
Skewness	3.503
Count	79.000
Coefficent of Variation	1.899
Correlation	0.908
T-Value	19.008

Loss/ 100 Hours	
Mean	42.822
Median	9.613
Mode	0.000
Standard Deviation	81.906
Kurtosis	10.272
Skewness	3.058
Count	79.000
Coefficent of Variation	1.913
Correlation	0.844
T-Value	13.824

Loss/ [$100 of Payroll x Relativity]	
Mean	0.259
Median	0.074
Mode	0.000
Standard Deviation	0.501
Kurtosis	18.362
Skewness	3.825
Count	79.000
Average Relativity	11.473
Coefficent of Variation	1.932
Correlation	0.880
T-Value	16.258

Loss/ [100 Hours x Relativity]	
Mean	3.747
Median	1.013
Mode	0.000
Standard Deviation	7.172
Kurtosis	13.769
Skewness	3.434
Count	79.000
Average Relativity	11.473
Coefficent of Variation	1.914
Correlation	0.784
T-Value	11.085

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.278
Median	0.069
Mode	0.000
Standard Deviation	0.549
Kurtosis	18.115
Skewness	3.831
Count	79.000
Average Relativity	11.473
Avg. Experience Mod. Factor	0.942
Coefficent of Variation	1.975
Correlation	0.924
T-Value	21.220

Loss/ [100 Hours x Relativity x Mod]	
Mean	4.019
Median	1.092
Mode	0.000
Standard Deviation	8.016
Kurtosis	14.957
Skewness	3.625
Count	79.000
Average Relativity	11.473
Avg. Experience Mod. Factor	0.942
Coefficent of Variation	1.995
Correlation	0.894
T-Value	17.527

Results of 1990 Correlation

Manufacturing Employers -- Low Wage

Loss/ $100 of Payroll	
Mean	2.967
Median	1.125
Mode	0.000
Standard Deviation	4.546
Kurtosis	8.865
Skewness	2.695
Count	98.000
Coefficent of Variation	1.532
Correlation	0.432
T-Value	4.692

Loss/ 100 Hours	
Mean	28.012
Median	9.225
Mode	0.000
Standard Deviation	44.637
Kurtosis	9.217
Skewness	2.769
Count	98.000
Coefficent of Variation	1.593
Correlation	0.367
T-Value	3.869

Loss/ [$100 of Payroll x Relativity]	
Mean	0.245
Median	0.099
Mode	0.000
Standard Deviation	0.349
Kurtosis	10.601
Skewness	2.765
Count	98.000
Average Relativity	12.193
Coefficent of Variation	1.420
Correlation	0.700
T-Value	9.594

Loss/ [100 Hours x Relativity]	
Mean	2.307
Median	0.912
Mode	0.000
Standard Deviation	3.512
Kurtosis	13.337
Skewness	3.094
Count	98.000
Average Relativity	12.193
Coefficent of Variation	1.522
Correlation	0.585
T-Value	7.068

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.238
Median	0.099
Mode	0.000
Standard Deviation	0.349
Kurtosis	17.054
Skewness	3.347
Count	98.000
Average Relativity	12.193
Avg. Experience Mod. Factor	1.035
Coefficent of Variation	1.467
Correlation	0.646
T-Value	8.289

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.222
Median	0.931
Mode	0.000
Standard Deviation	3.569
Kurtosis	23.894
Skewness	4.036
Count	98.000
Average Relativity	12.193
Avg. Experience Mod. Factor	1.035
Coefficent of Variation	1.607
Correlation	0.584
T-Value	7.049

Results of 1990 Correlation

Construction Employers -- High Wage

Loss/ $100 of Payroll	
Mean	8.072
Median	0.607
Mode	N/A
Standard Deviation	14.951
Kurtosis	1.747
Skewness	1.773
Count	12.000
Coefficent of Variation	1.852
Correlation	0.802
T-Value	4.245

Loss/ 100 Hours	
Mean	121.762
Median	7.994
Mode	N/A
Standard Deviation	225.721
Kurtosis	1.688
Skewness	1.754
Count	12.000
Coefficent of Variation	1.854
Correlation	0.788
T-Value	4.053

Loss/ [$100 of Payroll x Relativity]	
Mean	0.275
Median	0.043
Mode	N/A
Standard Deviation	0.496
Kurtosis	3.037
Skewness	1.992
Count	12.000
Average Relativity	19.559
Coefficent of Variation	1.804
Correlation	0.839
T-Value	4.886

Loss/ [100 Hours x Relativity]	
Mean	4.131
Median	0.573
Mode	N/A
Standard Deviation	7.508
Kurtosis	3.053
Skewness	1.986
Count	12.000
Average Relativity	19.559
Coefficent of Variation	1.817
Correlation	0.843
T-Value	4.961

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.276
Median	0.044
Mode	N/A
Standard Deviation	0.516
Kurtosis	5.205
Skewness	2.308
Count	12.000
Average Relativity	19.559
Avg. Experience Mod. Factor	0.997
Coefficent of Variation	1.869
Correlation	0.878
T-Value	5.792

Loss/ [100 Hours x Relativity x Mod]	
Mean	4.155
Median	0.590
Mode	N/A
Standard Deviation	7.832
Kurtosis	5.210
Skewness	2.303
Count	12.000
Average Relativity	19.599
Avg. Experience Mod. Factor	0.997
Coefficent of Variation	1.885
Correlation	0.882
T-Value	5.910

Results of 1990 Correlation

Construction Employers -- Low Wage

Loss/ $100 of Payroll	
Mean	7.982
Median	4.996
Mode	N/A
Standard Deviation	9.981
Kurtosis	2.036
Skewness	1.513
Count	8.000
Coefficent of Variation	1.250
Correlation	-0.172
T-Value	0.427

Loss/ 100 Hours	
Mean	68.015
Median	49.392
Mode	N/A
Standard Deviation	89.960
Kurtosis	3.970
Skewness	1.896
Count	8.000
Coefficent of Variation	1.323
Correlation	-0.268
T-Value	0.682

Loss/ [$100 of Payroll x Relativity]	
Mean	0.363
Median	0.215
Mode	N/A
Standard Deviation	0.492
Kurtosis	3.895
Skewness	1.910
Count	8.000
Average Relativity	21.887
Coefficent of Variation	1.355
Correlation	-0.034
T-Value	0.084

Loss/ [100 Hours x Relativity]	
Mean	3.124
Median	2.094
Mode	N/A
Standard Deviation	4.531
Kurtosis	5.415
Skewness	2.224
Count	8.000
Average Relativity	21.887
Coefficent of Variation	1.451
Correlation	-0.188
T-Value	0.468

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.366
Median	0.278
Mode	N/A
Standard Deviation	0.461
Kurtosis	2.757
Skewness	1.658
Count	8.000
Average Relativity	21.887
Avg. Experience Mod. Factor	0.965
Coefficent of Variation	1.261
Correlation	0.055
T-Value	0.135

Loss/ [100 Hours x Relativity x Mod]	
Mean	3.154
Median	2.453
Mode	N/A
Standard Deviation	4.207
Kurtosis	4.378
Skewness	1.976
Count	8.000
Average Relativity	21.887
Avg. Experience Mod. Factor	0.965
Coefficent of Variation	1.334
Correlation	-0.101
T-Value	0.248

Results of 1990 Correlation

All Other Employers -- High Wage

Loss/ $100 of Payroll	
Mean	1.467
Median	0.123
Mode	0.000
Standard Deviation	3.207
Kurtosis	15.665
Skewness	3.609
Count	160.000
Coefficent of Variation	2.186
Correlation	0.569
T-Value	8.706

Loss/ 100 Hours	
Mean	22.713
Median	1.658
Mode	0.000
Standard Deviation	51.380
Kurtosis	17.009
Skewness	3.766
Count	160.000
Coefficent of Variation	2.262
Correlation	0.604
T-Value	9.537

Loss/ [$100 of Payroll x Relativity]	
Mean	0.206
Median	0.033
Mode	0.000
Standard Deviation	0.393
Kurtosis	9.742
Skewness	2.981
Count	160.000
Average Relativity	6.230
Coefficent of Variation	1.904
Correlation	0.878
T-Value	23.049

Loss/ [100 Hours x Relativity]	
Mean	3.235
Median	0.449
Mode	0.000
Standard Deviation	6.399
Kurtosis	11.679
Skewness	3.199
Count	160.000
Average Relativity	6.230
Coefficent of Variation	1.978
Correlation	0.852
T-Value	20.495

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.224
Median	0.035
Mode	0.000
Standard Deviation	0.437
Kurtosis	11.767
Skewness	3.237
Count	160.000
Average Relativity	6.230
Avg. Experience Mod. Factor	0.929
Coefficent of Variation	1.953
Correlation	0.853
T-Value	20.542

Loss/ [100 Hours x Relativity x Mod]	
Mean	3.559
Median	0.534
Mode	0.000
Standard Deviation	7.329
Kurtosis	15.560
Skewness	3.614
Count	160.000
Average Relativity	6.230
Avg. Experience Mod. Factor	0.929
Coefficent of Variation	2.059
Correlation	0.772
T-Value	15.249

Results of 1990 Correlation

All Other Employers -- Low Wage

Loss/ $100 of Payroll	
Mean	2.343
Median	0.534
Mode	0.000
Standard Deviation	4.385
Kurtosis	13.480
Skewness	3.349
Count	145.000
Coefficent of Variation	1.872
Correlation	0.134
T-Value	1.613

Loss/ 100 Hours	
Mean	19.149
Median	4.186
Mode	0.000
Standard Deviation	37.051
Kurtosis	17.643
Skewness	3.758
Count	145.000
Coefficent of Variation	1.935
Correlation	0.146
T-Value	1.763

Loss/ [$100 of Payroll x Relativity]	
Mean	0.274
Median	0.068
Mode	0.000
Standard Deviation	0.463
Kurtosis	8.371
Skewness	2.668
Count	145.000
Average Relativity	9.911
Coefficent of Variation	1.691
Correlation	0.425
T-Value	5.620

Loss/ [100 Hours x Relativity]	
Mean	2.226
Median	0.541
Mode	0.000
Standard Deviation	3.855
Kurtosis	12.465
Skewness	3.122
Count	145.000
Average Relativity	9.911
Coefficent of Variation	1.732
Correlation	0.376
T-Value	4.860

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.280
Median	0.083
Mode	0.000
Standard Deviation	0.474
Kurtosis	8.044
Skewness	2.656
Count	145.000
Average Relativity	9.911
Avg. Experience Mod. Factor	0.974
Coefficent of Variation	1.693
Correlation	0.553
T-Value	7.943

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.297
Median	0.633
Mode	0.000
Standard Deviation	4.023
Kurtosis	11.847
Skewness	3.108
Count	145.000
Average Relativity	9.911
Avg. Experience Mod. Factor	0.974
Coefficent of Variation	1.751
Correlation	0.506
T-Value	7.015

Results of 1990 Correlation

Manufacturing Employers -- Union

Loss/ $100 of Payroll	
Mean	5.674
Median	2.720
Mode	N/A
Standard Deviation	6.718
Kurtosis	1.218
Skewness	1.408
Count	45.000
Coefficent of Variation	1.184
Correlation	0.942
T-Value	18.482

Loss/ 100 Hours	
Mean	70.957
Median	27.312
Mode	N/A
Standard Deviation	90.105
Kurtosis	1.337
Skewness	1.494
Count	45.000
Coefficent of Variation	1.270
Correlation	0.855
T-Value	10.823

Loss/ [$100 of Payroll x Relativity]	
Mean	0.344
Median	0.169
Mode	N/A
Standard Deviation	0.440
Kurtosis	4.298
Skewness	2.071
Count	45.000
Average Relativity	15.981
Coefficent of Variation	1.281
Correlation	0.902
T-Value	13.723

Loss/ [100 Hours x Relativity]	
Mean	4.418
Median	1.819
Mode	N/A
Standard Deviation	6.529
Kurtosis	8.582
Skewness	2.714
Count	45.000
Average Relativity	15.981
Coefficent of Variation	1.478
Correlation	0.654
T-Value	5.662

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.354
Median	0.166
Mode	N/A
Standard Deviation	0.462
Kurtosis	4.538
Skewness	2.092
Count	45.000
Average Relativity	15.981
Avg. Experience Mod. Factor	1.047
Coefficent of Variation	1.306
Correlation	0.904
T-Value	13.904

Loss/ [100 Hours x Relativity x Mod]	
Mean	4.619
Median	1.966
Mode	N/A
Standard Deviation	7.495
Kurtosis	13.216
Skewness	3.305
Count	45.000
Average Relativity	15.981
Avg. Experience Mod. Factor	1.047
Coefficent of Variation	1.623
Correlation	0.780
T-Value	8.169

Results of 1990 Correlation

Manufacturing Employers – Non-Union

Loss/ $100 of Payroll	
Mean	2.056
Median	0.533
Mode	0.000
Standard Deviation	3.939
Kurtosis	39.349
Skewness	5.246
Count	128.000
Coefficent of Variation	1.916
Correlation	0.389
T-Value	4.742

Loss/ 100 Hours	
Mean	22.688
Median	6.635
Mode	0.000
Standard Deviation	47.617
Kurtosis	52.252
Skewness	6.206
Count	128.000
Coefficent of Variation	2.099
Correlation	0.395
T-Value	4.820

Loss/ [$100 of Payroll x Relativity]	
Mean	0.225
Median	0.062
Mode	0.000
Standard Deviation	0.418
Kurtosis	25.859
Skewness	4.366
Count	128.000
Average Relativity	10.425
Coefficent of Variation	1.862
Correlation	0.430
T-Value	5.346

Loss/ [100 Hours x Relativity]	
Mean	2.504
Median	0.674
Mode	0.000
Standard Deviation	5.080
Kurtosis	32.283
Skewness	4.918
Count	128.000
Average Relativity	10.425
Coefficent of Variation	2.029
Correlation	0.491
T-Value	6.329

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.227
Median	0.064
Mode	0.000
Standard Deviation	0.447
Kurtosis	29.894
Skewness	4.803
Count	128.000
Average Relativity	10.425
Avg. Experience Mod. Factor	0.979
Coefficent of Variation	1.972
Correlation	0.566
T-Value	7.703

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.533
Median	0.805
Mode	0.000
Standard Deviation	5.433
Kurtosis	36.102
Skewness	5.312
Count	128.000
Average Relativity	10.425
Avg. Experience Mod. Factor	0.979
Coefficent of Variation	2.145
Correlation	0.551
T-Value	7.414

Results of 1990 Correlation

Construction Employers -- Union

Loss/ $100 of Payroll	
Mean	10.790
Median	2.819
Mode	N/A
Standard Deviation	15.552
Kurtosis	0.552
Skewness	1.402
Count	10.000
Coefficent of Variation	1.441
Correlation	0.755
T-Value	3.258

Loss/ 100 Hours	
Mean	153.249
Median	28.877
Mode	N/A
Standard Deviation	237.845
Kurtosis	0.624
Skewness	1.462
Count	10.000
Coefficent of Variation	1.552
Correlation	0.305
T-Value	0.907

Loss/ [$100 of Payroll x Relativity]	
Mean	0.375
Median	0.164
Mode	N/A
Standard Deviation	0.517
Kurtosis	1.602
Skewness	1.560
Count	10.000
Average Relativity	21.679
Coefficent of Variation	1.381
Correlation	0.821
T-Value	4.074

Loss/ [100 Hours x Relativity]	
Mean	5.209
Median	1.781
Mode	N/A
Standard Deviation	7.918
Kurtosis	1.898
Skewness	1.687
Count	10.000
Average Relativity	21.679
Coefficent of Variation	1.520
Correlation	0.677
T-Value	2.604

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.374
Median	0.191
Mode	N/A
Standard Deviation	0.540
Kurtosis	3.737
Skewness	1.922
Count	10.000
Average Relativity	21.679
Avg. Experience Mod. Factor	1.033
Coefficent of Variation	1.445
Correlation	0.851
T-Value	4.578

Loss/ [100 Hours x Relativity x Mod]	
Mean	5.232
Median	1.749
Mode	N/A
Standard Deviation	8.294
Kurtosis	3.966
Skewness	2.018
Count	10.000
Average Relativity	21.679
Avg. Experience Mod. Factor	1.033
Coefficent of Variation	1.585
Correlation	0.643
T-Value	2.375

Results of 1990 Correlation

Construction Employers -- Non-Union

Loss/ $100 of Payroll	
Mean	5.777
Median	0.458
Mode	N/A
Standard Deviation	10.035
Kurtosis	3.168
Skewness	1.931
Count	9.000
Coefficent of Variation	1.737
Correlation	-0.376
T-Value	1.074

Loss/ 100 Hours	
Mean	51.407
Median	6.805
Mode	N/A
Standard Deviation	89.547
Kurtosis	4.926
Skewness	2.209
Count	9.000
Coefficent of Variation	1.742
Correlation	-0.053
T-Value	0.139

Loss/ [$100 of Payroll x Relativity]	
Mean	0.267
Median	0.042
Mode	N/A
Standard Deviation	0.489
Kurtosis	5.118
Skewness	2.275
Count	9.000
Average Relativity	19.904
Coefficent of Variation	1.833
Correlation	-0.238
T-Value	0.647

Loss/ [100 Hours x Relativity]	
Mean	2.416
Median	0.528
Mode	N/A
Standard Deviation	4.443
Kurtosis	6.579
Skewness	2.520
Count	9.000
Average Relativity	19.904
Coefficent of Variation	1.839
Correlation	0.15
T-Value	0.401

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.272
Median	0.041
Mode	N/A
Standard Deviation	0.463
Kurtosis	3.704
Skewness	2.016
Count	9.000
Average Relativity	19.904
Avg. Experience Mod. Factor	0.917
Coefficent of Variation	1.702
Correlation	-0.173
T-Value	0.466

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.457
Median	0.567
Mode	N/A
Standard Deviation	4.150
Kurtosis	5.389
Skewness	2.286
Count	9.000
Average Relativity	19.904
Avg. Experience Mod. Factor	0.917
Coefficent of Variation	1.689
Correlation	0.261
T-Value	0.716

Results of 1990 Correlation

All Other Employers -- Union

Loss/ $100 of Payroll	
Mean	2.645
Median	0.958
Mode	0.000
Standard Deviation	3.671
Kurtosis	3.402
Skewness	1.847
Count	49.000
	1.388
Coefficent of Variation	1.504
Correlation	0.637
T-Value	5.660

Loss/ 100 Hours	
Mean	35.107
Median	9.619
Mode	0.000
Standard Deviation	56.744
Kurtosis	12.049
Skewness	3.030
Count	49.000
Coefficent of Variation	1.616
Correlation	0.609
T-Value	5.270

Loss/ [$100 of Payroll x Relativity]	
Mean	0.248
Median	0.096
Mode	0.000
Standard Deviation	0.327
Kurtosis	6.832
Skewness	2.281
Count	49.000
Average Relativity	10.522
Coefficent of Variation	1.315
Correlation	0.862
T-Value	11.674

Loss/ [100 Hours x Relativity]	
Mean	3.266
Median	1.201
Mode	0.000
Standard Deviation	4.162
Kurtosis	3.214
Skewness	1.744
Count	49.000
Average Relativity	10.522
Coefficent of Variation	1.274
Correlation	0.8
T-Value	9.130

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.270
Median	0.113
Mode	0.000
Standard Deviation	0.340
Kurtosis	5.811
Skewness	2.110
Count	49.000
Average Relativity	10.522
Avg. Experience Mod. Factor	0.932
Coefficent of Variation	1.259
Correlation	0.879
T-Value	12.669

Loss/ [100 Hours x Relativity x Mod]	
Mean	3.712
Median	1.491
Mode	0.000
Standard Deviation	4.824
Kurtosis	5.151
Skewness	2.010
Count	49.000
Average Relativity	10.522
Avg. Experience Mod. Factor	0.932
Coefficent of Variation	1.300
Correlation	0.725
T-Value	7.211

Results of 1990 Correlation

All Other Employers -- Non-Union

Loss/ $100 of Payroll	
Mean	1.709
Median	0.192
Mode	0.000
Standard Deviation	3.846
Kurtosis	19.462
Skewness	4.062
Count	240.000
Coefficent of Variation	2.251
Correlation	0.281
T-Value	4.525

Loss/ 100 Hours	
Mean	18.335
Median	1.779
Mode	0.000
Standard Deviation	42.719
Kurtosis	22.193
Skewness	4.269
Count	240.000
Coefficent of Variation	2.330
Correlation	0.284
T-Value	4.565

Loss/ [$100 of Payroll x Relativity]	
Mean	0.240
Median	0.033
Mode	0.000
Standard Deviation	0.457
Kurtosis	8.440
Skewness	2.790
Count	240.000
Average Relativity	7.373
Coefficent of Variation	1.905
Correlation	0.800
T-Value	20.538

Loss/ [100 Hours x Relativity]	
Mean	2.712
Median	0.408
Mode	0.000
Standard Deviation	5.713
Kurtosis	14.690
Skewness	3.554
Count	240.000
Average Relativity	7.373
Coefficent of Variation	2.107
Correlation	0.728
T-Value	16.400

Loss/ [$100 of Payroll x Relativity x Mod]	
Mean	0.251
Median	0.035
Mode	0.000
Standard Deviation	0.487
Kurtosis	8.782
Skewness	2.876
Count	240.000
Average Relativity	7.373
Avg. Experience Mod. Factor	0.954
Coefficent of Variation	1.938
Correlation	0.832
T-Value	23.095

Loss/ [100 Hours x Relativity x Mod]	
Mean	2.887
Median	0.434
Mode	0.000
Standard Deviation	6.392
Kurtosis	20.348
Skewness	4.076
Count	240.000
Average Relativity	7.373
Avg. Experience Mod. Factor	0.954
Coefficent of Variation	2.214
Correlation	0.792
T-Value	20.030

APPENDIX III

SUMMARY OF SAMPLE STATISTICS — 1991

Summary of 1991 Sample Statistics

All Employers

Loss/ $100 Payroll	
Mean	1.752
Median	0.280
Mode	0.000
Standard Deviation	3.702
Kurtosis	42.958
Skewness	5.221
Count	505.000
Coefficient of Variation	2.112

Loss/ 100 Hours	
Mean	21.292
Median	3.202
Mode	0.000
Standard Deviation	46.717
Kurtosis	32.594
Skewness	4.840
Count	505.000
Coefficient of Variation	2.194

Loss/[$100 Payroll x Relativity]	
Mean	0.195
Median	0.033
Mode	0.000
Standard Deviation	0.797
Kurtosis	214.849
Skewness	13.422
Count	505.000
Average Relativity	10.868
Coefficient of Variation	4.077

Loss/[100 Hours x Relativity]	
Mean	2.338
Median	0.395
Mode	0.000
Standard Deviation	9.686
Kurtosis	227.277
Skewness	13.891
Count	505.000
Average Relativity	10.868
Coefficient of Variation	4.142

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.194
Median	0.035
Mode	0.000
Standard Deviation	0.814
Kurtosis	198.997
Skewness	12.901
Count	505.000
Average Relativity	10.868
Avg. Experience Mod. Factor	1.022
Coefficient of Variation	4.187

Loss/[100 Hours x Rel x Mod]	
Mean	2.340
Median	0.424
Mode	0.000
Standard Deviation	9.889
Kurtosis	210.270
Skewness	13.308
Count	505.000
Average Relativity	10.868
Avg. Experience Mod. Factor	1.022
Coefficient of Variation	4.226

Summary of 1991 Sample Statistics

High Wage Employers

Loss/ $100 Payroll	
Mean	1.557
Median	0.164
Mode	0.000
Standard Deviation	3.046
Kurtosis	10.000
Skewness	2.978
Count	252.000
Coefficient of Variation	1.956

Loss/ 100 Hours	
Mean	24.105
Median	2.746
Mode	0.000
Standard Deviation	49.058
Kurtosis	19.342
Skewness	3.754
Count	252.000
Coefficient of Variation	2.035

Loss/[$100 Payroll x Relativity]	
Mean	0.206
Median	0.025
Mode	0.000
Standard Deviation	1.044
Kurtosis	145.600
Skewness	11.638
Count	252.000
Average Relativity	9.971
Coefficient of Variation	5.064

Loss/[100 Hours x Relativity]	
Mean	3.010
Median	0.385
Mode	0.000
Standard Deviation	13.108
Kurtosis	133.913
Skewness	11.012
Count	252.000
Average Relativity	9.971
Coefficient of Variation	4.354

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.211
Median	0.026
Mode	0.000
Standard Deviation	1.052
Kurtosis	141.470
Skewness	11.423
Count	252.000
Average Relativity	9.971
Avg. Experience Mod. Factor	0.986
Coefficient of Variation	4.985

Loss/[100 Hours x Rel x Mod]	
Mean	3.078
Median	0.392
Mode	0.000
Standard Deviation	13.228
Kurtosis	128.934
Skewness	10.759
Count	252.000
Average Relativity	9.971
Avg. Experience Mod. Factor	0.986
Coefficient of Variation	4.298

Summary of 1991 Sample Statistics

Low Wage Employers

Loss/ $100 Payroll	
Mean	1.947
Median	0.423
Mode	0.000
Standard Deviation	4.253
Kurtosis	46.056
Skewness	5.754
Count	253.000
Coefficient of Variation	2.185

Loss/ 100 Hours	
Mean	18.490
Median	4.030
Mode	0.000
Standard Deviation	44.183
Kurtosis	53.435
Skewness	6.326
Count	253.000
Coefficient of Variation	2.390

Loss/[$100 Payroll x Relativity]	
Mean	0.185
Median	0.047
Mode	0.000
Standard Deviation	0.428
Kurtosis	31.526
Skewness	5.164
Count	253.000
Average Relativity	11.762
Coefficient of Variation	2.319

Loss/[100 Hours x Relativity	
Mean	1.669
Median	0.456
Mode	0.000
Standard Deviation	3.949
Kurtosis	34.072
Skewness	5.340
Count	253.000
Average Relativity	11.762
Coefficient of Variation	2.367

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.178
Median	0.047
Mode	0.000
Standard Deviation	0.473
Kurtosis	55.067
Skewness	6.710
Count	253.000
Average Relativity	11.762
Avg. Experience Mod. Factor	1.058
Coefficient of Variation	2.659

Loss/[100 Hours x Rel x Mod]	
Mean	1.606
Median	0.439
Mode	0.000
Standard Deviation	4.497
Kurtosis	74.143
Skewness	7.657
Count	253.000
Average Relativity	11.762
Avg. Experience Mod. Factor	1.058
Coefficient of Variation	2.801

Summary of 1991 Sample Statistics

Union Employers

Loss/ $100 Payroll	
Mean	3.626
Median	1.486
Mode	0.000
Standard Deviation	6.216
Kurtosis	21.456
Skewness	4.063
Count	96.000
Coefficient of Variation	1.714

Loss/ 100 Hours	
Mean	48.049
Median	18.197
Mode	0.000
Standard Deviation	81.806
Kurtosis	11.773
Skewness	3.216
Count	96.000
Coefficient of Variation	1.703

Loss/[$100 Payroll x Relativity]	
Mean	0.234
Median	0.094
Mode	0.000
Standard Deviation	0.450
Kurtosis	26.052
Skewness	4.684
Count	96.000
Average Relativity	16.477
Coefficient of Variation	1.924

Loss/[100 Hours x Relativity]	
Mean	2.923
Median	1.378
Mode	0.000
Standard Deviation	5.139
Kurtosis	19.902
Skewness	4.107
Count	96.000
Average Relativity	16.477
Coefficient of Variation	1.758

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.254
Median	0.102
Mode	0.000
Standard Deviation	0.606
Kurtosis	40.804
Skewness	5.867
Count	96.000
Average Relativity	16.477
Avg. Experience Mod. Factor	1.049
Coefficient of Variation	2.390

Loss/[100 Hours x Rel x Mod]	
Mean	3.183
Median	1.144
Mode	0.000
Standard Deviation	7.024
Kurtosis	31.656
Skewness	5.255
Count	96.000
Average Relativity	16.477
Avg. Experience Mod. Factor	1.049
Coefficient of Variation	2.207

Summary of 1991 Sample Statistics

Non-Union Employers

Loss/ $100 Payroll	
Mean	1.241
Median	0.192
Mode	0.000
Standard Deviation	2.533
Kurtosis	15.352
Skewness	3.556
Count	388.000
Coefficient of Variation	2.041

Loss/ 100 Hours	
Mean	14.262
Median	2.043
Mode	0.000
Standard Deviation	29.788
Kurtosis	15.318
Skewness	3.563
Count	388.000
Coefficient of Variation	2.089

Loss/[$100 Payroll x Relativity]	
Mean	0.186
Median	0.024
Mode	0.000
Standard Deviation	0.880
Kurtosis	188.703
Skewness	12.876
Count	388.000
Average Relativity	9.514
Coefficient of Variation	4.722

Loss/[100 Hours x Relativity]	
Mean	2.211
Median	0.241
Mode	0.000
Standard Deviation	10.738
Kurtosis	196.573
Skewness	13.211
Count	1.000
Average Relativity	388.000
Coefficient of Variation	4.858

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.180
Median	0.023
Mode	0.000
Standard Deviation	0.877
Kurtosis	192.026
Skewness	13.040
Count	388.000
Average Relativity	9.514
Avg. Experience Mod. Factor	1.015
Coefficient of Variation	4.875

Loss/[100 Hours x Rel x Mod]	
Mean	2.147
Median	0.243
Mode	0.000
Standard Deviation	10.708
Kurtosis	199.103
Skewness	13.337
Count	388.000
Average Relativity	9.514
Avg. Experience Mod. Factor	1.015
Coefficient of Variation	4.987

Summary of 1991 Sample Statistics
Total Group -- Indemnity Losses

Loss/ $100 Payroll	
Mean	1.214
Median	0.098
Mode	0.000
Standard Deviation	2.657
Kurtosis	24.880
Skewness	4.195
Count	505.000
Coefficient of Variation	2.189

Loss/ 100 Hours	
Mean	14.881
Median	0.964
Mode	0.000
Standard Deviation	34.823
Kurtosis	28.520
Skewness	4.611
Count	505.000
Coefficient of Variation	2.340

Loss/[$100 Payroll x Relativity]	
Mean	0.134
Median	0.012
Mode	0.000
Standard Deviation	0.618
Kurtosis	302.549
Skewness	15.973
Count	505.000
Average Relativity	10.868
Coefficient of Variation	4.625

Loss/[100 Hours x Relativity]	
Mean	1.599
Median	0.131
Mode	0.000
Standard Deviation	7.494
Kurtosis	319.811
Skewness	16.518
Count	505.000
Average Relativity	10.868
Coefficient of Variation	4.685

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.132
Median	0.012
Mode	0.000
Standard Deviation	0.625
Kurtosis	289.919
Skewness	15.590
Count	505.000
Average Relativity	10.868
Avg. Experience Mod. Factor	1.022
Coefficient of Variation	4.721

Loss/[100 Hours x Rel x Mod]	
Mean	1.592
Median	0.133
Mode	0.000
Standard Deviation	7.570
Kurtosis	307.545
Skewness	16.136
Count	505.000
Average Relativity	10.868
Avg. Experience Mod. Factor	1.022
Coefficient of Variation	4.756

Summary of 1991 Sample Statistics

Total Group -- Medical Losses

Loss/ $100 Payroll	
Mean	0.5384
Median	0.1611
Mode	0.0000
Standard Deviation	1.1821
Kurtosis	101.6670
Skewness	8.3653
Count	505.000
Coefficient of Variation	2.196

Loss/ 100 Hours	
Mean	6.411
Median	1.082
Mode	0.000
Standard Deviation	13.737
Kurtosis	73.956
Skewness	7.050
Count	505.000
Coefficient of Variation	2.143

Loss/[$100 Payroll x Relativity]	
Mean	0.0613
Median	0.0193
Mode	0.0000
Standard Deviation	0.2351
Kurtosis	238.5779
Skewness	14.0382
Count	505.000
Average Relativity	10.868
Coefficient of Variation	3.838

Loss/[100 Hours x Relativity]	
Mean	0.739
Median	0.212
Mode	0.000
Standard Deviation	2.893
Kurtosis	258.558
Skewness	14.699
Count	505.000
Average Relativity	10.868
Coefficient of Variation	3.916

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.0622
Median	0.0192
Mode	0.0000
Standard Deviation	0.2455
Kurtosis	206.6016
Skewness	13.0992
Count	505.000
Average Relativity	10.868
Avg. Experience Mod. Factor	1.022
Coefficient of Variation	3.949

Loss/[100 Hours x Rel x Mod]	
Mean	0.748
Median	0.218
Mode	0.000
Standard Deviation	3.021
Kurtosis	221.094
Skewness	13.537
Count	505.000
Average Relativity	10.868
Avg. Experience Mod. Factor	1.022
Coefficient of Variation	4.037

Summary of 1991 Sample Statistics

Manufacturing Employers

Loss/ $100 Payroll	
Mean	2.416
Median	0.888
Mode	0.000
Standard Deviation	4.341
Kurtosis	47.934
Skewness	5.597
Count	174.000
Coefficient of Variation	1.797

Loss/ 100 Hours	
Mean	30.158
Median	9.558
Mode	0.000
Standard Deviation	54.139
Kurtosis	26.394
Skewness	4.233
Count	174.000
Coefficient of Variation	1.795

Loss/[$100 Payroll x Relativity]	
Mean	0.167
Median	0.073
Mode	0.000
Standard Deviation	0.302
Kurtosis	62.012
Skewness	6.555
Count	174.000
Average Relativity	13.637
Coefficient of Variation	1.807

Loss/[100 Hours x Relativity]	
Mean	2.037
Median	0.761
Mode	0.000
Standard Deviation	3.608
Kurtosis	38.369
Skewness	5.100
Count	174.000
Average Relativity	13.637
Coefficient of Variation	1.772

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.165
Median	0.074
Mode	0.000
Standard Deviation	0.405
Kurtosis	116.731
Skewness	9.930
Count	174.000
Average Relativity	13.637
Avg. Experience Mod. Factor	1.054
Coefficient of Variation	2.448

Loss/[100 Hours x Rel x Mod]	
Mean	1.997
Median	0.781
Mode	0.000
Standard Deviation	4.541
Kurtosis	91.825
Skewness	8.514
Count	174.000
Average Relativity	13.637
Avg. Experience Mod. Factor	1.054
Coefficient of Variation	2.273

Summary of 1991 Sample Statistics

Construction Employers

Loss/ $100 Payroll	
Mean	4.082
Median	1.087
Mode	N/A
Standard Deviation	7.458
Kurtosis	8.270
Skewness	2.797
Count	22.000
Coefficient of Variation	1.827

Loss/ 100 Hours	
Mean	50.635
Median	14.486
Mode	N/A
Standard Deviation	82.709
Kurtosis	7.508
Skewness	2.588
Count	22.000
Coefficient of Variation	1.633

Loss/[$100 Payroll x Relativity]	
Mean	0.228
Median	0.051
Mode	N/A
Standard Deviation	0.531
Kurtosis	14.711
Skewness	3.709
Count	22.000
Average Relativity	22.608
Coefficient of Variation	2.326

Loss/[100 Hours x Relativity]	
Mean	2.757
Median	0.550
Mode	N/A
Standard Deviation	5.809
Kurtosis	15.415
Skewness	3.747
Count	22.000
Average Relativity	22.608
Coefficient of Variation	2.107

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.197
Median	0.060
Mode	N/A
Standard Deviation	0.436
Kurtosis	16.664
Skewness	3.929
Count	22.000
Average Relativity	22.608
Avg. Experience Mod. Factor	1.015
Coefficient of Variation	2.220

Loss/[100 Hours x Rel x Mod]	
Mean	2.469
Median	0.634
Mode	N/A
Standard Deviation	4.857
Kurtosis	15.774
Skewness	3.771
Count	22.000
Average Relativity	22.608
Avg. Experience Mod. Factor	1.015
Coefficient of Variation	1.967

Summary of 1991 Sample Statistics

All Other Employers

Loss/ $100 Payroll	
Mean	1.213
Median	0.135
Mode	0.000
Standard Deviation	2.668
Kurtosis	15.391
Skewness	3.635
Count	309.000
Coefficient of Variation	2.200

Loss/ 100 Hours	
Mean	14.210
Median	1.565
Mode	0.000
Standard Deviation	36.089
Kurtosis	51.773
Skewness	6.029
Count	309.000
Coefficient of Variation	2.540

Loss/[$100 Payroll x Relativity]	
Mean	0.209
Median	0.022
Mode	0.000
Standard Deviation	0.984
Kurtosis	150.495
Skewness	11.517
Count	309.000
Average Relativity	8.473
Coefficient of Variation	4.703

Loss/[100 Hours x Relativity]	
Mean	2.478
Median	0.240
Mode	0.000
Standard Deviation	11.993
Kurtosis	157.740
Skewness	11.868
Count	309.000
Average Relativity	8.473
Coefficient of Variation	4.839

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.211
Median	0.022
Mode	0.000
Standard Deviation	0.990
Kurtosis	147.070
Skewness	11.349
Count	309.000
Average Relativity	8.473
Avg. Experience Mod. Factor	1.004
Coefficient of Variation	4.697

Loss/[100 Hours x Rel x Mod]	
Mean	2.524
Median	0.270
Mode	0.000
Standard Deviation	12.114
Kurtosis	151.422
Skewness	11.573
Count	309.000
Average Relativity	8.473
Avg. Experience Mod. Factor	1.004
Coefficient of Variation	4.799

Summary of 1991 Sample Statistics

Manufacturing Employers -- High Wage

Loss/ $100 Payroll	
Mean	2.384
Median	0.771
Mode	N/A
Standard Deviation	3.314
Kurtosis	1.996
Skewness	1.654
Count	89.000
Coefficient of Variation	1.390

Loss/ 100 Hours	
Mean	35.519
Median	13.760
Mode	N/A
Standard Deviation	52.264
Kurtosis	5.644
Skewness	2.169
Count	89.000
Coefficient of Variation	1.471

Loss/[$100 Payroll x Relativity]	
Mean	0.157
Median	0.076
Mode	N/A
Standard Deviation	0.209
Kurtosis	2.937
Skewness	1.828
Count	89.000
Average Relativity	13.912
Coefficient of Variation	1.332

Loss/[100 Hours x Relativity]	
Mean	2.341
Median	0.978
Mode	N/A
Standard Deviation	3.251
Kurtosis	4.609
Skewness	2.092
Count	89.000
Average Relativity	13.912
Coefficient of Variation	1.388

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.149
Median	0.079
Mode	N/A
Standard Deviation	0.191
Kurtosis	2.576
Skewness	1.733
Count	89.000
Average Relativity	13.912
Avg. Experience Mod. Factor	1.023
Coefficient of Variation	1.281

Loss/[100 Hours x Rel x Mod]	
Mean	2.212
Median	0.991
Mode	N/A
Standard Deviation	2.938
Kurtosis	4.023
Skewness	1.986
Count	89.000
Average Relativity	13.912
Avg. Experience Mod. Factor	1.023
Coefficient of Variation	1.328

Summary of 1991 Sample Statistics

Manufacturing Employers -- Low Wage

Loss/ $100 Payroll	
Mean	2.449
Median	1.031
Mode	0.000
Standard Deviation	5.224
Kurtosis	47.778
Skewness	6.238
Count	85.000
Coefficient of Variation	2.133

Loss/ 100 Hours	
Mean	24.546
Median	9.104
Mode	1.000
Standard Deviation	55.790
Kurtosis	47.357
Skewness	6.233
Count	85.000
Coefficient of Variation	2.273

Loss/[$100 Payroll x Relativity]	
Mean	0.177
Median	0.071
Mode	0.000
Standard Deviation	0.376
Kurtosis	53.162
Skewness	6.671
Count	85.000
Average Relativity	13.510
Coefficient of Variation	2.121

Loss/[100 Hours x Relativity]	
Mean	1.718
Median	0.667
Mode	0.000
Standard Deviation	3.942
Kurtosis	57.168
Skewness	7.003
Count	85.000
Average Relativity	13.510
Coefficient of Variation	2.295

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.182
Median	0.071
Mode	0.000
Standard Deviation	0.546
Kurtosis	72.752
Skewness	8.251
Count	85.000
Average Relativity	13.510
Avg. Experience Mod. Factor	1.088
Coefficient of Variation	2.996

Loss/[100 Hours x Rel x Mod]	
Mean	1.773
Median	0.693
Mode	0.000
Standard Deviation	5.772
Kurtosis	75.331
Skewness	8.454
Count	85.000
Average Relativity	13.510
Avg. Experience Mod. Factor	1.088
Coefficient of Variation	3.256

Summary of 1991 Sample Statistics

Construction Employers - High Wage

Loss/ $100 Payroll	
Mean	2.877
Median	1.728
Mode	N/A
Standard Deviation	3.587
Kurtosis	4.662
Skewness	2.072
Count	13.000
Coefficient of Variation	1.247

Loss/ 100 Hours	
Mean	44.174
Median	27.029
Mode	N/A
Standard Deviation	49.398
Kurtosis	2.111
Skewness	1.584
Count	13.000
Coefficient of Variation	1.118

Loss/[$100 Payroll x Relativity]	
Mean	0.115
Median	0.061
Mode	N/A
Standard Deviation	0.124
Kurtosis	2.245
Skewness	1.470
Count	13.000
Average Relativity	23.575
Coefficient of Variation	1.078

Loss/[100 Hours x Relativity]	
Mean	1.818
Median	1.417
Mode	N/A
Standard Deviation	1.733
Kurtosis	-0.053
Skewness	0.841
Count	13.000
Average Relativity	23.575
Coefficient of Variation	0.953

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.122
Median	0.114
Mode	N/A
Standard Deviation	0.134
Kurtosis	5.106
Skewness	1.995
Count	13.000
Average Relativity	23.575
Avg. Experience Mod. Factor	0.932
Coefficient of Variation	1.100

Loss/[100 Hours x Rel x Mod]	
Mean	1.939
Median	2.295
Mode	N/A
Standard Deviation	1.835
Kurtosis	1.740
Skewness	1.147
Count	13.000
Average Relativity	23.575
Avg. Experience Mod. Factor	0.932
Coefficient of Variation	0.946

Summary of 1991 Sample Statistics

Construction Employers – Low Wage

Loss/ $100 Payroll	
Mean	5.823
Median	0.638
Mode	N/A
Standard Deviation	10.997
Kurtosis	3.352
Skewness	2.014
Count	9.000
Coefficient of Variation	1.889

Loss/ 100 Hours	
Mean	59.967
Median	6.405
Mode	N/A
Standard Deviation	118.873
Kurtosis	4.764
Skewness	2.241
Count	9.000
Coefficient of Variation	1.982

Loss/[$100 Payroll x Relativity]	
Mean	0.392
Median	0.020
Mode	N/A
Standard Deviation	0.817
Kurtosis	5.511
Skewness	2.365
Count	9.000
Average Relativity	21.210
Coefficient of Variation	2.083

Loss/[100 Hours x Relativity]	
Mean	4.114
Median	0.224
Mode	N/A
Standard Deviation	8.976
Kurtosis	6.561
Skewness	2.543
Count	9.000
Average Relativity	21.210
Coefficient of Variation	2.182

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.305
Median	0.018
Mode	N/A
Standard Deviation	0.671
Kurtosis	7.380
Skewness	2.686
Count	9.000
Average Relativity	21.210
Avg. Experience Mod. Factor	1.135
Coefficient of Variation	2.203

Loss/[100 Hours x Rel x Mod]	
Mean	3.235
Median	0.195
Mode	N/A
Standard Deviation	7.467
Kurtosis	7.917
Skewness	2.785
Count	9.000
Average Relativity	21.210
Avg. Experience Mod. Factor	1.135
Coefficient of Variation	2.309

Summary of 1991 Sample Statistics

All Other Employers -- High Wage

Loss/ $100 Payroll	
Mean	0.952
Median	0.043
Mode	0.000
Standard Deviation	2.678
Kurtosis	26.376
Skewness	4.843
Count	150.000
Coefficient of Variation	2.813

Loss/ 100 Hours	
Mean	15.593
Median	0.685
Mode	0.000
Standard Deviation	45.371
Kurtosis	41.583
Skewness	5.789
Count	150.000
Coefficient of Variation	2.910

Loss/[$100 Payroll x Relativity]	
Mean	0.243
Median	0.011
Mode	0.000
Standard Deviation	1.344
Kurtosis	88.651
Skewness	9.160
Count	150.000
Average Relativity	6.453
Coefficient of Variation	5.524

Loss/[100 Hours x Relativity]	
Mean	3.511
Median	0.189
Mode	0.000
Standard Deviation	16.802
Kurtosis	82.718
Skewness	8.759
Count	150.000
Average Relativity	6.453
Coefficient of Variation	4.786

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.255
Median	0.012
Mode	0.000
Standard Deviation	1.355
Kurtosis	85.599
Skewness	8.951
Count	150.000
Average Relativity	6.453
Avg. Experience Mod. Factor	0.969
Coefficient of Variation	5.304

Loss/[100 Hours x Rel x Mod]	
Mean	3.690
Median	0.199
Mode	0.000
Standard Deviation	16.984
Kurtosis	78.823
Skewness	8.497
Count	150.000
Average Relativity	6.453
Avg. Experience Mod. Factor	0.969
Coefficient of Variation	4.603

Summary of 1991 Sample Statistics

All Other Employers -- Low Wage

Loss/ $100 Payroll	
Mean	1.459
Median	0.290
Mode	0.000
Standard Deviation	2.643
Kurtosis	6.539
Skewness	2.592
Count	159.000
Coefficient of Variation	1.812

Loss/ 100 Hours	
Mean	12.904
Median	2.649
Mode	0.000
Standard Deviation	24.375
Kurtosis	7.992
Skewness	2.805
Count	159.000
Coefficient of Variation	1.889

Loss/[$100 Payroll x Relativity]	
Mean	0.177
Median	0.035
Mode	0.000
Standard Deviation	0.426
Kurtosis	32.265
Skewness	5.145
Count	159.000
Average Relativity	10.378
Coefficient of Variation	2.405

Loss/[100 Hours x Relativity]	
Mean	1.504
Median	0.315
Mode	0.000
Standard Deviation	3.489
Kurtosis	27.666
Skewness	4.761
Count	159.000
Average Relativity	10.378
Coefficient of Variation	2.319

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.169
Median	0.038
Mode	0.000
Standard Deviation	0.418
Kurtosis	35.106
Skewness	5.397
Count	159.000
Average Relativity	10.378
Avg. Experience Mod. Factor	1.038
Coefficient of Variation	2.481

Loss/[100 Hours x Rel x Mod]	
Mean	1.424
Median	0.290
Mode	0.000
Standard Deviation	3.394
Kurtosis	31.162
Skewness	5.064
Count	159.000
Average Relativity	10.378
Avg. Experience Mod. Factor	1.038
Coefficient of Variation	2.383

Summary of 1991 Sample Statistics

Manufacturing Employers -- Union

Loss/ $100 Payroll	
Mean	5.130
Median	3.550
Mode	N/A
Standard Deviation	7.066
Kurtosis	21.815
Skewness	4.129
Count	43.000
Coefficient of Variation	1.377

Loss/ 100 Hours	
Mean	66.379
Median	36.023
Mode	N/A
Standard Deviation	86.502
Kurtosis	10.668
Skewness	2.866
Count	43.000
Coefficient of Variation	1.303

Loss/[$100 Payroll x Relativity]	
Mean	0.293
Median	0.168
Mode	N/A
Standard Deviation	0.499
Kurtosis	30.108
Skewness	5.116
Count	43.000
Average Relativity	18.979
Coefficient of Variation	1.701

Loss/[100 Hours x Relativity]	
Mean	3.574
Median	2.018
Mode	N/A
Standard Deviation	5.496
Kurtosis	24.026
Skewness	4.434
Count	43.000
Average Relativity	18.979
Coefficient of Variation	1.538

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.312
Median	0.161
Mode	N/A
Standard Deviation	0.751
Kurtosis	37.631
Skewness	5.967
Count	43.000
Average Relativity	18.979
Avg. Experience Mod. Factor	1.118
Coefficient of Variation	2.408

Loss/[100 Hours x Rel x Mod]	
Mean	3.701
Median	2.185
Mode	N/A
Standard Deviation	8.084
Kurtosis	34.385
Skewness	5.627
Count	43.000
Average Relativity	18.979
Avg. Experience Mod. Factor	1.118
Coefficient of Variation	2.184

Summary of 1991 Sample Statistics

Manufacturing Employers -- Non-Union

Loss/ $100 Payroll	
Mean	1.532
Median	0.470
Mode	0.000
Standard Deviation	2.405
Kurtosis	5.083
Skewness	2.322
Count	128.000
Coefficient of Variation	1.570

Loss/ 100 Hours	
Mean	18.463
Median	4.621
Mode	0.000
Standard Deviation	30.391
Kurtosis	6.094
Skewness	2.493
Count	128.000
Coefficient of Variation	1.646

Loss/[$100 Payroll x Relativity]	
Mean	0.126
Median	0.042
Mode	0.000
Standard Deviation	0.185
Kurtosis	5.729
Skewness	2.320
Count	128.000
Average Relativity	12.013
Coefficient of Variation	1.474

Loss/[100 Hours x Relativity]	
Mean	1.541
Median	0.498
Mode	0.000
Standard Deviation	2.582
Kurtosis	11.757
Skewness	3.134
Count	128.000
Average Relativity	12.013
Coefficient of Variation	1.675

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.117
Median	0.042
Mode	0.000
Standard Deviation	0.163
Kurtosis	5.075
Skewness	2.153
Count	128.000
Average Relativity	12.013
Avg. Experience Mod. Factor	1.036
Coefficient of Variation	1.393

Loss/[100 Hours x Rel x Mod]	
Mean	1.442
Median	0.494
Mode	0.000
Standard Deviation	2.271
Kurtosis	9.416
Skewness	2.824
Count	128.000
Average Relativity	12.013
Avg. Experience Mod. Factor	1.036
Coefficient of Variation	1.575

Summary of 1991 Sample Statistics

Construction Employers -- Union

Loss/ $100 Payroll	
Mean	4.798
Median	0.938
Mode	N/A
Standard Deviation	10.090
Kurtosis	7.891
Skewness	2.778
Count	9.000
Coefficient of Variation	2.103

Loss/ 100 Hours	
Mean	61.336
Median	14.019
Mode	N/A
Standard Deviation	113.064
Kurtosis	6.471
Skewness	2.514
Count	9.000
Coefficient of Variation	1.843

Loss/[$100 Payroll x Relativity]	
Mean	0.313
Median	0.028
Mode	N/A
Standard Deviation	0.787
Kurtosis	8.875
Skewness	2.973
Count	9.000
Average Relativity	24.519
Coefficient of Variation	2.515

Loss/[100 Hours x Relativity]	
Mean	3.797
Median	0.394
Mode	N/A
Standard Deviation	8.707
Kurtosis	8.659
Skewness	2.926
Count	9.000
Average Relativity	24.519
Coefficient of Variation	2.293

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.282
Median	0.031
Mode	N/A
Standard Deviation	0.661
Kurtosis	8.766
Skewness	2.949
Count	9.000
Average Relativity	24.519
Avg. Experience Mod. Factor	0.948
Coefficient of Variation	2.348

Loss/[100 Hours x Rel x Mod]	
Mean	3.552
Median	0.437
Mode	N/A
Standard Deviation	7.296
Kurtosis	8.266
Skewness	2.839
Count	9.000
Average Relativity	24.519
Avg. Experience Mod. Factor	0.948
Coefficient of Variation	2.054

Summary of 1991 Sample Statistics

Construction Employers - Non-Union

Loss/ $100 Payroll	
Mean	3.504
Median	1.323
Mode	N/A
Standard Deviation	5.599
Kurtosis	3.135
Skewness	2.018
Count	12.000
Coefficient of Variation	1.598

Loss/ 100 Hours	
Mean	40.835
Median	11.770
Mode	N/A
Standard Deviation	59.354
Kurtosis	1.533
Skewness	1.669
Count	12.000
Coefficient of Variation	1.454

Loss/[$100 Payroll x Relativity]	
Mean	0.163
Median	0.052
Mode	N/A
Standard Deviation	0.278
Kurtosis	6.547
Skewness	2.504
Count	12.000
Average Relativity	21.524
Coefficient of Variation	1.705

Loss/[100 Hours x Relativity]	
Mean	1.881
Median	0.550
Mode	N/A
Standard Deviation	2.729
Kurtosis	2.594
Skewness	1.758
Count	12.000
Average Relativity	21.524
Coefficient of Variation	1.451

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.132
Median	0.060
Mode	N/A
Standard Deviation	0.187
Kurtosis	1.735
Skewness	1.716
Count	12.000
Average Relativity	21.524
Avg. Experience Mod. Factor	1.050
Coefficient of Variation	1.416

Loss/[100 Hours x Rel x Mod]	
Mean	1.591
Median	0.627
Mode	N/A
Standard Deviation	2.113
Kurtosis	1.446
Skewness	1.517
Count	12.000
Average Relativity	21.524
Avg. Experience Mod. Factor	1.050
Coefficient of Variation	1.328

Summary of 1991 Sample Statistics

All Other Employers -- Union

Loss/ $100 Payroll	
Mean	1.915
Median	0.431
Mode	N/A
Standard Deviation	3.480
Kurtosis	9.473
Skewness	2.934
Count	44.000
Coefficient of Variation	1.817

Loss/ 100 Hours	
Mean	27.417
Median	6.974
Mode	N/A
Standard Deviation	65.488
Kurtosis	27.537
Skewness	4.944
Count	44.000
Coefficient of Variation	2.389

Loss/[$100 Payroll x Relativity]	
Mean	0.159
Median	0.072
Mode	N/A
Standard Deviation	0.279
Kurtosis	10.912
Skewness	3.202
Count	44.000
Average Relativity	12.386
Coefficient of Variation	1.750

Loss/[100 Hours x Relativity]	
Mean	2.109
Median	0.993
Mode	N/A
Standard Deviation	3.671
Kurtosis	17.301
Skewness	3.793
Count	44.000
Average Relativity	12.386
Coefficient of Variation	1.741

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.191
Median	0.069
Mode	N/A
Standard Deviation	0.415
Kurtosis	18.330
Skewness	4.088
Count	44.000
Average Relativity	12.386
Avg. Experience Mod. Factor	1.003
Coefficient of Variation	2.171

Loss/[100 Hours x Rel x Mod]	
Mean	2.601
Median	0.904
Mode	N/A
Standard Deviation	5.884
Kurtosis	27.848
Skewness	4.945
Count	44.000
Average Relativity	12.386
Avg. Experience Mod. Factor	1.003
Coefficient of Variation	2.262

Summary of 1991 Sample Statistics

All Other Employers -- Non-Union

Loss/ $100 Payroll	
Mean	0.982
Median	0.102
Mode	0.000
Standard Deviation	2.307
Kurtosis	23.017
Skewness	4.277
Count	248.000
Coefficient of Variation	2.350

Loss/ 100 Hours	
Mean	10.808
Median	1.087
Mode	0.000
Standard Deviation	26.515
Kurtosis	28.264
Skewness	4.667
Count	248.000
Coefficient of Variation	2.453

Loss/[$100 Payroll x Relativity]	
Mean	0.219
Median	0.013
Mode	0.000
Standard Deviation	1.090
Kurtosis	124.174
Skewness	10.537
Count	248.000
Average Relativity	7.643
Coefficient of Variation	4.983

Loss/[100 Hours x Relativity]	
Mean	2.572
Median	0.166
Mode	0.000
Standard Deviation	13.286
Kurtosis	130.344
Skewness	10.867
Count	248.000
Average Relativity	7.643
Coefficient of Variation	5.166

Loss/[$100 Payroll x Rel x Mod]	
Mean	0.215
Median	0.013
Mode	0.000
Standard Deviation	1.089
Kurtosis	125.132
Skewness	10.596
Count	248.000
Average Relativity	7.643
Avg. Experience Mod. Factor	1.003
Coefficient of Variation	5.074

Loss/[100 Hours x Rel x Mod]	
Mean	2.538
Median	0.164
Mode	0.000
Standard Deviation	13.281
Kurtosis	130.675
Skewness	10.891
Count	248.000
Average Relativity	7.643
Avg. Experience Mod. Factor	1.003
Coefficient of Variation	5.233

APPENDIX IV

t - VALUES AND SIGNIFICANCE LEVELS

1991

Table 1
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
All Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	12.709	29.193	37.967
Employee Hours	12.743	22.232	28.705

Table 2
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
High Wage Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	9.575	24.185	34.483
Employee Hours	10.715	21.082	27.383

Table 3
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Low Wage Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	6.211	11.222	12.454
Employee Hours	4.549	9.123	10.905

Table 4
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Union Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	5.613	13.109	18.429
Employee Hours	5.996	9.294	14.317

Table 5
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Non-Union Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	8.600	21.171	24.650
Employee Hours	10.150	21.047	23.786

Table 6
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Indemnity Losses
All Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	12.205	27.593	37.298
Employee Hours	12.106	20.800	27.504

Table 7
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Medical Losses
All Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	12.675	27.066	28.801
Employee Hours	13.192	22.421	25.744

Table 8
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Manufacturing Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	16.956	20.553	29.197
Employee Hours	10.070	11.805	20.723

Table 9
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Construction Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	1.832	2.414	2.652
Employee Hours	2.474	2.266	2.568

Table 10
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
All Other Employers

T-Values

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	10.780	24.376	25.102
Employee Hours	11.629	22.730	20.362

Table 11
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Manufacturing Employers

T-Values

	High Wage			Low Wage		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	16.079	18.406	28.689	3.847	6.206	7.352
Employee Hours	14.738	14.267	24.802	2.483	4.451	6.174

Table 12
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Construction Employers

T-Values

	High Wage			Low Wage		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	2.436	5.155	5.590	1.590	0.186	0.432
Employee Hours	2.770	4.134	4.516	1.859	0.061	0.393

Table 13
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
All Other Employers

T-Values

	High Wage			Low Wage		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	8.309	18.910	19.303	5.485	13.423	13.622
Employee Hours	9.268	18.245	15.944	4.590	12.078	11.652

Table 14
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Manufacturing Employers

T-Values

	Union			Non-Union		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	16.442	13.970	17.804	3.879	4.847	7.840
Employee Hours	10.383	6.034	11.636	2.827	4.997	7.470

Table 15
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Construction Employers

T-Values

	Union			Non-Union		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	1.574	1.318	1.428	0.164	0.901	1.220
Employee Hours	2.205	1.279	1.391	0.382	0.316	1.563

Table 16
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
All Other Employers

T-Values

	Union			Non-Union		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	4.498	7.388	8.404	7.838	27.391	26.814
Employee Hours	4.428	7.239	8.306	10.456	26.040	25.515

Table 1
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
All Employers

P-Values
503 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 2
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
High Wage Employers

P-Values
250 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 3
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Low Wage Employers

P-Values
251 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 4
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Union Employers

P-Values
94 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 5
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Non-Union Employers

P-Values
407 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 6
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Indemnity Losses
All Employers

P-Values
503 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 7
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Medical Losses
All Employers

P-Values
503 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 8
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Manufacturing Employers

P-Values
172 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 9
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Construction Employers

P-Values
20 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	0.080	0.030	0.015
Employee Hours	0.040	0.035	0.020

Table 10
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
All Other Employers

P- Values
307 Degrees of Freedom

	Without Adjustment	Relativity Adjustment	Relativity and Exp. Mod Adjustment
Payroll	< .01	< .01	< .01
Employee Hours	< .01	< .01	< .01

Table 11
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Manufacturing Employers
P-Values

	High Wage 87 Degrees of Freedom			Low Wage 83 Degrees of Freedom		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	<.01	<.01	<.01	<.01	<.01	<.01
Employee Hours	<.01	<.01	<.01	0.010	<.01	<.01

Table 12
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Construction Employers
P-Values

	High Wage 11 Degrees of Freedom			Low Wage 7 Degrees of Freedom		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	<.01	<.01	<.01	> .1	> .1	> .1
Employee Hours	<.01	<.01	<.01	> .1	> .1	> .1

Table 13
Massachusetts Workers' Compensation Advisory Council
1991 Correlation

All Other Employers
P-Values

	High Wage 148 Degrees of Freedom			Low Wage 157 Degrees of Freedom		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	<.01	<.01	<.01	<.01	<.01	<.01
Employee Hours	<.01	<.01	<.01	<.01	<.01	<.01

Table 14
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Manufacturing Employers

P-Values

	Union 41 Degrees of Freedom			Non-Union 126 Degrees of Freedom		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	<.01	<.01	<.01	<.01	<.01	<.01
Employee Hours	<.01	<.01	<.01	<.01	<.01	<.01

Table 15
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
Construction Employers

T-Values

	Union 7 Degrees of Freedom			Non-Union 10 Degrees of Freedom		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	> .1	> .1	> .1	> .1	> .1	> .1
Employee Hours	0.080	> .1	> .1	> .1	> .1	> .1

Table 16
Massachusetts Workers' Compensation Advisory Council
1991 Correlation
All Other Employers

P-Values

	Union 42 Degrees of Freedom			Non-Union 246 Degrees of Freedom		
	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment	Without Adjustment	Relativity Adjustment	Relativity and Exp, Mod Adjustment
Payroll	<.01	<.01	<.01	<.01	<.01	<.01
Employee Hours	<.01	<.01	<.01	<.01	<.01	<.01

APPENDIX V

MASSACHUSETTS CONSTRUCTION CLASSIFICATION PREMIUM ADJUSTMENT PROGRAM

STATE SPECIAL RATING PLANS AND PROGRAMS

MASSACHUSETTS CONSTRUCTION CLASSIFICATION PREMIUM ADJUSTMENT PROGRAM

The Massachusetts Construction Classification Premium Adjustment Program provides for a premium credit for a qualifying policy which contains one or more construction classifications. Only policies subject to experience rating are eligible for the program.

The basis for determining the credit is the total payroll (excluding overtime premium pay) and hours worked for each construction classification for the third calendar quarter of the year preceding the policy inception date as reported to taxing authorities. If the insured did not engage in operations for the complete quarter, then the last complete quarter prior to the policy year inception shall be used, or if there was no complete quarter of operations prior to the policy inception then the first complete quarter after the policy inception shall be used. A credit may be determined for each construction classification by dividing the total payroll, excluding overtime premium pay, by the number of hours worked to arrive at the average hourly wage for the classification. In the absence of specific records for salaried employees, it will be assumed each such individual worked forty (40) hours per week. The credit for average hourly wage is listed below:

Average Hourly Wage	Credit From Manual Premium
$17.99 or less	0%
$18.00–$18.50	5%
$18.51–$19.00	6%
$19.01–$19.50	7%
$19.51–$20.00	8%
$20.01–$20.50	9%
$20.51–$21.00	10%
$21.01–$21.50	11%
$21.51–$22.00	12%
$22.01–$22.50	13%
$22.51–$23.00	14%
$23.01–$23.50	15%
$23.51–$24.00	16%
$24.01–$24.50	17%
$24.51–$25.00	18%
$25.01–$25.50	19%
$25.51–$26.00	20%
$26.01–$26.50	21%
$26.51–$27.00	22%
$27.01–$27.50	23%
$27.51–$28.00	24%
$28.01 and over	25%

The total construction classification credit amount, in dollars, must be calculated and then divided by the total policy premium at manual rates—including construction and non-construction classifications. The result would be the percentage credit which is to be applied to the qualifying policy. When calculating the total policy credit, the percentage shall be rounded to two decimal places. (As an example, .1547 rounded to .15 and .1551 rounded to .16.)

The insured shall submit the required payroll and hours worked information to The Workers' Compensation Rating and Inspection Bureau of Massachusetts for calculation of any applicable credit. The carrier shall, upon audit, verify the information that was submitted by the insured and used in the calculation of the credit. If the carrier discovers an error in the original request for policy credit, the revised information must be submitted to The Workers' Compensation Rating and Inspection Bureau of Massachusetts for recalculation. If the insured does not furnish records to verify the payrolls and hours worked originally submitted and used in the calculation of the credit, there shall be no credit applied to the policy.

Total expected losses used in the calculation of the insured's experience modification will be decreased by the policy credit factor.

The credit authorized by The Workers Compensation Rating and Inspection Bureau of Massachusetts shall appear on Item 4 of the Information Page of the policy. The policy credit factor is to be applied to the premium determination process directly after the application of experience modification and prior to any deviation and premium discount. If the credit is not available at the time of policy issuance, the carrier shall endorse the policy by use of Massachusetts Construction Classification Premium Adjustment Endorsement WC 20 04 03 to provide this credit information.

Carriers are required to use the approval form to notify all of their insureds who have one or more construction classifications on their policy that they may be eligible for a premium modification credit.

"Construction classifications" are those classifications subject to the following code numbers:

3365	5213	5507	6217
3724	5215	5508	6229
3726	5221	5509	6233
5020	5222	5538	6251
5022	5223	5545	6252
5037	5348	5547	6306
5040	5402	5606	6319
5057	5403	5610	6325
5059	5437	5645	6400
5069	5443	5651	7538
5102	5445	5701	7601
5146	5462	5703	7855
5160	5474	5705	8227
5183	5479	6003	9014
5188	5480	6005	9529
5190	5506	6204	9534