

# **Actuarial Examination Retrospective Rating Plans**

**State of Washington  
Department of Labor and Industries**

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**Scott J. Lefkowitz, FCAS, MAAA, FCA**

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**Eric J. Hornick, FCAS, MAAA, FCA**

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# INTRODUCTION

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## Scope of Assignment

### General Objective

Oliver Wyman Actuarial Consulting, Inc. (Oliver Wyman) has been engaged by the Department of Labor and Industries, State of Washington (L&I) to conduct an actuarial review of issues related to current retrospective rating programs in the State of Washington. The primary purpose of the review is to provide an independent analysis as well as recommendations regarding the adequacy and reasonableness of retrospective rating adjustments<sup>1</sup> and how retrospective rating adjustments impact equity:

- between employers within the retrospective program (“retro employers”), and
- between retro employers and employers not in the retrospective program (“non-retro employers”).

### Goals

The issues under examination within the scope of this project are complex and require some understanding of concepts underlying the insurance process and retrospectively rated insurance policies in general, and application of these concepts in Washington State in particular. The list and descriptions of specific project goals presented below presume a basic understanding of these concepts.<sup>2</sup>

- Examine, analyze, and report on possible inequities within the retrospective program as respects the relative treatment of (that is, premium charges to) individual retro employers or specific groups of retro employers. Specifically, does the calculation of retrospective premium for retro employers result in a distribution of refunds (surcharges) for better than (worse than) anticipated loss experience based on sound actuarial principles?<sup>3</sup>

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<sup>1</sup> *The purpose of this study is not to conduct an independent audit of the L&I Insurance Services Division.*

<sup>2</sup> *The Background Section on Retrospective Rating (following) provides a description of retrospective rating in general, and in Washington State, specifically, that will assist readers of this report.*

<sup>3</sup> *Final retrospective premium is calculated as a combination of fixed fees and actual loss experience. The calculation places an individual employer’s actual loss experience into an arithmetic formula. The arithmetic formula for an individual employer is determined by a set of actuarial tables and parameters. The specific table and parameters are, in turn, determined by the type of retrospective program selected by the employer and the employer’s size.*

- Examine, analyze and report on possible inequities between retro employers and non-retro employers. Washington State regulation WAC 296-17-90402 requires that retro employers as a group and non-retro employers as a group fund the same portion of their total claim costs relative to their total premium charges. That is, each group is required to generate the same loss ratio.<sup>4,5</sup> Specifically, what aspects, if any, of the process by which L&I determines retrospective refunds (surcharges) potentially distorts the measurement of loss ratios and therefore potentially creates inequities between retro employers and non-retro employers.
- Review current retrospective program actuarial tables and parameters and comment:
  - as to whether the tables and parameters, which were designed and developed 20+ years ago, are suitable for use in the current workers compensation marketplace in Washington State.
  - as to whether the tables and parameters potentially impact equity between retro employers within the retrospective program.
  - as to whether the tables and parameters potentially impact equity between retro employers and non-retro employers.
- Compare the retrospective program in Washington to other jurisdictions.
- Offer recommendations with respect to addressing issues identified in the study.

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<sup>4</sup> *The ratio of total claim costs (losses) to premium charges is called the loss ratio. The loss ratio is the basic measure of the performance of an insurance program. Loss ratios greater than 1.000 mean total losses have exceeded premium charges. Conversely, loss ratios less than 1.000 mean total losses have been less than total premium charges.*

<sup>5</sup> *For non-retro employers, premium charges are fixed (usually). For retro employers, premium charges are based on actual loss experience and will vary as individual employers receive refunds or surcharges. In order to comply with Washington regulation WAC 296-17-90402, L&I requires that the overall loss ratio for non-retro employers to equal the overall loss ratio for retro employers. L&I implements this requirement by adjusting the overall refund to retro employers until the loss ratio for retro employers equals the loss ratio for non-retro employers.*

## Specific Task List

L&I prescribed the following list of 15 tasks as a specific guide to the project:<sup>6</sup>

### **1. Equity of Retro Employer versus Non-retro Employer Costs**

The department calculates a retro refund target intended to result in retro and non-retro employers both funding an equal percentage of their future expected claim costs. To what extent does this current calculation have any actuarial biases that have one party (retro or non-retro) subsidize the other?

### **2. Equity of Claim Free Discount**

What impact does L&I's claim-free discount rating system have on retro and non-retro standard premiums? Is any impact of the claim-free discount actuarially fair to both retro and non-retro firms, both with the discount and without? The retro premiums are based on the experience-rated accident and medical aid standard premiums paid to the department. Does the current experience rating system, including the experience rating of small claim-free firms, produce any actuarial bias in the level of the retrospective premiums?

### **3. Kept on Salary Program**

Current Department comparisons between retro and non-retro firms do not take into consideration the avoided claim costs or the costs borne by the employers for injured workers while they are "kept-on-salary". Does this distort the true picture of safety or return-to-work comparisons between retro and non-retro firms? If so, what is an appropriate measure to produce these comparisons?

### **4. Trends in Permanent Partial Disability (PPD) award frequency**

What has caused the larger increase in PPD award frequency for retro firms than non-retro firms?

### **5. Comparison of data from retro employers and non-retro employers by industry group**

Comment on the data the department will provide that shows a comparison of retro employers and non-retro employers in areas such as claim frequency, cost, and market share in at least the following industry groups:

- Agriculture
- Wood Products Manufacturing
- Grocery/Retail
- Contractors/Construction Firms

### **6. Impact of retro employer actions on classification base rates**

What influence, if any, do retro employer actions have on industry risk classification base rates?

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<sup>6</sup> The task list presented in this report generally preserves, but does not exactly replicate L&I's presentation in the RFP issued for this project issued last year. For certain tasks, L&I's presentation was partitioned into multiple tasks in order to more systemically address L&I's underlying concerns.

## **7. Medical aid premiums**

Comment on the inclusion of medical aid premiums in the retro adjustment calculations. Is it possible for an employer to receive more in refund than the employer's share of premiums paid? What would be the impact of excluding half the medical aid premium from the retro calculations?

## **8. Number of adjustments for retro employers**

Analyze the use of three retro adjustments, given other considerations such as loss development factors and the influence the number of adjustments may have on retro participation. How does this compare to retro programs in other jurisdictions?

## **9. Potential inequities within the retrospective rating program**

Does the retro system reward, in disproportionate refunds, larger retro groups over smaller groups, or smaller groups over larger? If so, to what extent? Does this result in advantages or disadvantages for groups that are otherwise providing the same services and overall outcomes? Do financial incentives impact the claims management and safety efforts of the retro groups? If so, to what degree?

## **10. Performance Adjustment Factor (PAF)**

Comment on the PAF. The PAF has historically been less than 1.0, but has recently been greater than 1.0. Why has this occurred, and is this actuarially appropriate?

## **11. Loss Development Factors (LDFs)**

Why are the LDFs in Washington State so high, in comparison to those found in other states? Is this impacted by Washington's case reserve practices?

## **12. Case reserve levels**

Have case reserve levels been consistent over time?

## **13. Evaluation of Tables**

Evaluate and make recommendations on the following tables:

- Table of Insurance Charges
- Plan Tables A, A1, A2, A3, B
- Size Group Tables
- Single Loss Limitation Table

## **14. Examination of bias in current tables**

Is there any significant actuarial bias in the current tables and calculation with respect to:

- Size of enrollee
- Loss limitation
- Quarter of enrollment
- Third annual adjustment as the final adjustment
- Group enrollment vs. individual enrollment
- No underwriting of safety process effectiveness used by enrollee
- Risk classes of enrollee
- Choice of table selected
- Loss development factors/PAF

## **15. Comparison of current L&I practices to industry standards**

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# Background: Retrospective Rating

## Introduction

The purpose of this section is to provide a background on methods of developing insurance premium charges, in general, and retrospective rating, specifically. The section is designed to lay the groundwork for understanding the issues addressed by this study. Those already familiar with the background presented in this section may wish to move directly to the Executive Summary.

## Guaranteed Cost Policies and Non-retro Employers

### Cost of Insurance Coverage

Insurance premium provides for the following fundamental costs of insurance coverage:

- **Losses**  
In the specific instance of workers compensation insurance, losses include the cost of wage replacement benefits and the cost of medical treatment.
- **Claims Adjustment Expenses**  
Claims adjustment expenses include the cost of claims management expenses that may be attributed to individual claims (usually termed “allocated expenses” and which may include the costs of litigation, surveillance, etc.) and the cost of claims management expenses that are not attributed to individual claims (usually termed “unallocated expenses” and which may include claims administrator salaries, equipment costs, etc.)
- **Insurance Company Expenses**  
These would include the cost of administrative overhead, rent and facility costs, policy production costs, commission, taxes, licensing, etc.
- **Insurance Company Profit**  
Insurance companies strive to earn a reasonable profit commensurate with the risk they assume by engaging in the business of insurance.

### Premium Rates and Exposure

Premium rates include provisions for each of the fundamental costs of insurance coverage. Premium, in the most basic sense, is equal to the rate multiplied by the number of exposure units.

In workers compensation insurance, exposure units may be payroll, hours worked, or some other measurement of time at work. For example, an employer with 25 employees working 2000 hours per year at an average hourly rate of \$20 will generate \$1,000,000 total payroll (25 x 2000 x \$20) in a year. In most states, payroll, measured in units of \$100, is the typical exposure unit

for determining workers compensation premium. Therefore, an employer with \$1,000,000 annual payroll will have 10,000 exposure units.

Alternatively, if exposure is measured by hours worked (as in Washington), the same employer will have accumulated 50,000 (25 x 2000) hours worked, in which case there will be 50,000 exposure units. Hours worked is the measure of exposure in Washington.

In some states for some types of employment, premium rates are charged on a per capita basis. Using the example above, the same employer, with 25 employees, will have 25 exposure units.<sup>7</sup>

Regardless as to measure of exposure, premium rates are developed appropriately such that sufficient premium is developed to provide for the fundamental costs of insurance coverage. In the example above, rates of \$3.50 per \$100 payroll, \$0.70 per hour worked, or \$1,400 per employee per year will each generate the same annual premium of \$35,000.

#### Experience Rating and the Experience Rating Modification

In workers compensation insurance, each employer pays a premium rate based on type of work or services provided. Premium rates are published by workers compensation classification, of which there are hundreds. Nevertheless, even with this level of detail in the rating system, the premium rate for each classification can only be viewed as an average rate for all employers with payroll in that classification. Relative to the published premium rate, the actual claims experience of some employers will be greater while for others, actual claims experience will be lower. The purpose of the experience rating plan is to forecast how individual employers will perform relative to the average employer in the classification. The forecast is based on what is conceptually a very simple measurement: Each employer's recent actual claim experience for prior years is measured against what would have been expected based on the average for the employer's classification. The result of this measurement is the employer's experience modification. If an individual employer has greater than average claim experience, that employer is assigned an experience modification greater than 1.000 (also known as a debit modification). If an individual employer has lower than average claim experience, that employer is assigned an experience modification less than 1.000 (also known as a credit modification). Therefore, workers compensation premium is equal to:

Hours worked x premium rate per hour x experience modification

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<sup>7</sup> In Washington, other exposure bases are used for certain specific workers compensation employee classifications. For classifications 540, 541, 550, and 551, rates are expressed as a cost of per square foot of wallboard installed. Similar examples exist in other states.



### Guaranteed Cost Policies

A guaranteed cost policy is the insurance policy with which individuals are most familiar. A predetermined premium is paid at policy inception or as installments across a period of time. The premium is fixed<sup>8</sup> and final, regardless as to what the employer's actual loss experience may turn out to be. Premium is determined as described previously:

Hours worked x premium rate per hour x experience modification

Guaranteed cost premium is said to be *prospective*, in the sense that premium rates and the employer's experience modification are used to forecast what the employer's future loss experience will be. This forecast is the basis for the guaranteed cost premium. Guaranteed cost premium paid by any single employer may or may not be sufficient to fund the cost of insurance provided to that specific employer. Some employers, even after experience rating, will generate losses much greater than their premium payment, while other employers will generate losses much smaller than their premium payment. On average, across a large number of employers, guaranteed cost premium is expected to be sufficient to provide for benefit payments, expenses and profit.<sup>9</sup>

### Guaranteed Cost Policies and Washington

Workers compensation premium rates in Washington provide for the cost of wage replacement benefits, medical benefits, claim and other administrative expenses. Premium rates in Washington do not provide for profit in the true sense of the word, however, they do include an offset for expected investment income that will be earned on premium collections until losses and expenses are actually paid.<sup>10</sup> This offset is actually a reduction to premium rates.

In Washington, guaranteed cost premium is calculated exactly as described above, *and represents the premium charged to non-retro employers*. Guaranteed cost premium is generally known as standard premium in Washington. The term standard premium will be used from this point forward.

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<sup>8</sup> *In actuality, final premium is not determined until the actual exposure (number of hours worked) during the policy period is known. This is usually not known until a short time after the policy period ends.*

<sup>9</sup> *Insurance companies use the law of large numbers. The larger the group of employers insured under a guaranteed cost program, the greater the likelihood that actual results for the group will be as expected. This is the principle that permits insurance companies to offer insurance to single employers who may or may not generate claim costs greater than their premium payments.*

<sup>10</sup> *In other jurisdictions, insurance companies offset their profit provision for expected investment income. In Washington, there is no profit provision, so employers receive the full benefit from the investment income offset.*

## Retrospective Rating in General

### Retrospective Premium

Standard premium for non-retro employers (guaranteed cost policies) is based on past claim experience for the employer's specific workers compensation classification as well as the employer's own past claim experience, as incorporated into the employer's experience modification. As discussed above, standard premium is a forecast of expected future claim experience for a specific employer, and is fixed (not withstanding audit adjustments to reflect actual hours worked during the policy period) at policy inception, regardless as to an individual employer's actual loss experience.

Premium for retrospective insurance programs are determined primarily by an individual employer's actual claim experience during the policy period. Unlike guaranteed cost policies, where premium is known and fixed at the start of a policy period, premium for retrospective insurance policies is not known until the final measurement of actual claim experience. The final measurement of actual claim experience can be one year or many years after the end of the policy period. The actual measurement is either specified in the policy contract, or is unspecified with the caveat that a final measurement is made with the agreement of both the insured and the insurer.<sup>11</sup>

The formula for the calculation of retrospective premium is shown below:

$$\text{Retrospective Premium} = \left[ \text{Basic Premium} + \text{Actual Limited Losses} \right] \times \left[ \text{Loss Conversion Factor} \right] \times \text{Tax Multiplier}$$

Losses used in the above formula are labeled "actual limited losses" because an insured may elect to purchase a per claim limit on losses that are used in the retrospective premium calculation. Actual limited losses means the sum of all losses capped at the selected per claim limit.

Additionally, the insured may elect to secure a maximum limit on retrospective premium payable, as well as a minimum retrospective premium payable. Each of the terms above, as well as the maximum and minimum limits on retrospective premium payable is defined below.

- **Maximum Limit on Retrospective Premium Payable**  
Retrospective premium is based on actual loss experience during the policy period. An insured may elect to establish a maximum limit on retrospective premium payable to provide protection against unexpected claim experience. Maximum limits provide additional protection to the insured by limiting payments to the insurance company. As such, there is a fee for establishing a maximum limit. The fee is determined actuarially and is included in the basic premium.

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<sup>11</sup> Currently in Washington, there are three measurements of claim experience, occurring 21 months, 33 months, and 45 months after program enrollment.

- **Minimum Limit on Retrospective Premium Payable**  
Retrospective premium is based on actual loss experience during the policy period. An insured may elect to establish a minimum limit on retrospective premium payable. A minimum limit guarantees the insurance company a minimum premium, regardless as to how low the insured's actual claim experience may be. Minimum limits are a financial guaranty to the insurance company. As such, there is a *credit*, or premium reduction, for establishing a minimum limit. The credit is determined actuarially and is included in the basic premium.
- **Per Claim Limit**  
Retrospective premium is based on actual loss experience during the policy period. An insured may elect to establish a maximum per claim limit on losses that are used in the retrospective premium calculation. For example, if an insured establishes a maximum per claim limit of \$500,000 and incurs a \$1,250,000 million claim during the policy period, that claims contributes only \$500,000 (the maximum limit) to the calculation of retrospective premium. Per claim limits provide additional protection to the insured by limiting premium payments to the insurance company. As such, there is a fee for per claim limitations. The fee is determined actuarially and is included in the basic premium.
- **Basic Premium**  
Basic premium provides for the following insurance costs:
  - Insurance company expenses
  - Insurance company profit, including any offset for expected investment income
  - The actuarial cost of a limit on retrospective premium payable
  - The actuarial credit for a minimum retrospective premium payable
  - The actuarial cost of a limit on individual claims
  - The cost of claim adjustment expenses associated with losses above individual claim or policy maximum limits.
- **Actual Limited Losses**  
Actual loss experience during the policy period, adjusted to reflect the limit on individual claims, as applicable.
- **Loss Conversion Factor (LCF)**  
The LCF is typically a number greater than one, and provides for the cost of claim adjustment expenses. This expense is provided for as a multiplicative factor against losses because there is a presumption that claim adjustment expenses will vary directly with loss volume, that is, the greater the loss volume, the greater the charge for claim adjustment expenses, and vice versa.
- **Tax Multiplier**  
The tax multiplier provides for premium taxes and assessments.

The formula for retrospective premium provides for the fundamental costs of insurance coverage as follows:

- Losses are provided for as follows:
  - Actual Limited Losses
  - The charge for per claim limits in basic premium
  - The charge for maximum premium in basic premium
  - The credit for minimum premium in basic premium
- Claims Adjustment Expenses are provided for as follows:
  - Loss Conversion Factor
  - Basic Premium
- Insurance Company Expenses are provided for as follows:
  - Basic Premium
- Insurance Company Profit is provided for as follows:
  - Basic Premium

#### Variations

In most jurisdictions, a wide variety of programs are available. Typical program variations include:

#### Incurred versus Paid Loss Programs

In incurred loss programs, the retrospective premium is determined based on incurred losses, which are paid loss plus case reserves. For paid loss programs, retrospective premium is determined based on paid loss only. In both paid and incurred loss programs, adjustments may extend out many years. However, any agreement on final adjustments in a paid loss program do include a provision for case reserves.

#### Per Claim Limits

Typically, a wide variety of limits are available, ranging from \$10,000 to \$5,000,000 or more.

#### Minimum and Maximum Premium Payable

Typically, a wide variety of limits are available.

### Variation in Expense Provisions

Insurance companies will negotiate an almost infinite variety of programs based on variations on how expenses and insurance charges in the basic premium are collected. Typical variants include shifting a portion of the expense component of basic premium into the LCF. In this situation, the basic premium is reduced and the LCF is increased such that if the employer generates expected claim experience, the insurer will collect the shortfall in the basic premium through the LCF. This is shown in a very simple example that follows:

#### Typical Retrospective Premium

Basic Premium =	\$25,000	
Expected Losses =	\$50,000	
LCF =	1.10	
Converted Losses =	\$55,000	$\$50,000 \times 1.10$
Retrospective Premium =	\$80,000	$\$25,000 + \$55,000$

#### Reduced Basic Retrospective Premium

Basic Premium =	\$10,000	
Expected Losses =	\$50,000	
LCF =	1.40	
Converted Losses =	\$70,000	$\$50,000 \times 1.40$
Retrospective Premium =	\$80,000	$\$10,000 + \$70,000$

#### Examples showing actual losses at various levels:

Actual Losses	Typical Retrospective Premium	Reduced Basic Retrospective Premium
\$50,000	\$80,000 $= \$25,000 + \$50,000 \times 1.10$	\$80,000 $= \$10,000 + \$50,000 \times 1.40$
\$20,000	\$47,000 $= \$25,000 + \$20,000 \times 1.10$	\$38,000 $= \$10,000 + \$20,000 \times 1.40$
\$80,000	\$113,000 $= \$25,000 + \$80,000 \times 1.10$	\$122,000 $= \$10,000 + \$80,000 \times 1.40$

Shifting expense costs from the basic premium to the LCF provides an opportunity for an employer to significantly reduce costs. An employer in a reduced basic program would pay much lower premium than with a typical program if claim experience is significantly lower than expected. However, if this same employer had significantly greater than expected claim experience, it would pay a much larger premium in a reduced basic program than with a typical program.

In some instances, there is no basic premium, with all expenses and actuarial charges (as well as claim administrative expenses) included in the LCF. In this extreme case, if an employer were to have no losses, premium would be zero.<sup>12</sup>

This illustration is important in the sense that it serves as the basis for understanding the differences between the various retrospective plans that are available in Washington. These are discussed in the following section.

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<sup>12</sup> *These programs are generally reserved only for large employers, where the likelihood of no claims is essentially zero. Nevertheless, a large employer participating in this type of program can significantly reduce the expense portion of retrospective premium by realizing less than expected loss experience.*

## Retrospective Rating in Washington State

### Available Plans

There are currently five retrospective plans available in Washington: A, A1, A2, A3 and B. Each is described below. Note that Plan B, even though offered in a single set of tables, is essentially two separate plans, one for smaller employers with relatively low maximum premiums, and one for larger employers with relatively high maximum premiums. As such, Plan B is described separately for each circumstance. Additionally, note that each plan reflects a single \$500,000 per claim limit. Per claim limits other than \$500,000 are not currently offered in Washington.

#### Plan A:

Basic Premium: Tabular value that decreases with selected maximum premium.

Minimum Premium: Equal to Basic Premium.

LCF: 0.729, same for all employers.

#### Plan A1:

Basic Premium: 0.058, same value for all employers.

Minimum Premium: Tabular value that decreases with selected maximum premium.

LCF: 0.729, same for all employers.

#### Plan A2:

Basic Premium: Tabular value that decreases with selected maximum premium.

Minimum Premium: Tabular value that decreases with selected maximum premium.

LCF: 0.729, same for all employers.

#### Plan A3:

Basic Premium: Tabular value that decreases with selected maximum premium.

Minimum Premium: Tabular value that decreases with selected maximum premium.

LCF: 0.729, same for all employers.

#### Plan B – Small Employers:

Basic Premium: Tabular value that decreases with selected maximum premium.

Minimum Premium: Equal to Basic Premium

LCF: Tabular value that increases with selected maximum premium.

#### Plan B – Large Employers:

Basic Premium: Zero.

Minimum Premium: Zero.

LCF: Tabular value that decreases with selected maximum premium.

The different plans reflect variations on how expenses and actuarial charges, normally in the basic premium, are collected. This was discussed in the prior section. Plan B for large employers is the extreme case of zero basic premium and higher LCFs. A large employer with

significantly lower loss experience than expected will tend<sup>13</sup> to pay the lowest premium under plan B, while the same employer with significantly greater than expected loss experience will tend to pay the highest premium under plan B.

Determining Retrospective Premium

The general formula for the calculation of retrospective premium is shown below:

$$\text{Retrospective Premium} = \left[ \text{Basic Premium} + \text{Actual Limited Losses} \right] \times \left[ \text{Loss Conversion Factor} \right] \times \text{Tax Multiplier}$$

The formula for the calculation of retrospective premium in Washington follows:

$$\text{Retrospective Premium} = \text{Basic Premium} + \text{Actual Limited Losses} \times \text{Loss Conversion Factor} \times \text{Loss Dev. Factor} \times \text{Performance Adjustment Factor}$$

This formula is slightly different than the general formula presented above. The components of this formula, as well as the differences from the general formula are discussed and explained below. It is important to note that while the Loss Development Factor and the Performance Adjustment Factor are independent quantities that are derived and calculated separately, in practice they are combined into a single number for presentation purposes.

- **Basic Premium**  
Basic premium serves a similar role in Washington as in the general formula, with some differences. In Washington, basic premium provides for:
  - Administrative and other program expenses, which are generally lower than they would be in typical retrospective rating programs
  - There is no profit, and the impact of investment income is included in the LCF
  - The actuarial cost of a maximum limit on retrospective premium payable
  - The actuarial credit for a minimum retrospective premium payable
  - The actuarial cost of the \$500,000 limit on individual claims
- **Actual Limited Losses**  
Actual loss experience during the policy period, adjusted to reflect the \$500,000 limit on individual claims. This is the same as the general formula.
- **Loss Conversion Factor (LCF)**  
In Washington, the LCF provides for the cost of claim adjustment expenses as well as the impact of investment income to account for investment income that could be earned during the period between the time L&I collects premium and the time that losses are actually paid.

<sup>13</sup> The impact will vary depending on the maximum premium election.



- **Loss Development Factor**  
Actual limited losses are developed to reflect the expectation that limited losses will increase over time as claims mature. Loss development is expected in the insurance industry, especially with workers compensation claims. In other jurisdictions, loss development factors may be applied as part of the retrospective premium calculation, or they may only be considered when the insured and the insurer are negotiating a final adjustment. In Washington, loss development factors are applied as part of the retrospective premium calculation.
- **Performance Adjustment Factor (PAF)**  
The PAF is unique to Washington. Washington regulation WAC 296-17-90402 requires that retro employers and non-retro employers fund the same percentage of losses from premium. This is equivalent to requiring that retro employers and non-retro employers have the same ratio of incurred losses to premium. L&I therefore requires that the overall loss ratio for non-retro employers to equal the overall loss ratio for retro employers. L&I implements this requirement by adjusting the overall premium required from retro employers until this condition is met. The adjustment is made through a modification to actual limited losses in every employer's retrospective premium calculation. The modification is made through application of the PAF, which is initially set at 1.000. The PAF is either increased above, or decreased below, 1.000 until the required retrospective premium is generated.<sup>14</sup>
- **Tax Multiplier**  
There are no premium tax charges in Washington.

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<sup>14</sup> A description of the actual process may be simplified as two basic steps:

*Step One: The ratio of incurred actual unlimited losses to standard premium for non-retro employers is compared to the ratio of incurred actual unlimited losses to standard premium for retro employers. Standard premium for retro employers is reduced until the loss ratio for both groups are equal. The amount by which standard premium for retro employers is reduced is the aggregate retrospective refund. The difference is termed a refund because the initial premium paid by retro employers is equal to their standard premium.*

*Step Two: The retrospective premium for every retro employer is calculated, using the formula in the text, with a starting PAF of 1.00. This is the formula retrospective premium. The PAF is adjusted until the difference between standard premium for retro employers and the formula retrospective premium equals the aggregate retrospective refund determined in Step One.*

*Step one may be viewed as the process used to determine the required aggregate retrospective refund. Step Two may be viewed as the process by which this refund is distributed to individual employers.*

*The actual process requires adjustments for investment income and rate level changes. However, the basic algorithm is as described above.*

### Retrospective Premium Adjustments and Refunds

Retro employers are initially charged standard premium.<sup>15</sup> Retrospective premium is calculated using the formula described in the prior section at three points in time: 21, 33, and 45 months following enrollment. These points in time are generally referred to as adjustments. At the first adjustment, the calculated formula retrospective premium is compared to the initial standard premium charged. If the formula retrospective premium is greater than standard premium, additional premium is paid. If the formula retrospective premium is less than standard premium, premium is refunded to the employer. The process is repeated at the two subsequent adjustments, except comparisons are made to standard premium net of any prior premium surcharges or refunds. The first adjustment has generally resulted in premium refunds to retro employers because first, retro employers generally have less than average loss experience and second, the manner by which premium rates are established in Washington. This latter issue is material, and is discussed separately for the medical aid component and the accident fund component of premium rates.

- The medical aid component of premium rates is established in a manner that is expected to be adequate for all employers, retro and non-retro combined, in the state. Therefore, prior to experience rating, there is an expectation that medical aid portion of rates will be higher than necessary for retro employers, given that retro employers have lower than average claim experience. Experience rating mitigates, but does not eliminate, this issue.
- The accident fund component of premium rates is established in a manner that is adequate for *non-retro employers*. Non-retro employers generally have claim experience that is higher than average, but significantly higher than retro employers. As such, the accident fund component of rates will be materially higher than necessary for retro employers. Experience rating mitigates, but does not eliminate, this issue.

The second and third adjustments are less likely to produce refunds than the first adjustment. Regardless, retro employers can expect, in the aggregate, net premium refunds after the final adjustment at 45 months following enrollment.<sup>16</sup>

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<sup>15</sup> *Hours worked x premium rate per hour x experience modification*

<sup>16</sup> *Under WAC 296-17-90428, retro groups forfeit their eligibility if they are required to pay additional premium for three consecutive coverage periods.*

The Unique Nature of the Process in Washington

Washington regulation WAC 296-17-90402 and its requirement that retro employers and non-retro employers fund the same percentage of losses from premium is unique, and serves as the basis for the existence of the PAF. However, this requirement is more than a technical adjustment to the general retrospective premium formula. Rather, the requirement established by WAC 296-17-90402 defines the method by which the overall dollar value of the retrospective refund in Washington is calculated. *The retrospective formula used in Washington (and the PAF) is simply a vehicle by which the overall dollar amount of the retrospective refund (which is determined by matching retro experience to non-retro experience) is distributed to individual employers.* This is different than in any other jurisdiction. In all other jurisdictions, the retrospective formula is a stand alone calculation that determines the retrospective premium due from an individual employer, *independent of any other employer's experience.* This is not the case in Washington. In Washington, the total retrospective premium due, and therefore the total retrospective refund, is determined by comparing experience of all retro employers combined to the experience of all non-retro employers combined. In this sense, the premium requirements and experience of *all* employers in the state are inextricably linked. Given this situation, it is entirely possible for retro employers, as a group, to have identical loss ratios in two consecutive years, *but have completely different refunds.* For example, if retro employers as a group have loss ratios of 0.95 in 2011 and 2012, but non-retro employers as a group have loss ratios of 0.95 in 2011 and 1.20 in 2012, retro employers, as a group, will realize a significantly larger refund in 2012 than in 2011, even though their loss ratios were identical in both those years.

## Re-examination of Goals

The primary purpose of the review is to provide an independent analysis as well as recommendations regarding the adequacy and reasonableness of retrospective rating adjustments and how retrospective rating adjustments impact equity among retro employers and between retro and non-retro employers. Given the information presented in the prior section, it is apparent that the system in Washington poses very specific challenges as respects equity. In particular, we note that:

- The PAF and underlying methodology is L&I's response to the requirement established by WAC 296-17-90402 that retro employers and non-retro employers fund the same percentage of losses from premium. Any issues regarding the methodology and data underlying the calculation and application of the PAF will potentially impact equity between retro employers and non-retro employers, as well as between retro employers themselves. As such, this report has examined data, process, and application as applied to use of the PAF.
- Workers compensation rates in Washington are the sum of the medical aid component and the accident fund component<sup>17</sup>. The medical aid component provides for the cost of medical treatment while the accident fund component provides for the cost of wage replacement benefits. This is the case in all jurisdictions as respects workers compensation rates. However, Washington is unique in that there is a regulatory standard that employees fund one half the medical aid component of workers compensation rates. This requirement raises questions as to the equity of retrospective premium calculations, which presume employers have funded 100% of the medical aid component. The situation is further complicated by the fact that some employers do fund 100% of the medical aid component. This report addresses questions raised by this situation.
- Washington, like other jurisdictions, has a number of programs in place to mitigate the cost of workers compensation claims to employers. In particular, Washington has a kept on salary program<sup>18</sup> and a claim free discount program.<sup>19</sup> This report addresses how, if at all, these programs impact equity between retro employers and non-retro employers, and among retro employers.

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<sup>17</sup> There is also a component for supplemental pension benefits (Cost of Living Adjustments) that is constant across all rate classes. This provision is currently 8.36 cents/ hour worked. Like medical aid, employees fund half of this component.

<sup>18</sup> The kept on salary program allows employers to continue to pay wages of injured employees, rather than seeking wage replacement benefits from the workers compensation system. In certain circumstances, this can result in substantial savings to the employer by allowing the employer to maintain a claim free discount, as well as avoiding the impact of a lost time (wage replacement) claim on the employer's experience modification.

<sup>19</sup> The claim free discount program provides a discount to employers who have no lost time or disability claims during their experience rating period.

- This report addresses, to the extent that data and information was available, other issues that may impact equity either between retro employers and non-retro employers, and/or among retro-employers. These include:
  - Trends in Permanent Partial Disability (PPD) award frequency.
  - Market share and relative experience between retro employers and non-retro employers by industry group.
  - Potential impact of actions by retro employers on overall base rates.
  - Potential inequities by group size within the retrospective rating program.
  - Relative level of case reserves<sup>20</sup>
  - Relative magnitude of Loss Development Factors<sup>21</sup>
  - Number of adjustments for retro employers
- Review current retrospective program actuarial tables and parameters and comment:
  - as to whether the tables and parameters, which were designed and developed 20+ years ago, are suitable for use in the current workers compensation marketplace in Washington State.
  - as to whether the tables and parameters potentially impact equity between retro employers within the retrospective program.
  - as to whether the tables and parameters potentially impact equity between retro employers and non-retro employers.
- Compare the retrospective program in Washington to other jurisdictions.
- Offer recommendations with respect to addressing issues identified in the study.

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<sup>20</sup> Case reserves are established by the claims administrator and are based on information available to the administrator at the time the reserve is either established or adjusted. Standards and protocols exist regarding case reserving, but judgment and experience play a significant role. The principal question is whether there is a difference in case reserve levels, on average, between retro employers and non-retro employers and, if so, does this difference impact equity between the two groups.

<sup>21</sup> Loss development factors provide for the expected growth to claim costs over time. Growth occurs due to newly reported claims as well as increases to reported costs on claims already reported to L&I. Loss development is an expected phenomenon common to most types of casualty insurance lines. The principal question is the accuracy and appropriateness of loss development factors used in the retrospective premium calculations.

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# EXECUTIVE SUMMARY

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## Key Findings

1. **Retro employers generally have better than expected claim experience relative to non-retro employers by industry group.**
2. **The current methodology used to ensure that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402 is reasonable and equitable, and is independent of concerns regarding the application of the PAF within the group of retro-employers as well as the number of retro adjustments.**
3. **It is reasonable to conclude that the experience of retro employers act to decrease the average rate for individual classifications.**
4. **The number of retrospective rating adjustments should be increased.**
5. **The application of the Policy Adjustment Factor (PAF) should be changed.**
6. **While the medical aid portion of the refund appears to be appropriate in aggregate, the method for distributing it to employers should be revised.**
7. **The procedure for allocating occupational disease losses is not equitable and must be revised.**
8. **L&I, in the process of preparing data for Oliver Wyman, has identified, and corrected, several important data issues.**

# Principal Observations

## Program Integrity

1. **Retro employers generally have better than expected claim experience relative to non-retro employers by industry group.**<sup>22</sup>
  - a. Retro employers generate lower losses per hour than non-retro employers in all industry groups except H, L, N, and R.
  - b. Retro employers generate lower loss ratios relative to standard premium than non-retro employers in all industry groups except R.
  - c. Retro employers generate lower experience rating modifications than non-retro employers in all industry groups except A, H, J, and R.
  - d. Retro employers generally have greater average claim frequencies (measured per 1,000 hours worked) than non-retro employers. However, claims for retro employers tend to close faster and have lower average costs than non-retro employers.

**Additionally, retro employers with lower than expected claim experience pay lower premium charges, and retro employers with greater than expected claim experience pay higher premium charges, relative to a retro employer with average claim experience. While there are concerns regarding the equity of premium charges among retro-employers as well as between retro employers and non-retro employers (addressed later in this section), the program in Washington follows the fundamental precept of retrospective rating: Premium charges are based directly on actual incurred losses, as shown in the formula used to determine retrospective premium:**

$$\text{Retrospective Premium} = \text{Basic Premium} + \text{Actual Limited Losses} \times \text{Loss Conversion Factor} \times \text{Loss Dev. Factor} \times \text{Performance Adjustment Factor}$$

<sup>22</sup> Industry groups are defined as follows:

<i>A</i> Agriculture	<i>I</i> Utilities and Communications	<i>Q</i> Government
<i>B</i> Forest Products	<i>J</i> Transportation and Warehousing	<i>R</i> Temporary Help
<i>C</i> Miscellaneous Construction	<i>K</i> Dealers and Wholesalers	
<i>D</i> Building Construction	<i>L</i> Stores	
<i>E</i> Trades	<i>M</i> Miscellaneous Services	
<i>F</i> Food Processing and Manufacturing	<i>N</i> Healthcare	
<i>G</i> Metal and Machinery Manufacturing	<i>O</i> Miscellaneous Professional and Clerical	
<i>H</i> Miscellaneous Manufacturing	<i>P</i> Schools	

## Equity

2. **The current methodology used to ensure that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402 is reasonable and equitable, and is independent of concerns regarding the application of the PAF within the group of retro-employers as well as the number of retro adjustments (addressed later in this section).**
  - a. The current methodology utilizes a “rolling average” technique that generates results that are credible and stable.
  - b. The current methodology appropriately adjusts data generated at different times for changes in rate level as well as for the impact of investment income on funds held by L&I.
  - c. There appears to be a need to increase the number of adjustments to retrospective premium beyond the current final adjustment of 45 months after enrollment. This issue is discussed later in this section. However, the methodology used to meet the requirements of WAC 296-17-90402 is independent of the number of adjustments to retrospective premium. The same methodology can be used for additional adjustments.
  - d. There is a concern regarding the application of the PAF and the impact on equity between retro employers. This issue is discussed in the following paragraph. However, the methodology used to meet the requirements of WAC 296-17-90402 establishes the benchmark premium refund, in the aggregate, to retro employers, and is independent of how the PAF is applied. Application of the PAF addresses how to distribute the benchmark premium refund to retro employers, and is therefore a separate issue.
3. **The current methodology used to apply the PAF creates biases for or against specific employers depending on plan selected, actual loss experience, and program availability. The current methodology applies the PAF only to the actual limited loss component of retrospective premium. It does not apply the PAF to the basic premium component. As such, the current methodology leverages the impact of the PAF on employers who select programs with a small or absent basic premium component.**
  - a. If the PAF is greater than 1.000<sup>23</sup>, employers in plans with little or no basic premium will receive *less* than their fair share of the aggregate retrospective refund, while employers in plans with larger basic premium charges will receive more than their fair share. If the PAF is less than 1.000, employers in plans with little or no basic premium will receive *more* than their fair share of the aggregate retrospective refund, while employers in plans with larger basic premium charges will receive less than their fair share.

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<sup>23</sup> Historically, PAF's have ranged from 0.600 to 1.100, although they have been below 1.000 prior to the last few years. The very low PAF's in the early 2000's were a direct result of low rate levels, and therefore high loss ratios, during this period of time. More recently, rate levels have increased (in part due to significantly reduced investment income). With higher rate level and lower loss ratios, PAF's have increased significantly.



- b. The retrospective premium formula is shown below, and clearly demonstrates that basic premium is not impacted by the PAF.

$$\text{Retrospective Premium} = \text{Basic Premium} + \frac{\text{Actual Limited Losses}}{\text{Conversion Factor}} \times \frac{\text{Loss Dev. Factor}}{\text{Performance Adjustment Factor}}^{24}$$

- c. The formula for retrospective premium is designed to be adequate after consideration of all components. This is easily understood after considering how expense and actuarial charges are shifted from basic premium to the LCF to create different plans. The current approach treats employers who elect plans with higher basic premium differently than employers who elect plans with smaller or no basic premium. This is not justifiable from an actuarial perspective, nor does there appear to be any other reasonable explanation. Our understanding is this approach was taken to simplify computer code designed decades ago.
- d. The equalization of non-retro employer loss ratios and retro employer loss ratios, as required by WAC 296-17-90402, is based on the combined losses and total premium of all employers in the non-retro program and the combined losses and total premium (basic premium *and* loss based premium) of all employers in the retro program. Therefore, the PAF methodology, which distributes the impact of the equalization process to individual retro employers, should impact all retrospective premium components equally. Clearly, it does not.
- e. A simple adjustment to the retrospective premium formula will address this issue, as shown below:

$$\text{Retrospective Premium} = \left[ \text{Basic Premium} + \frac{\text{Actual Limited Losses}}{\text{Conversion Factor}} \times \frac{\text{Loss Dev. Factor}}{\text{Performance Adjustment Factor}} \right]$$

**4. The current number of adjustments to Retrospective premium is not sufficient to capture differences in loss development between retro employers and non-retro employers. Additionally, it is likely that there are significant differences in loss development between employers in the retrospective program that are not captured by the current number of adjustments.**

- a. There are currently three adjustments, occurring at 21, 33, and 45 months following enrollment. Data indicates that loss development beyond the third adjustment for retro employers is materially different from loss development for non-retro employers. Therefore, increasing the number of adjustments will impact and increase equity between retro employers and non-retro employers.

<sup>24</sup> The Loss Development Factor and the Performance Adjustment Factor are independent quantities that are derived and calculated separately. However, as mentioned earlier, in practice they are combined into a single number for the purpose of presentation.

- b. Insurance industry data and studies conducted in other states demonstrate that loss development varies materially by hazard for workers compensation exposures, even after 45 months. As such, there is an expectation that implementing additional adjustments will impact and increase equity between retro employers.
- c. Consideration should be given to implementing additional adjustments at 57 months and 69 months following enrollment. Increasing the number of adjustments can be expected to improve equity between retro employers and non-retro employers, and between employers within the retrospective program.
- d. Consideration should be given to using different loss development factors for retro experience and non-retro experience during the process of equalization of non-retro employer loss ratios and retro employer loss ratios, as required by WAC 296-17-90402. The current procedure assumes identical loss development for both groups at the time of each adjustment. This procedure, if adopted, would improve equity between retro employers and non-retro employers, however it would have no impact on the equity between retro employers. As such, this procedure must be considered a complement to increasing the number of adjustments, not an alternative.

**5. The claim free discount rating system is actuarially fair.**

- a. Data demonstrates that the claim free discount (CFD) rating system rewards employers with lower than average loss ratios and complements the experience rating system for both retro employers and non-retro employers.

**Retro Participants**

	Those without CFD	Those with CFD	
	Loss Ratio	LR before CFD	LR after CFD
2003	76%	60%	74%
2004	65%	56%	69%
2005	56%	44%	54%
2006	55%	42%	50%
2007	60%	54%	60%

**Non-Retro Participants**

	Those without CFD	Those with CFD	
	Loss Ratio	LR before CFD	LR after CFD
2003	84%	72%	84%
2004	72%	59%	70%
2005	67%	58%	67%
2006	64%	51%	59%
2007	71%	61%	65%

- b. The tables above display by year, individually for retro employers and non-retro employers, loss ratios for employers with out the claim free discount, loss ratios for employers entitled to the claim free discount before application of the discount, and after application of the

discount. It is clear that employers entitled to the claim free discount have significantly lower loss ratios than those who are not. Additionally, application of the discount increases the loss ratios of employers entitled to the discount to a level closer to that of employers not entitled to the discount.

- c. Examination of claim free discount detail by industry group and group size generally demonstrates the same level of equity for the majority, but not all, industry groups and group sizes. However, significantly greater variation is expected as statewide data is partitioned into smaller categories.

**6. Analysis of non-hearing permanent partial disability (PPD) claim frequency demonstrated that for the period under examination, 2003 through 2007, there were no discernable differences between claim frequency trends for retro employers and non-retro employers. The analysis was conducted by size of employer, and while relativities varied by size of employer, within each size group the relativities were approximately constant overtime, after consideration of sample size. Similar results were found to be true for permanent total disability claim frequency as well.**

**7. Kept on Salary**

- a. Claims for employees Kept on Salary are NOT consistently reported to L&I. At times, L&I is not informed that an employee has been Kept on Salary unless they are converted to a lost time (accident fund) workers compensation case. The only information available to Oliver Wyman for analysis regarded lost time claims where employees had been kept on salary are those that had been reported to and recorded by L&I. There is no information available on what portion of claims where employees had been kept on salary are ultimately closed without becoming lost time claims, or what portion of these claims are currently open, but have not yet been closed or converted.<sup>25</sup>
- b. Available data on converted claims demonstrates that over 95% of converted claims are converted *during the retrospective rating period*. Additionally, data does not show a discernable difference in observed conversion rates, by claim maturity, between retro employers and non-retro employers. In fact, data for claims converted after the last retrospective rating adjustment suggests that conversion is delayed for a greater percentage of claims from *non-retro employers*, rather than retro employers. As such, data does not support the assertions that retro employers will intentionally keep employees on salary and delay conversion until after the final retrospective rating adjustment so as to avoid incurring the cost of a converted claim during the retrospective rating period. The implication is that observed differences in loss development between retro employers and non-retro employers is due to phenomena unrelated to the Kept on Salary program.

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<sup>25</sup> For purposes of this discussion, a converted Kept on Salary claim is a Kept on Salary claim that evolved into a lost time claim. Additionally, as respects reporting, the following is of note:

- The claim would have been originally reported to L&I as having medical losses only; and
- The claim would have been subsequently identified as a claim that had been Kept on Salary when it became a lost time claim.

## Data Issues Impacting Equity

- 8. A portion of the loss experience for non-retro employers was double counted for one quarter per year annually extending back to the early 1990's. This artificially increased the loss ratio for non-retro employers and led to artificially high retrospective premium refunds.**
- a. The impact was to overstate the loss ratio for non-retro employers, due to double counting losses in the loss to premium ratio.
  - b. As a result, the loss ratio for retro employers was increased to match the overstated loss ratio for non-retro employers during the process of ensuring that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402.
  - c. The loss ratio for retro employers was increased by reducing premium in the loss to premium ratio.
  - d. Retrospective premium is reduced by increasing the retrospective refunds. The result was an increase to retrospective refunds that was not warranted.
  - e. Corrections were made promptly by L&I, following the discovery of this error by L&I staff.
  - f. The overall impact of this issue is material. The correction of this issue may potentially reduce the average retrospective refund by approximately 10%, according to L&I.
  - g. While the error goes back to the 1990's, only those periods that have not had a third adjustment are affected by the correction of this error.
  - h. It is important to note that this error originated with design and computer coding of the retrospective rating program in work done almost twenty years ago.
- 9. Premiums from horse racing and other classifications were inadvertently included with experience used during the process of ensuring that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402. All experience from these classifications should be excluded from calculations during this process.**
- a. The impact of including the premium from horse racing and other classifications in the loss to premium ratio was to understate the loss ratio for non-retro employers..
  - b. As a result, the loss ratio for retro employers was decreased to match the understated loss ratio for non-retro employers.
  - c. The loss ratio for retro employers was decreased by increasing retrospective premium in the loss to premium ratio.

- d. Retrospective premium is increased by decreasing the retrospective refunds. The result was a decrease to retrospective refunds that was not warranted.
- e. Corrections were made promptly by L&I, following the discovery of this error by L&I staff.
- f. The overall impact of this issue was not material because the corrections by L&I were made before the accumulation of a significant premium impact.

**10. There was an error in the process of calculating retrospective refunds during the period when medical aid premium was suspended during the latter half of 2007. The intent was to provide retrospective refunds to retro employers as if the rate holiday did not occur. To balance this benefit to retro employers, a comparable dividend was issued to non-retro employers. An error during this process resulted in understated retrospective refunds. We note that while the first retro adjustments for some retro employers were impacted by this issue, corrections were made promptly by L&I following identification of the error by L&I staff. Subsequent adjustments for retro employers affected by the error will reflect the corrections implemented by L&I. Therefore, there will be no effect on the final refunds issued to any participant.**

### Occupational Disease Issues Impacting Equity

**11. Overstated occupational disease loss experience was charged to non-retro employers during the process of ensuring that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402. This artificially increased the loss ratio for non-retro employers and led to artificially high retrospective premium refunds.**

- a. Occupational disease losses may be partitioned into four segments:
  - A. An amount chargeable directly to retro employers
  - B. An amount chargeable directly to non-retro employers
  - C. The non-chargeable portion of claims where a portion of the loss may be attributable to either retro employers or non-retro employers<sup>26</sup>
  - D. The total cost of claims that cannot be attributed to any employer<sup>27</sup>

Ideally, only “A” would be charged to retro employers and only “B” would be charged to non-retro employers. During the process of ensuring that retro employers and non-retro

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<sup>26</sup> *It is possible that the portion of the cost of an occupational disease claim may be attributed to an individual employer, and the remaining portion is non-chargeable. Portions of claims may be deemed non-chargeable because the employee previously worked for a self-insured employer, or because exposure to the underlying hazard began prior to the earliest open retrospective rating period.*

<sup>27</sup> *This represents the cost of claims where no portion of the cost may be charged to a single employer.*

employers fund the same percentage of losses from premium, as required by WAC 296-17-90402, programming in L&I data systems assigned “A” to retro employers, excluded “D” from the calculation, but assigned occupational disease loss experience from “B” and “C” to non-retro employers. “C” should have been excluded as well.

This occurred because programming used to manage occupational disease data was designed and implemented decades ago when occupational disease losses were an immaterial component of overall loss experience. Occupational disease losses currently represent a significant portion of overall loss experience, and the older programming code is no longer appropriate.

- b. The impact was to materially overstate the loss ratio for non-retro employers by including a portion of non-chargeable occupational disease losses with non-retro employer loss experience.
- c. As a result, the loss ratio for retro employers was increased to match the overstated loss ratio for non-retro employers.
- d. The loss ratio for retro employers was increased by decreasing retrospective premium in the loss to premium ratio.
- e. Retrospective premium is decreased by increasing the retrospective refunds. The result was a material increase to retrospective refunds that was not warranted. Correcting this issue may potentially reduce the average retrospective refund by approximately 20%, according to L&I.
- f. It is important to note that the programming deficiencies that created this issue originated with the original design and computer coding of the retrospective rating program decades ago.

## Medical Aid Premium

**12. The treatment of medical aid premium and losses in the calculation of retrospective refunds may result in retrospective premium that is either too high or too low for individual employers. In this respect, the manner by which retrospective premium and therefore retrospective refunds are currently calculated are actuarially unsound. However, given the complexity of the issue, and the variety of reasonable perspectives on the issue, it likely is not possible to address the issue in a manner that addresses all actuarial issues unless all employers fund 100% of medical aid premium.**

- a. The current process of determining the total aggregate retrospective refund to retro employers (that is, balancing loss ratios between non-retro employers and retro employers, as required by WAC 296-17-90402) incorporates all premium and loss dollars in the calculation of the loss ratio for retro employers, regardless as to whether medical aid

premium was funded by employers or employees.<sup>28</sup> While the current process of determining the total aggregate refund can be viewed as appropriate, the current process of *distributing* the total aggregate refund to individual retro employers is not appropriate. It is our opinion that the process does result in a fair distribution of costs between retro employers and non-retro employers, but it does not result in a fair distribution of refunds to retro employers.

The current process of *distributing* the total aggregate refund to individual retro employers presumes that employers fund 100% of standard premium and are responsible for 100% of losses. In theory, employees fund 50% of medical aid premium and are therefore responsible for 50% of medical aid losses. The current process could potentially result in:

- Overstated refunds
  - Overstated surcharges
  - Situations, in the extreme, where an employer might receive a retrospective refund greater than the employer portion of standard premium
- b. There are numerous factors that interact to create an extraordinarily complex issue as respects this issue. These factors are related to the determination of statewide rate level, application of the experience rating plan, the variation in medical aid costs by classification, the cost of loss prevention and loss control, balancing the experience of retro and non-retro employers, as required by WAC 296-17-90402, and individual employer behavior as respects actual funding of medical aid premium.
- Accident fund rates are at a materially higher level than medical aid fund rates (see discussion at end of background section). As such, accident fund rates are the primary driver of retrospective refunds.
  - The medical aid portion of overall rates varies significantly by classification.
  - Experience modifications impact both medical aid premium and accident fund premium. After application of experience rating, and consideration of average rate level, medical aid premium is significantly closer to required levels for retro employers than accident fund rate level, which would be measurably greater than required.
  - The employer funds the cost of loss control and loss prevention, which result in lower experience modifications which benefit *employees* both in terms of reduced medical aid premium payments, as well as the reduced likelihood of a serious disabling accident.
  - Employers assume all risk associated with participation in the retrospective program.
  - A portion of employers in Washington fund 100% of medical aid premium.

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<sup>28</sup> *There are other interpretations where arguments could be made that some or all of medical aid experience should be removed from the process of determining the total aggregate retrospective refund to retro employers. We are not suggesting that these interpretations be adopted by L&I.*

## Actuarial Tables and Plan Variety

**13. The current actuarial tables in Washington for all retrospective plans are over twenty years old and do not reflect changes in workers compensation claims and exposure that have occurred over the past twenty years. These include, but are not necessarily limited to:**

- Impact of medical inflation on claim costs**
- Impact of changing medical technology**
- Impact of shifting hazard across industry groups**
- Impact of aging population**
- Impact of decreasing claim frequency**
- Impact of shift in mix of claims by type**
- Impact of changes and improvements to loss mitigation procedures**
- Impact of changes and improvements to loss prevention procedures**

**In the simplest case, the current tables reflect a single per claim limit of \$500,000. Twenty five years ago, 10% of total losses could have been expected to be above a \$500,000 limit. Currently, that value is 25%.<sup>29</sup> This demonstrates the need to update and expand these tables. However, this process represents an extraordinary amount of work, as discussed in the recommendation section.**

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<sup>29</sup> *This is based on information published by the National Council on Compensation Insurance for Virginia, and is included only to demonstrate how the impact of inflation on average claim costs have changed loss distributions.*



# Recommendations

## Program Integrity

1. There are no general concerns or recommendations regarding program integrity. The Retrospective Rating Program rewards employers with better than average loss experience, and properly distributes premium charges to employers based on each individual employer's loss experience (notwithstanding issues addressed later in this section).

## Equity

2. There are no general concerns or recommendations regarding the methodology used to ensure that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402. The methodology is reasonable and equitable (notwithstanding issues addressed later in this section).
3. We recommend that the methodology used to apply the PAF be adjusted in a manner such that the PAF impacts all retrospective premium components. Additionally, in order to ensure transparency, we recommend that the PAF be displayed as a separate factor in calculations, rather than being combined with the loss development factor component. The recommended adjustment is displayed below:

Current Formula

$$\text{Retrospective Premium} = \text{Basic Premium} + \frac{\text{Actual Limited Losses}}{\text{Performance* Adjustment Factor}} \times \text{Loss Conversion Factor} \times \text{Loss Dev. Factor}$$

\*In the current formula, the PAF is combined with the Loss Development Factor as a single number.

Recommended Formula

$$\text{Retrospective Premium} = \left[ \text{Basic Premium} + \frac{\text{Actual Limited Losses}}{\text{Performance* Adjustment Factor}} \right] \times \text{Loss Conversion Factor} \times \text{Loss Dev. Factor}$$

\*If adopted, the PAF would necessarily have to be displayed as a separate number in the above formula.

4. We recommend that the number of adjustments to Retrospective premium be increased to a minimum of four adjustments at 21, 33, 45 and 57 months after enrollment, but more preferably to five adjustments including a final adjustment at 69 months. We also recommend that L&I monitor loss development between retro employers and non retro employers to at least 120 months.
5. There are no general concerns or recommendations regarding the claim free discount rating system. It is actuarially fair.
6. There are no general concerns or recommendations regarding the Kept on Salary program itself. However, we do recommend that L&I begin tracking all Kept on Salary claims, both before and after conversion, and compiled a detailed information data base on all claims.

#### Data Issues Impacting Equity

7. L&I has addressed the issue regarding the double counting of loss experience for non-retro employers.
8. L&I has addressed the issue regarding premiums from horse racing and other classification experience.
9. L&I has addressed the issue regarding the error in the process of calculating retrospective refunds during the period when medical aid premium was suspended during the latter half of 2007.

#### Occupational Disease Issues Impacting Equity

10. We recommend that the issue regarding occupational disease data be addressed. There are likely a number of different ways that this can be done in an equitable manner that does not distort the process of ensuring that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402. Two relatively straightforward methods that yield similar results are presented below. To assist the reader, the manner in which occupational disease losses are partitioned is repeated below:
  - A. An amount chargeable directly to retro employers
  - B. An amount chargeable directly to non-retro employers
  - C. The non-chargeable portion of claims where a portion of the claim may be attributable to either retro employers or non-retro employers
  - D. The total cost of claims that cannot be attributed to any employer

L&I assigned “A” to retro employers, but incorrectly assigned “B” and “C” to non-retro employers. Two equally appropriate approaches are:

**Approach 1: Assign “A” to retro employers  
Assign “B” to non-retro employers  
Excluded “C” and “D” from the calculation**

**Approach 2: Assign “A” to retro employers  
Assign “B” to non-retro employers  
Distribute the sum of “C”+“D” to retro and non-retro employers in the same proportion that each group’s chargeable losses bears to total chargeable losses. This is shown as follows:**

**$(C + D) \times A / (A + B)$  is allocated to retro employers**

**$(C + D) \times B / (A + B)$  is allocated to non-retro employers**

Approach 1 has the advantage of only using data that can be clearly assigned to either retro employers or non-retro employers, while Approach 2 has the advantage of giving occupational disease claims a more appropriate weight in the overall calculation.

### Medical Aid Premium

**11. We do not recommend that L&I change the current methodology used to determine the total aggregate retrospective premium refund. However, we do recommend that L&I change the method by which the overall retrospective refund is distributed to individual employers. The method should be adjusted to a more actuarially appropriate approach. Suggested approaches are discussed in the following section of the report. However, given the complexities of the situation concerning medical aid, any new method is likely to have deficiencies. The ultimate goal should be to reduce the deficiencies to as low a level as possible and distribute premium requirements as equitably as possible between retro employers.**

## Actuarial Tables and Plan Variety

**12. We recommend that the actuarial tables be updated and reworked to reflect current exposure, hazard, claim frequency, and claim costs. Specifically, tables must reflect the current probability distribution of losses and claim frequency in order to account for at least the following changes that have occurred since the current tables were first designed:**

- Impact of medical inflation on claim costs**
- Impact of changing medical technology**
- Impact of shifting hazard across industry groups**
- Impact of aging population**
- Impact of decreasing claim frequency**
- Impact of shift in mix of claims by type**
- Impact of changes and improvements to loss mitigation procedures**
- Impact of changes and improvements to loss prevention procedures**

**The following should be considered during redesign and updates:**

- Tables should be constructed to reflect variation of hazard by classification.**
- Tables should be constructed to reflect a larger variety of per claim limits**
- Tables should be constructed to reflect a larger variety of minimum premiums**
- Tables should be constructed to reflect a larger variety of maximum premiums**

**This recommendation, if adopted, will require a very large number of work hours and time to implement. Data acquisition and analysis must be thorough and complete. It is therefore important that the resulting actuarial work products be designed in a manner such that key components can be easily updated annually. This will avoid the need to update the entire tabular system annually (which is not feasible) but will maintain the overall integrity and accuracy of the redesigned tables for an extended period of time.**

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# DISCUSSION AND ANALYSIS

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## Equity of Retro Employer versus Non-Retro Employer

### Introduction

The following items were identified in this study as impacting equity between retro employers and non-retro employers:

- Treatment of occupational disease data
- Issue regarding double counting of non-retro employer experience
- Issue regarding premiums from horse racing and other classifications
- Issue regarding error in the process of calculating retrospective refunds during period when medical aid premium collection was suspended
- Number of retrospective rating adjustments
- Kept on salary program

The latter two items are discussed separately later in this section. Detailed discussions of the other items follow.

### Treatment of Occupational Disease Data

Occupational disease losses are charged to individual employers based on a set of rules in place in Washington. The rules determine what portion of an occupational disease claim may be charged to a specific employer. These determinations depend on the employee's work life, service for the current employer, and service for prior employers, as well as the nature of the insurance program for prior employers. As such, losses due to occupational disease claims may be partitioned into four general segments:

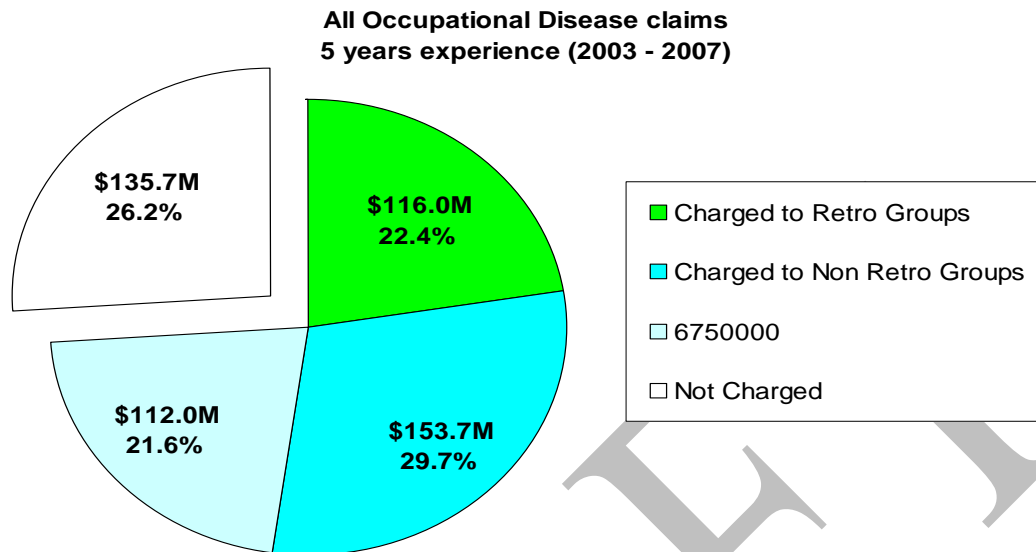
- A. An amount chargeable directly to retro employers
- B. An amount chargeable directly to non-retro employers
- C. The non-chargeable portion of claims where a portion of the loss may be attributable to either retro employers or non-retro employers<sup>30</sup>
- D. The total cost of claims that cannot be attributed to any employer<sup>31</sup>

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<sup>30</sup> *It is possible that the portion of the cost of an occupational disease claim may be attributed to an individual employer, and the remaining portion is non-chargeable.*

<sup>31</sup> *This represents the cost of claims where no portion of the cost may be charged to a single employer.*

The following diagram displays the distribution of occupational disease losses for 2003 through 2007 by segment:



The chart shows the distribution by segment as follows:

- A. The amount chargeable directly to retro employers  
\$116.0 million
- B. An amount chargeable directly to non-retro employers  
\$153.7 million
- C. The non-chargeable portion of claims where a portion of the loss may be attributable to either retro employers or non-retro employers (coded as “6750000” in data)  
\$112.0 million
- D. The total cost of claims that cannot be attributed to any employer  
\$135.7 million

As a result, there is a total of \$247.7 million of non-chargeable losses. During the process of ensuring that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402, there are two approaches of treating the non-chargeable losses, both of which will result in similar equitable results.

Approach 1: Eliminate non-chargeable dollars in their entirety.

- A. \$116.0 million would be charged to retro employers
- B. \$153.7 million would be charged to non-retro employers
- C. plus D., \$247.7 (\$112.0 + \$135.7) million would be removed from the calculation

Approach 2: Distribute non-chargeable dollars to retro employers and non-retro employers in the same proportion that each group's chargeable losses bear to total chargeable losses.

- A. \$116.0 million, or 43% of total chargeable dollars, are charged to Retro employers
- B. \$153.7 million, or 57% of total chargeable dollars, are charged to Non-Retro employers
- C. plus D., \$247.7 (\$112.0 + \$135.7) million, are total non-chargeable dollars

Then \$106.5 million, or 43% of total non-chargeable dollars (\$247.7 million), would be allocated to retro employers

Then \$141.2 million, or 57% of total non-chargeable dollars (\$247.7 million), would be allocated to non-retro employers

During the process of ensuring that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402, programming in L&I data systems assigned A to retro employers, excluded D from the calculation, but assigned occupational disease loss experience from B and C to non-retro employers. C should have been excluded as well, or, C and D should have been included and distributed proportionately as described above.

This occurred because programming used to manage occupational disease data was designed and implemented decades ago when occupational disease losses were an immaterial component of overall loss experience. Occupational disease losses currently represent a significant portion of overall loss experience, and the older programming code is no longer appropriate.

The impact was to materially overstate the loss ratio for non-retro employers by including a portion of non-chargeable occupational disease losses with non-retro employer loss experience. The magnitude of the overstatement is illustrated by comparing what the allocation should have been if all non-chargeable losses were excluded, versus what was actually done.

	Retro	Non-Retro
Correct Allocation Excluding All Non-Chargeable Losses (in millions)	\$116.0	\$153.7
Actual Allocation (in millions)	\$116.0	\$265.7

As a result, the loss ratio for retro employers was increased to match the overstated loss ratio for non-retro employers. The loss ratio for retro employers was increased by decreasing retrospective premium in the loss to premium ratio, that is, by increasing the retrospective premium refunds. The impact of this issue was material. Correcting for it may potentially reduce the average retrospective refund by approximately 20%, according to L&I.

## Double Counting of Non-Retro Employer Experience

In the process of responding to and reconciling specific data requests issued by Oliver Wyman, L&I discovered an error that had been embedded and masked in obscure computer code written many years ago, at least to the early 1990's. The error involved the double counting of accident fund losses paid on open claims for the first quarter of non-retro employer loss experience. As a result, non-retro employer losses have been materially overstated for a period of approximately fifteen years. L&I estimated that since 2000, over \$400,000,000 of losses for non-retro employers was double counted. The impact was to materially overstate non-retro employer loss ratios during this period of time. As a result, during the process of ensuring that retro employers and non-retro employers fund the same percentage of losses from premium, as required by WAC 296-17-90402, loss ratios for retro-employers were increased to match the artificially high loss ratio for non-retro employers. Loss ratios for retro employers were increased by decreasing premium in the retro employer loss to premium ratio. Premium was decreased by increasing retrospective premium refund. L&I estimated that retrospective refunds were overstated between 10% and 15%.

We understand that enrollment periods that have already gone through the third adjustment prior to the correction being made were not affected; retro participants were not asked to return any of the funds that had been paid to them. However, for those enrollment periods that had not had their final adjustment, corrections will flow through the system at the time of their next adjustment.

## Premiums from Horse Racing and Other Classifications

Classifications associated with horse rating are not part of the retrospective rating system. It is our understanding that for many years these premiums were reported directly to the Horse Racing Commission and were not entered into L&I's computer system.

This procedure changed in early 2004 and premium began to be reported. However, losses were still excluded. To correct for this mismatch, the horse racing premium, which totaled approximately \$6.4 million, was removed.

Given that the premium in question was non-retro employer premium, the correction increased the non-retro loss ratio. The correction increased the target loss ratio for determining retrospective employer refunds. Therefore retrospective refunds increased slightly.



## Error in Retrospective Refund Calculation during Rate Holiday

During the Rate Holiday in Washington during the second half of 2007, medical aid premium was not collected from either employers or employees.

However, retrospective refunds were calculated as if the rate holiday did not take place. In effect, participants were given a refund of premium that they had not paid. A similar dividend was granted to employers who do not participate in retro in order to maintain the equity between the programs.

However, an error occurred when hours worked were lowered during the audit process. In this process, the assumed medical premium was not removed; rather the medical aid premium due upon deposit was added to the medical premium charged at audit. As a result, the resulting medical aid premium used in the calculation of retrospective refunds was too high.

Non-retro employers had more audits than retro employers. As a result, the correction of this error reduced non-retro employer premium by \$47.4 million and retro employer premium by \$8.5 million. Given that a significantly large amount of premium was removed from the non-retro employer loss ratio calculation than that for retro employers, non-retro employer loss ratios increased by a larger amount than retro employer loss ratios. This resulted in a net increase to retrospective employer premium refunds.

It should be noted that since this error was identified less than three years after it occurred, the correction will affect all retro employers.

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## Equity of Claim Free Discount

Data demonstrates that the claim free discount (CFD) rating system rewards employers with lower than average loss ratios and complements the experience rating system for both retro employers and non-retro employers. The charts below demonstrate that the claim free discount program adjust loss ratios for employers entitled to the claim free discount to levels comparable to those employers who are not. This issue was discussed in detail in the Executive Summary.

### Retro Participants

	Those without CFD Loss Ratio	Those with CFD	
		LR before CFD	LR after CFD
2003	76%	60%	74%
2004	65%	56%	69%
2005	56%	44%	54%
2006	55%	42%	50%
2007	60%	54%	60%

### Non-Retro Participants

	Those without CFD Loss Ratio	Those with CFD	
		LR before CFD	LR after CFD
2003	84%	72%	84%
2004	72%	59%	70%
2005	67%	58%	67%
2006	64%	51%	59%
2007	71%	61%	65%

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## Kept on Salary Program

The Kept on Salary program is an optional program in Washington in which employers elect to pay employees their regular salaries, even if they are unable to work due to a workplace injury.

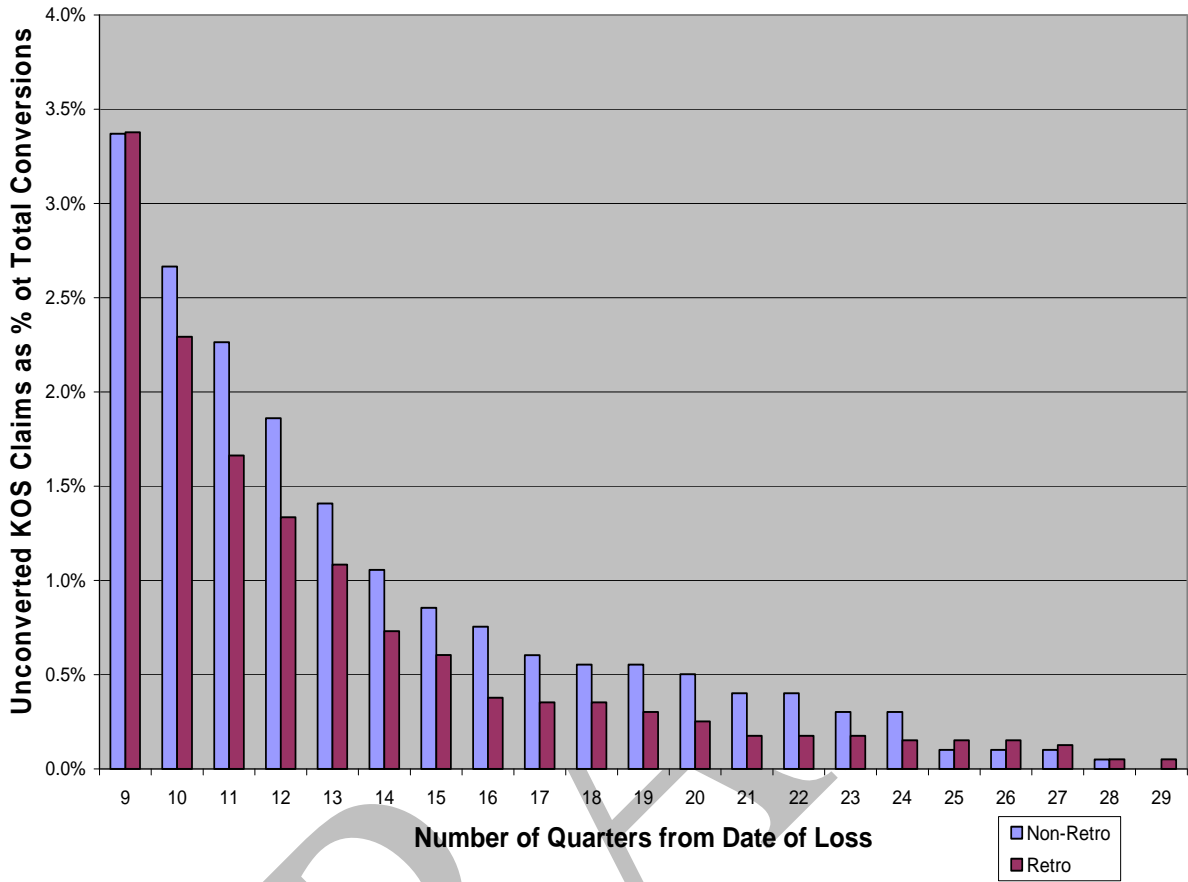
Employers, both retro and non-retro, can benefit from this program. As respects experience modifications, avoiding lost time cases and associated wage replacement costs will reduce experience modifications, all else being equal, which results in lower overall premium charges. Additionally, the Kept on Salary program will assist employers in maintaining their claim free discount. In situations where retro employers utilize the program, there is a beneficial impact on the retrospective refund. We note that several large Retro Groups require their participants to utilize a Kept on Salary program. In all situations, the intent of the program is to motivate employers to retain a portion of claim costs and therefore reduce overall system costs.

Data on claims where employees are kept on salary is limited. These claims are not consistently reported to L&I unless they are converted to a lost time (accident fund) workers compensation case. The only information available from L&I is on claims that have been converted. There is no information available on how many claims where employees are kept on salary are ultimately closed without conversion, or what portion of claims are currently open, but have not yet been closed or converted. As such, it is difficult to draw broad quantitative conclusions from the available data.

However, data is available, separately for retro employers and non-retro employers, showing the relationship between conversion and claim maturity for converted claims. It has been suggested that retro employers will intentionally keep employees on salary and delay conversion until after the final retrospective rating adjustment. The motivation is to avoid incurring the cost of a lost time claim during the retrospective rating period and therefore pay overall lower premium charges. Available data does not support this suggestion. Data demonstrates that excess of 95% of converted claims are converted *during the retrospective rating period*. Additionally, the data does not show a discernable difference in the observed conversion rates, by claim maturity, between retro employers and non-retro employers. In fact, data for claims converted after the last retrospective rating adjustment suggests that conversion is delayed for a greater percentage of claims from *non-retro employers*, rather than retro employers.

The implication is that observed differences in loss development between retro employers and non-retro employers is due to phenomena unrelated to the Kept on Salary program.

These issues are illustrated in the chart on the following page, which shows the ratio of unconverted Kept on Salary claims to total Kept on Salary claims by maturity (measured in calendar quarters from date of loss).



## Trends in Permanent Partial Disability Awards

L&I has expressed concern regarding the possibility of increasing trends in permanent partial disability (PPD) awards for retro employers. The following process was used to determine if there is a foundation of data supporting this concern:

- PTD and PPD non-hearing claims were analyzed. Based on information from L&I, hearing claims, which tend to have high frequency and low severity, were excluded from the analysis due to the potential for distortion of results.
- The data provided encompassed fiscal years 2003 through 2007.
- Open and closed claim counts were summed to obtain a total claim count.
- Total claim counts per 1 million derived hours were calculated by fiscal year, and by size group. Size groups used in this analysis are defined below. The size groups used in this analysis were defined by L&I for the purpose of this analysis only. Additionally, size groups 13 and greater were combined for the purpose of this analysis due to relatively low data volume.

Premium*	Size	From	To
	0	Negative or	0
1	\$	0	\$ 100
2	\$	101	\$ 200
3	\$	201	\$ 500
4	\$	501	\$ 1,000
5	\$	1,001	\$ 2,000
6	\$	2,001	\$ 5,000
7	\$	5,001	\$ 10,000
8	\$	10,001	\$ 20,000
9	\$	20,001	\$ 50,000
10	\$	50,001	\$ 100,000
11	\$	100,001	\$ 200,000
12	\$	200,001	\$ 500,000
13	\$	500,001	\$ 1,000,000
14	\$	1,000,001	\$ 2,000,000
15	\$	2,000,001	\$ 5,000,000
16	\$	5,000,001	\$ 10,000,000
17	\$	10,000,001	\$ 20,000,000
18	\$	20,000,001	\$ 50,000,000

\*excludes Supplemental Pension Fund premiums

- A ratio of the non-retro employer claim frequency (total claims per 1 million derived hours) to total (retro employer plus non-retro employer) claim frequency was calculated by fiscal year and by size group.
- A weighted average of these values using derived hours as weights was used to calculate an overall average by fiscal year.

The chart below summarizes the results of the analysis for non-hearing PPD claims. The chart demonstrates that the relative ratio of PPD claim frequency for retro employers to the statewide average has remained relatively constant under the period of examination, in total, as well as by size group.

**Relative Ratio of Non-Retro Employer Claim Frequency to Statewide Claim Frequency**

**PPD Non-Hearing Claims**

Size Group	Fiscal Year				
	2003	2004	2005	2006	2007
1	5%	100%	100%	100%	100%
2	100%	5%	100%	100%	100%
3	33%	6%	100%	10%	100%
4	51%	18%	28%	39%	46%
5	42%	45%	27%	37%	48%
6	46%	43%	40%	42%	42%
7	45%	44%	52%	47%	42%
8	46%	45%	47%	47%	45%
9	45%	42%	44%	42%	43%
10	44%	44%	45%	46%	46%
11	42%	41%	41%	43%	48%
12	42%	44%	43%	43%	44%
13 +	38%	35%	38%	40%	43%
<b>Weighted Avg</b>	<b>44%</b>	<b>41%</b>	<b>44%</b>	<b>43%</b>	<b>46%</b>

A similar analysis was conducted for permanent total disability (PTD) awards. The chart below summarizes the result of the analysis for PTD claims. The chart demonstrates that the relative ratio of PTD claim frequency for retro employers to the statewide average has remained relatively constant under the period of examination, in total, as well as by size group.

**Relative Ratio of Non-Retro Employer Claim Frequency to Statewide Claim Frequency**

**PTD Claims**

Size Group	Fiscal Year				
	2003	2004	2005	2006	2007
1	100%	100%	100%	0%	100%
2	100%	100%	100%	100%	100%
3	100%	3%	100%	100%	100%
4	100%	100%	8%	100%	100%
5	22%	15%	100%	15%	100%
6	48%	50%	55%	43%	17%
7	41%	51%	49%	67%	33%
8	50%	47%	40%	57%	33%
9	47%	50%	49%	41%	42%
10	46%	41%	44%	53%	57%
11	37%	44%	46%	55%	51%
12	36%	41%	44%	46%	50%
13 +	34%	36%	36%	40%	41%
<b>Weighted Avg</b>	<b>46%</b>	<b>45%</b>	<b>48%</b>	<b>50%</b>	<b>48%</b>

Results for non-hearing PPD claims and PTD claims combined are similar to the results of the individual examinations of each claim type and are displayed in the chart below.

**Relative Ratio of Non-Retro Employer Claim Frequency to Statewide Claim Frequency**

**PTD and Non-Hearing PPD Claims**

Size Group	Fiscal Year				
	2003	2004	2005	2006	2007
1	6%	100%	100%	100%	100%
2	100%	5%	100%	100%	100%
3	35%	5%	100%	10%	100%
4	53%	20%	22%	40%	47%
5	39%	39%	28%	35%	49%
6	46%	43%	41%	43%	41%
7	44%	45%	51%	47%	42%
8	46%	45%	47%	47%	44%
9	46%	43%	44%	42%	43%
10	44%	44%	45%	47%	47%
11	42%	41%	41%	43%	48%
12	41%	43%	43%	43%	44%
13 +	38%	36%	38%	40%	43%
<b>Weighted Avg</b>	<b>44%</b>	<b>41%</b>	<b>44%</b>	<b>43%</b>	<b>46%</b>

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## Comparison by Industry Group

Task 5 requested a comparison of data from retro employers and non-retro employers by industry group. Industry groups in Washington are defined as follows:

A	Agriculture	J	Transportation and Warehousing
B	Forest Products	K	Dealers and Wholesalers
C	Miscellaneous Construction	L	Stores
D	Building Construction	M	Miscellaneous Services
E	Trades	N	Healthcare
F	Food Processing and Manufacturing	O	Miscellaneous Professional and Clerical
G	Metal and Machinery Manufacturing	P	Government
H	Miscellaneous Manufacturing	Q	Schools
I	Utilities and Communications	R	Temporary Help

The letters are used as labels for each industry group in the graphs and charts that follow.

L&I had requested that we examine at least the industry groups engaged primarily in agriculture, wood products manufacturing, grocery/retail operations, and contracting/construction. The analysis was conducted for all industry groups.

In the tables that follow, the “All” industry group was calculated as a weighted average of the underlying data.



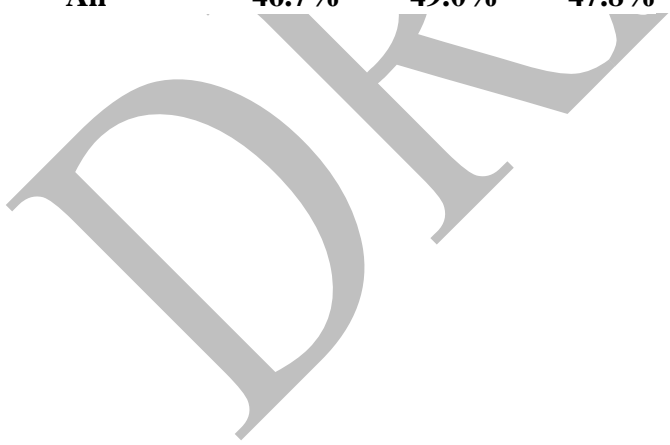
## Market Share

### **Percentage Retro Based on Accident Fund Premium Fiscal Year**

<b><u>Industry</u></b>	<b><u>2,003</u></b>	<b><u>2,004</u></b>	<b><u>2,005</u></b>	<b><u>2,006</u></b>	<b><u>2,007</u></b>
<b>A</b>	64.3%	65.3%	64.3%	66.8%	63.7%
<b>B</b>	72.4%	73.1%	75.9%	74.3%	71.6%
<b>C</b>	60.9%	62.3%	63.1%	64.5%	62.5%
<b>D</b>	56.7%	58.9%	58.2%	56.7%	57.4%
<b>E</b>	53.6%	55.2%	55.5%	55.2%	55.1%
<b>F</b>	71.4%	73.9%	75.1%	73.0%	70.1%
<b>G</b>	58.2%	61.7%	61.7%	61.7%	61.9%
<b>H</b>	56.3%	58.6%	58.9%	59.1%	57.6%
<b>I</b>	24.3%	28.6%	32.5%	34.2%	38.0%
<b>J</b>	43.4%	45.4%	44.7%	44.3%	45.6%
<b>K</b>	48.2%	49.5%	49.4%	46.8%	47.3%
<b>L</b>	40.7%	39.1%	38.1%	35.2%	34.1%
<b>M</b>	41.2%	42.6%	39.3%	38.2%	39.5%
<b>N</b>	52.3%	52.5%	54.6%	46.0%	48.9%
<b>O</b>	9.4%	8.5%	10.0%	10.4%	12.9%
<b>P</b>	7.3%	8.9%	7.3%	9.2%	9.1%
<b>Q</b>	22.6%	38.7%	25.3%	18.5%	17.9%
<b>R</b>	<u>41.5%</u>	<u>40.4%</u>	<u>41.2%</u>	<u>40.0%</u>	<u>42.0%</u>
<b>All</b>	<b>48.0%</b>	<b>50.2%</b>	<b>49.0%</b>	<b>47.9%</b>	<b>48.1%</b>

**Percentage Retro Based on Medical Aid Premium  
Fiscal Year**

<u>Industry</u>	<u>2,003</u>	<u>2,004</u>	<u>2,005</u>	<u>2,006</u>	<u>2,007</u>
A	65.4%	66.4%	65.5%	68.2%	64.9%
B	72.8%	73.7%	76.3%	74.8%	72.2%
C	60.8%	62.3%	63.3%	64.9%	62.7%
D	56.6%	58.7%	57.9%	56.4%	57.0%
E	52.7%	54.6%	55.0%	54.7%	54.4%
F	72.9%	75.3%	76.3%	74.1%	71.5%
G	58.4%	62.3%	62.1%	62.3%	62.3%
H	56.6%	58.9%	59.1%	59.6%	58.3%
I	25.0%	29.8%	32.9%	34.6%	39.1%
J	42.1%	44.1%	43.5%	43.4%	44.8%
K	46.7%	48.3%	48.2%	46.2%	46.5%
L	39.7%	38.4%	37.7%	35.0%	33.9%
M	41.1%	42.8%	39.2%	38.1%	39.4%
N	56.9%	57.0%	59.5%	49.8%	52.4%
O	9.4%	8.2%	9.6%	10.2%	12.9%
P	7.6%	9.3%	7.5%	9.7%	9.4%
Q	23.3%	39.2%	26.6%	19.6%	18.8%
<u>R</u>	<u>42.5%</u>	<u>40.9%</u>	<u>41.6%</u>	<u>40.5%</u>	<u>42.8%</u>
<b>All</b>	<b>46.7%</b>	<b>49.0%</b>	<b>47.8%</b>	<b>46.7%</b>	<b>46.9%</b>

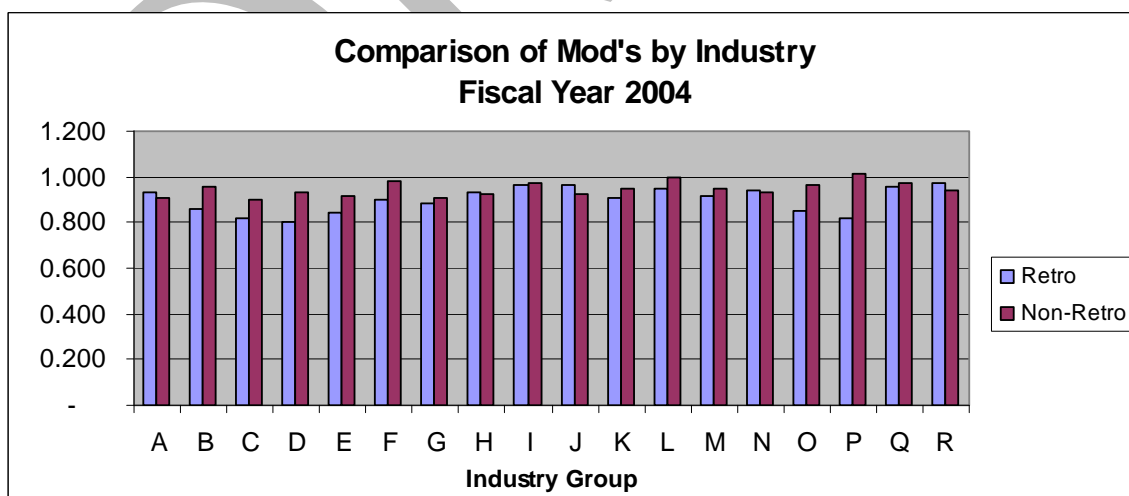
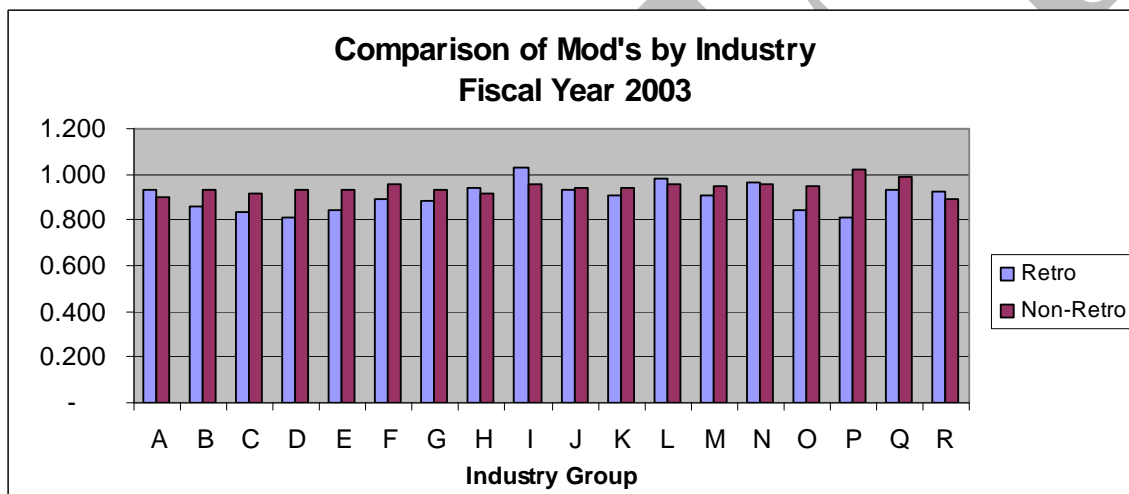
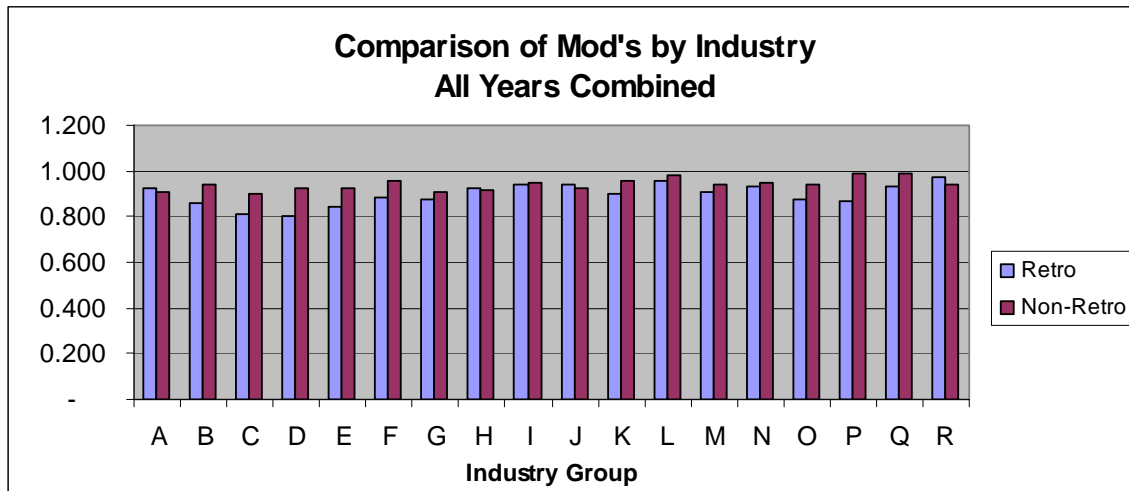


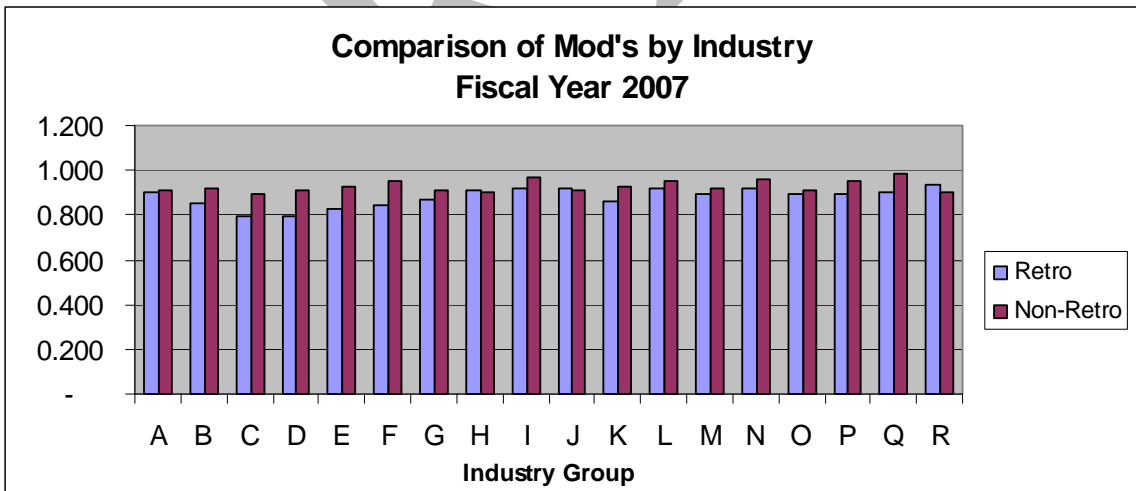
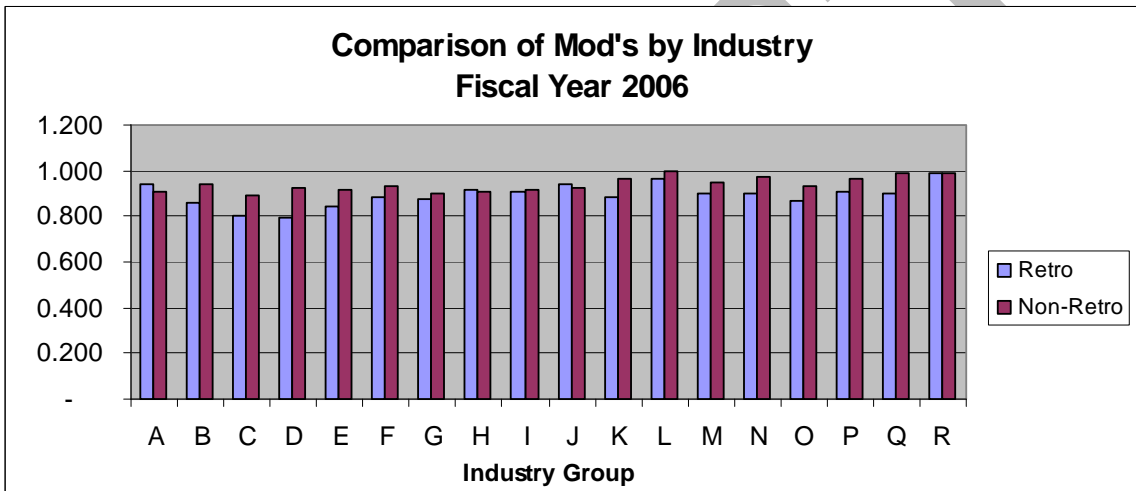
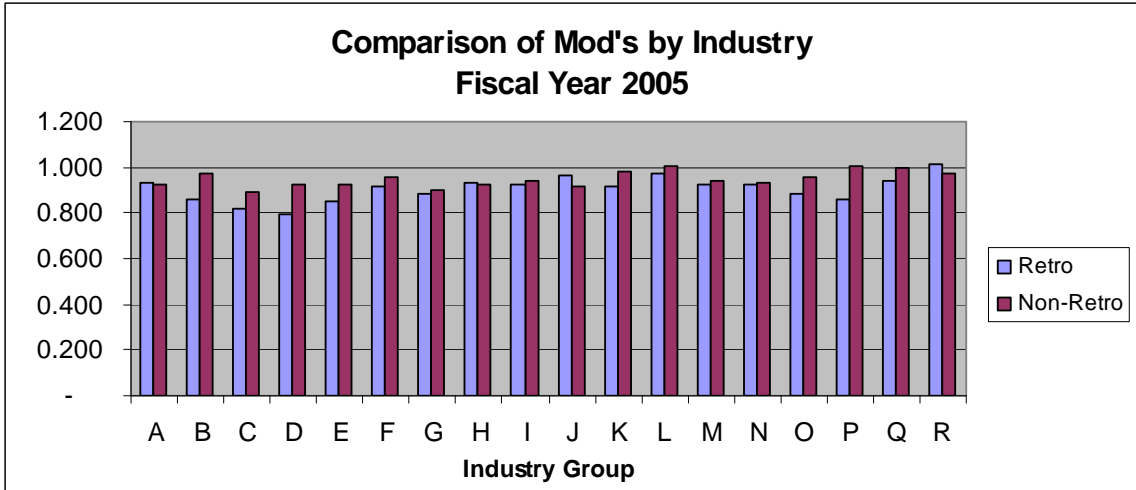
**Percentage Retro Based on Total Premium  
Fiscal Year**

<b><u>Industry</u></b>	<b><u>2,003</u></b>	<b><u>2,004</u></b>	<b><u>2,005</u></b>	<b><u>2,006</u></b>	<b><u>2,007</u></b>
<b>A</b>	64.8%	65.8%	64.9%	67.5%	64.3%
<b>B</b>	72.6%	73.3%	76.1%	74.5%	71.8%
<b>C</b>	60.9%	62.3%	63.1%	64.6%	62.6%
<b>D</b>	56.6%	58.8%	58.1%	56.6%	57.2%
<b>E</b>	53.3%	55.0%	55.3%	55.0%	54.9%
<b>F</b>	72.1%	74.5%	75.7%	73.5%	70.7%
<b>G</b>	58.2%	61.9%	61.9%	62.0%	62.1%
<b>H</b>	56.4%	58.7%	59.0%	59.3%	57.9%
<b>I</b>	24.6%	29.1%	32.6%	34.4%	38.4%
<b>J</b>	42.9%	44.8%	44.2%	43.9%	45.3%
<b>K</b>	47.6%	49.0%	48.9%	46.5%	47.0%
<b>L</b>	40.2%	38.7%	37.9%	35.1%	34.0%
<b>M</b>	41.1%	42.7%	39.2%	38.2%	39.4%
<b>N</b>	54.4%	54.7%	57.0%	47.7%	50.4%
<b>O</b>	9.4%	8.3%	9.8%	10.3%	12.9%
<b>P</b>	7.5%	9.1%	7.4%	9.4%	9.2%
<b>Q</b>	22.9%	38.9%	25.8%	18.9%	18.2%
<b><u>R</u></b>	<b><u>41.9%</u></b>	<b><u>40.6%</u></b>	<b><u>41.4%</u></b>	<b><u>40.2%</u></b>	<b><u>42.3%</u></b>
<b>All</b>	<b>47.5%</b>	<b>49.7%</b>	<b>48.5%</b>	<b>47.4%</b>	<b>47.6%</b>

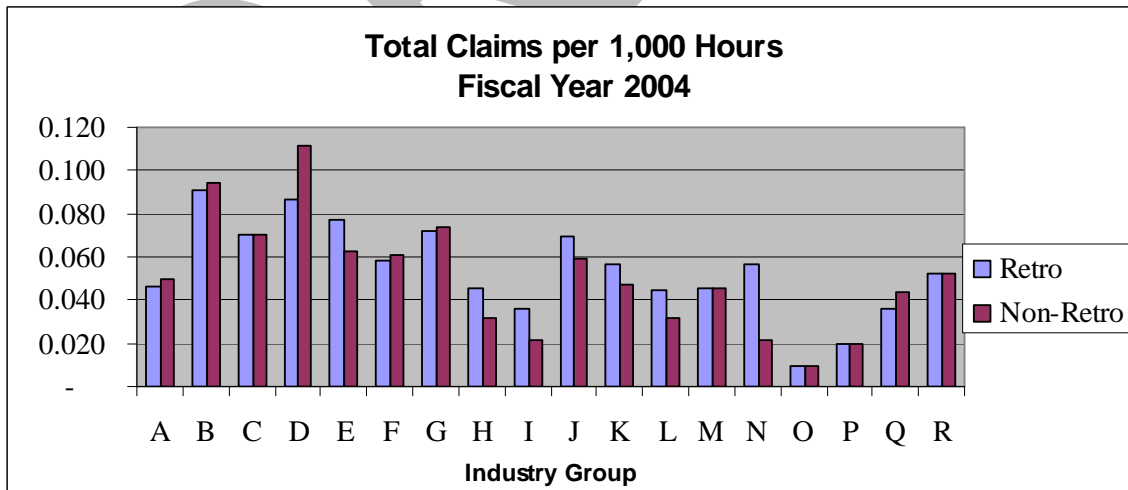
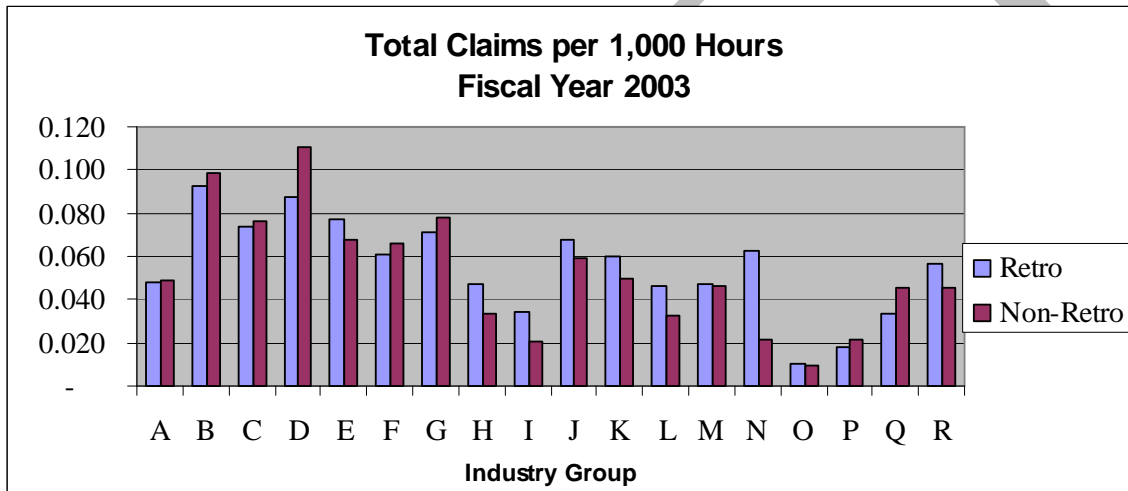
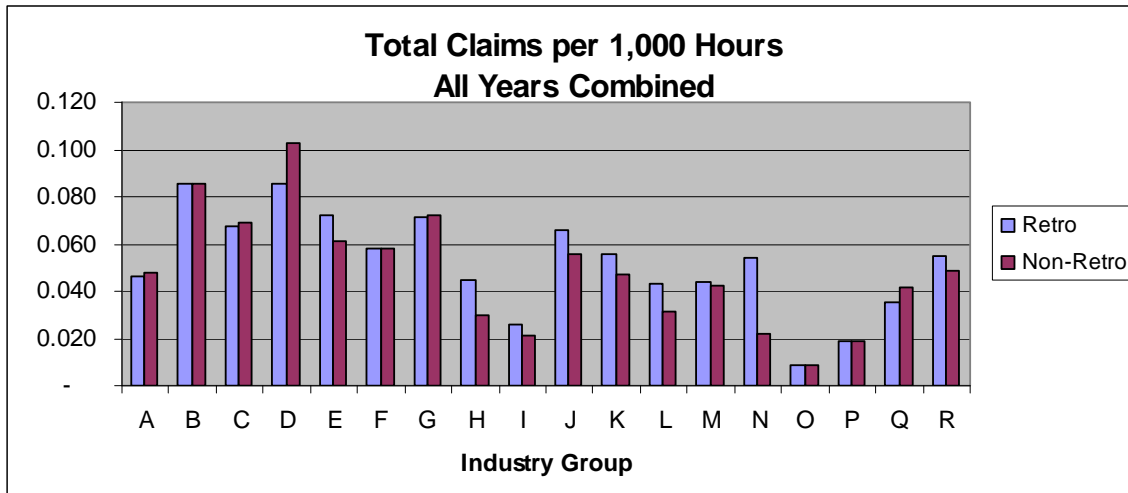


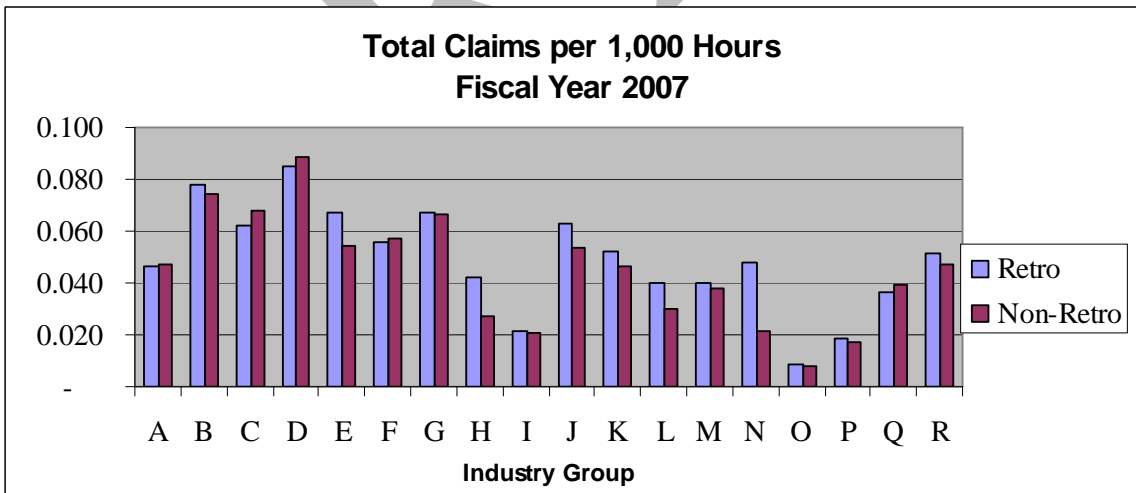
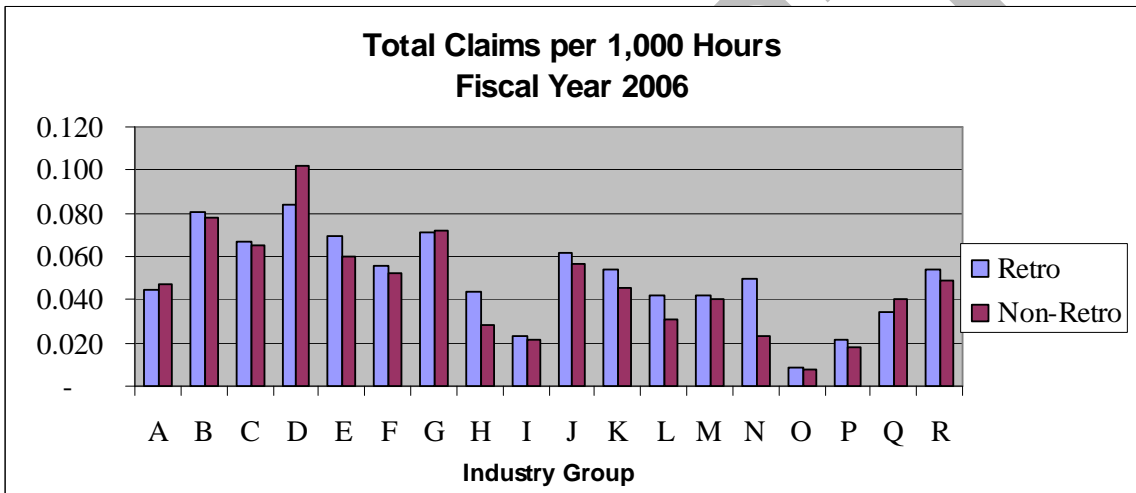
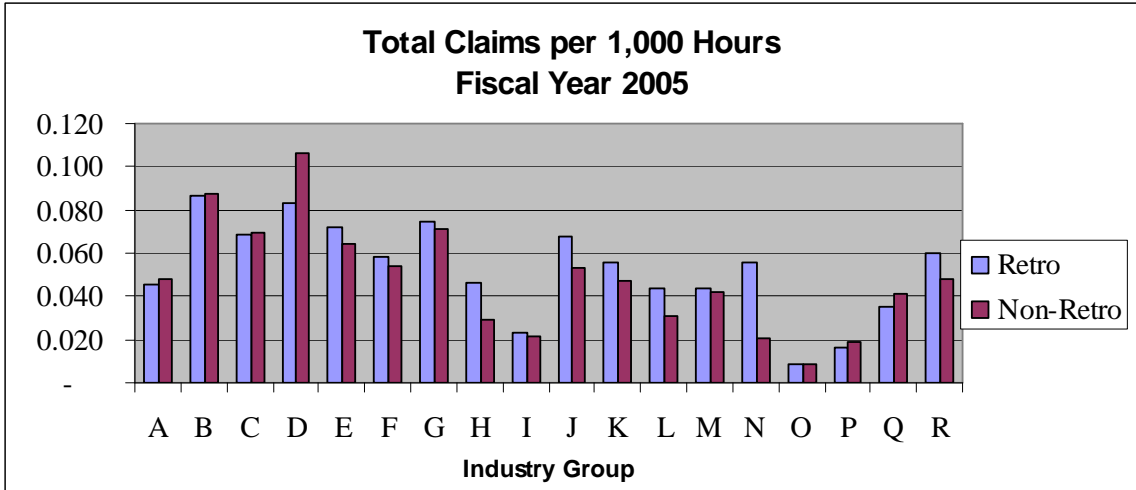
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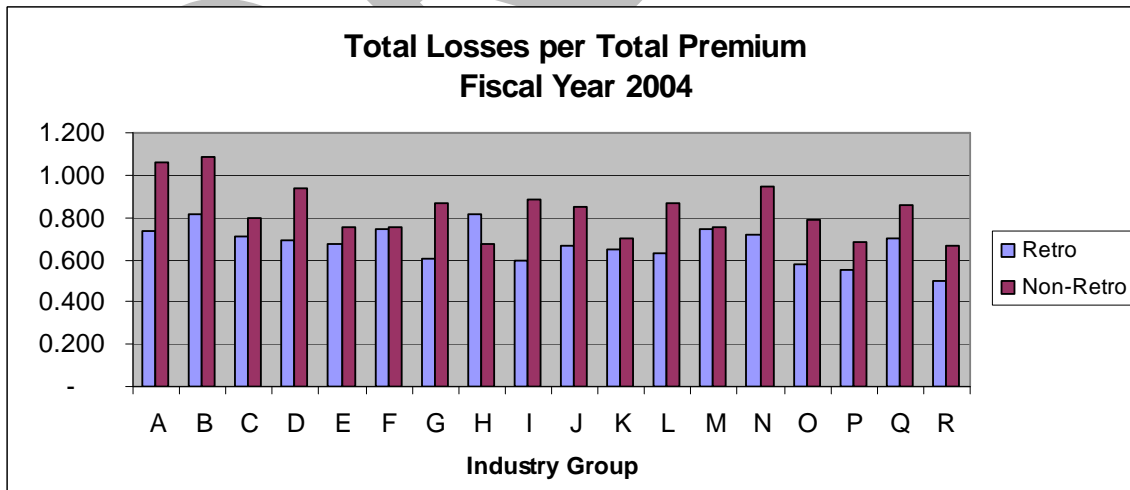
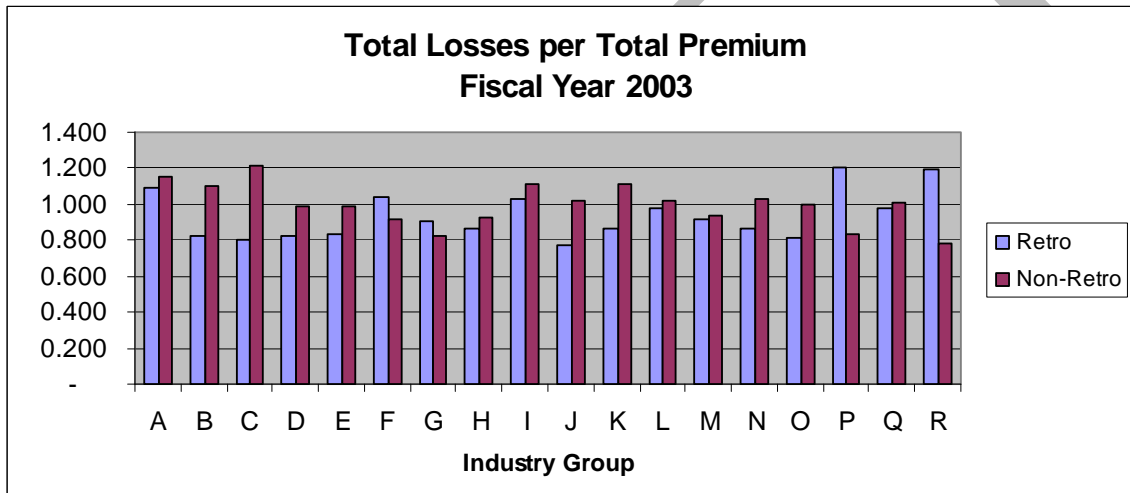
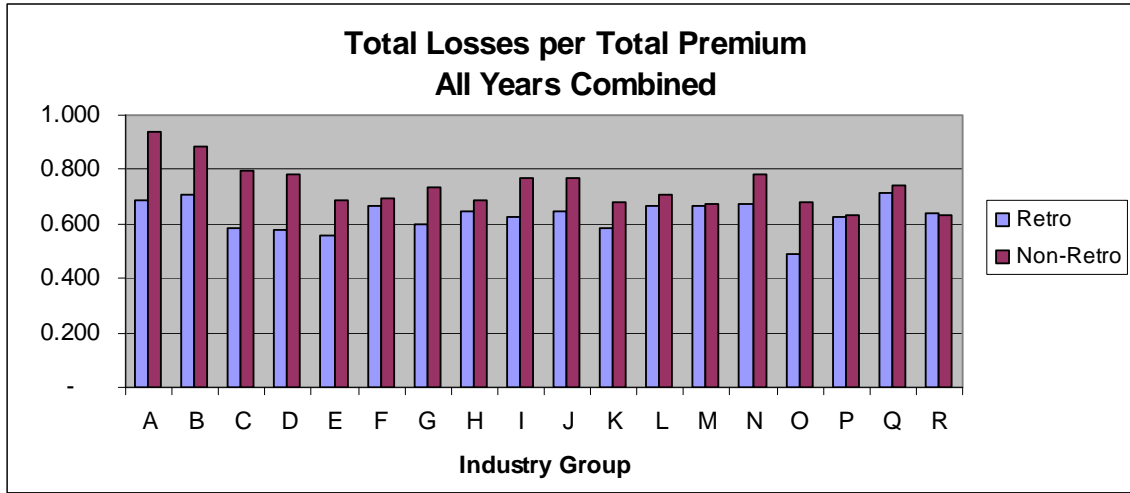


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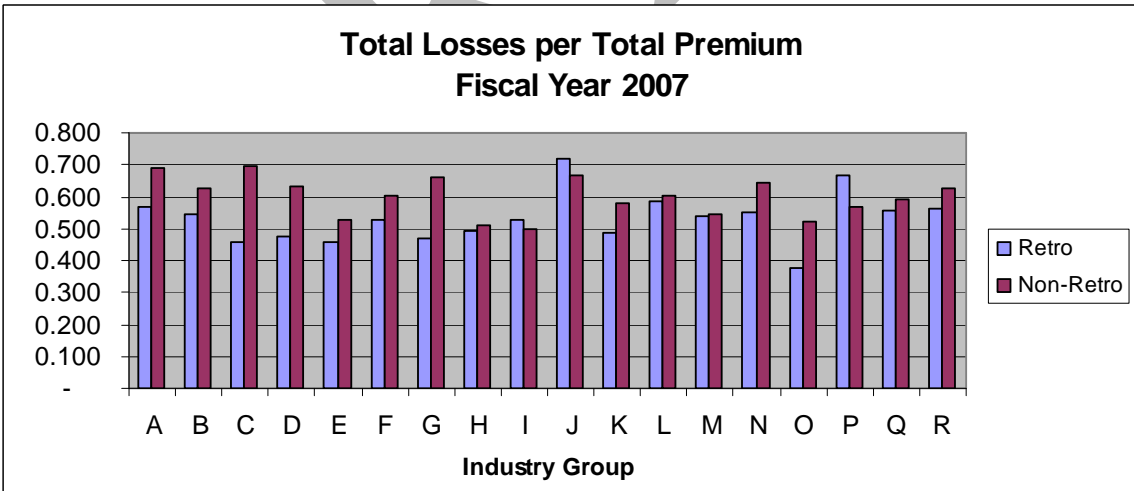
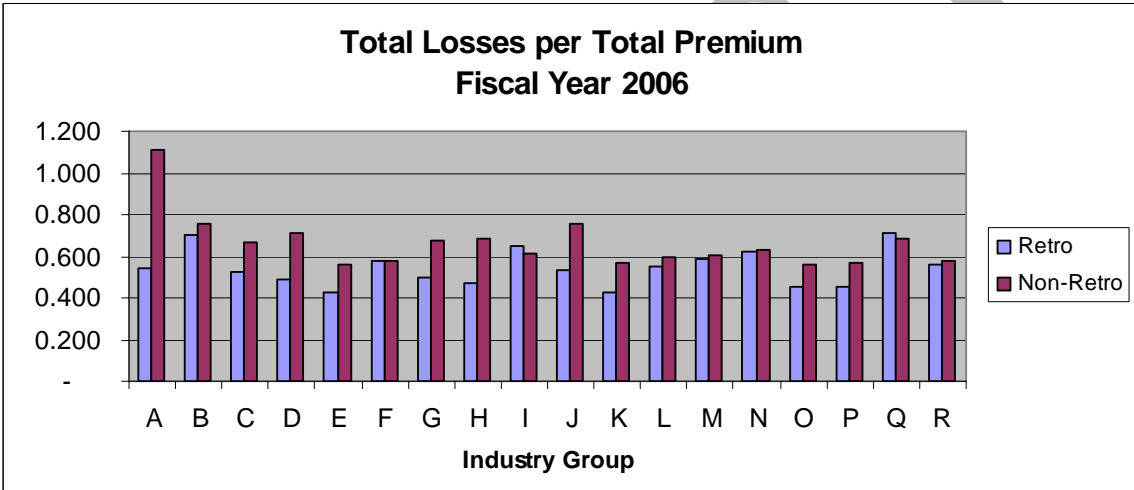
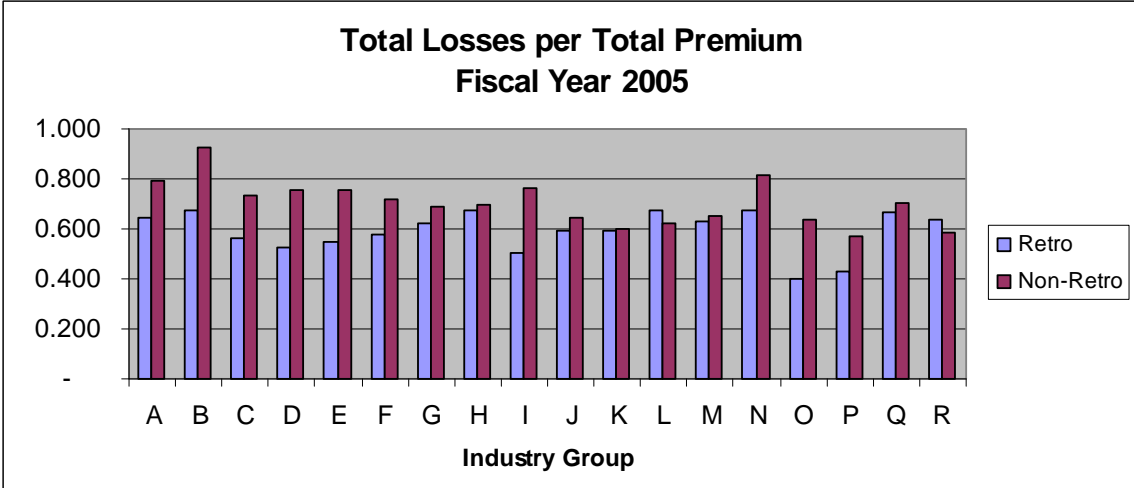




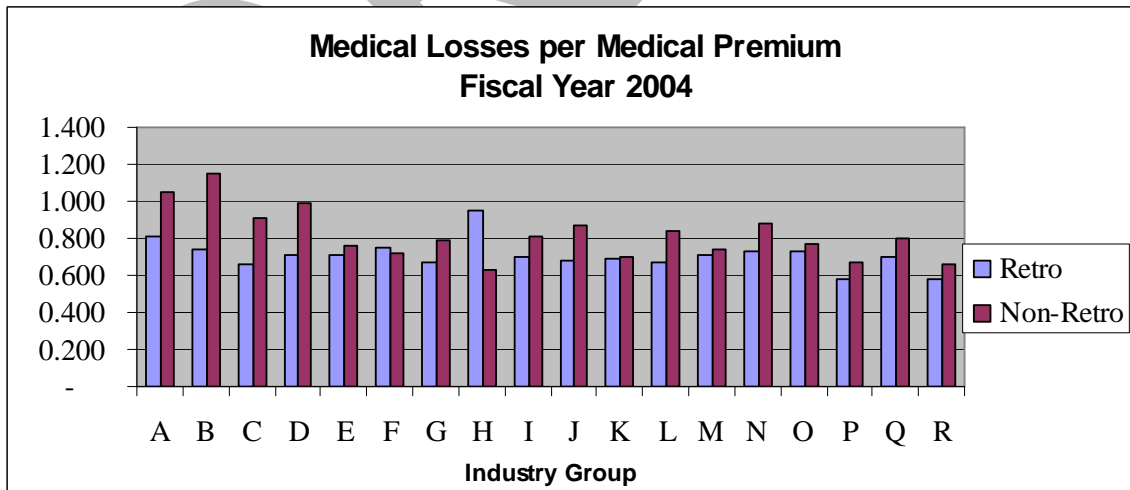
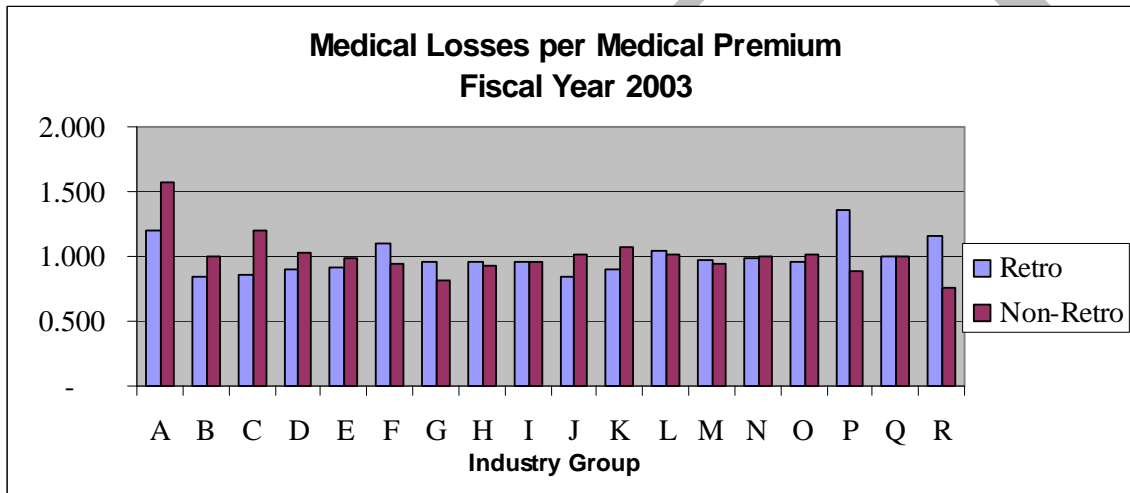
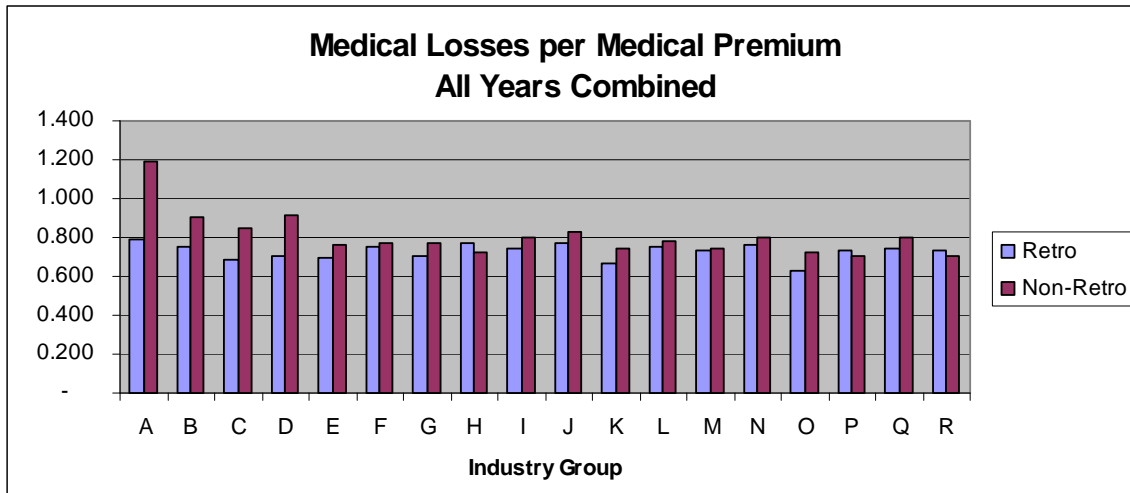
**Loss Ratios: Total Losses**

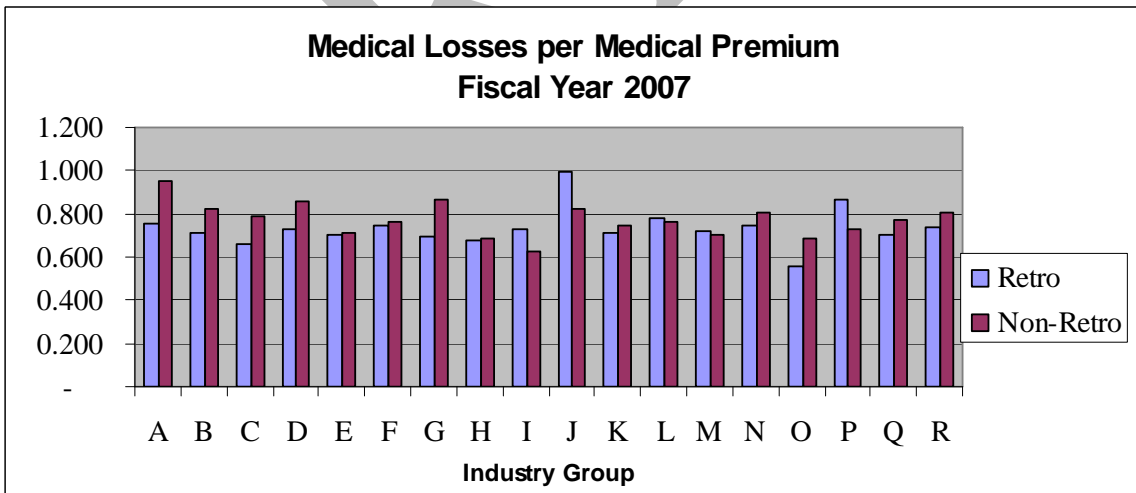
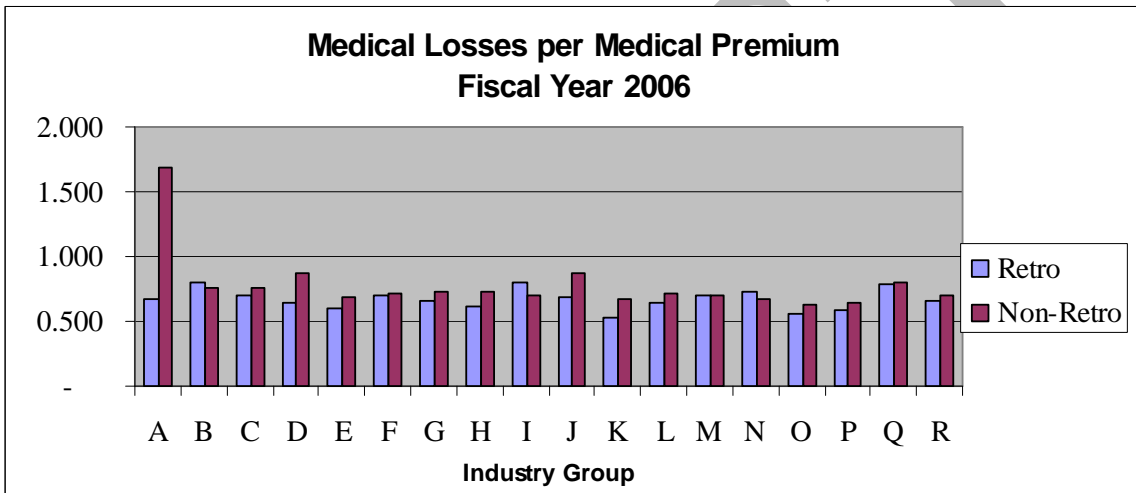
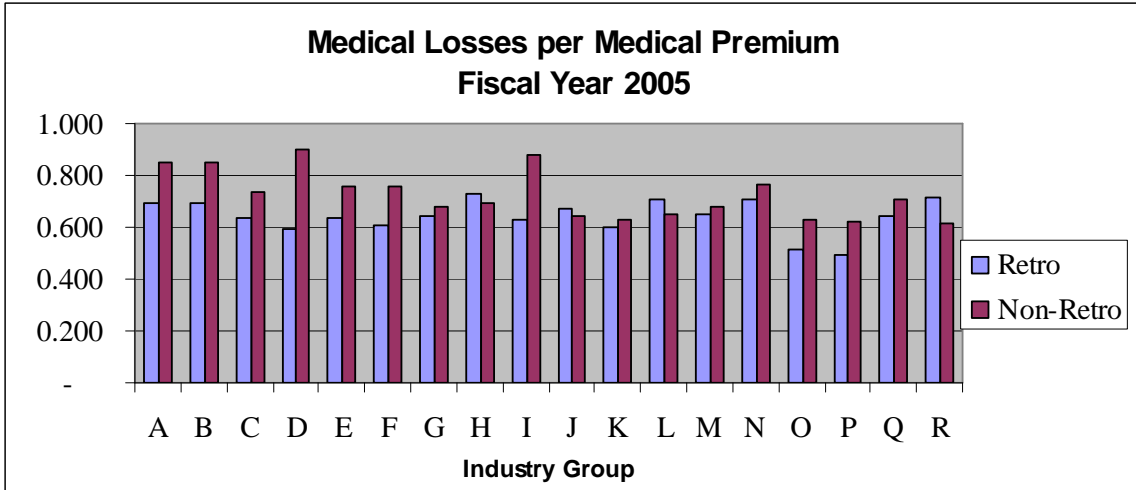




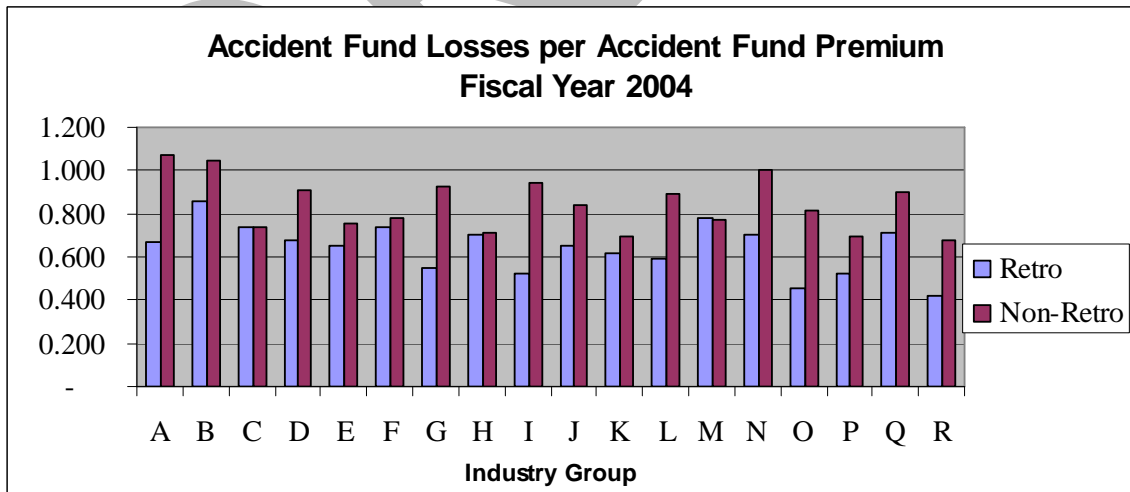
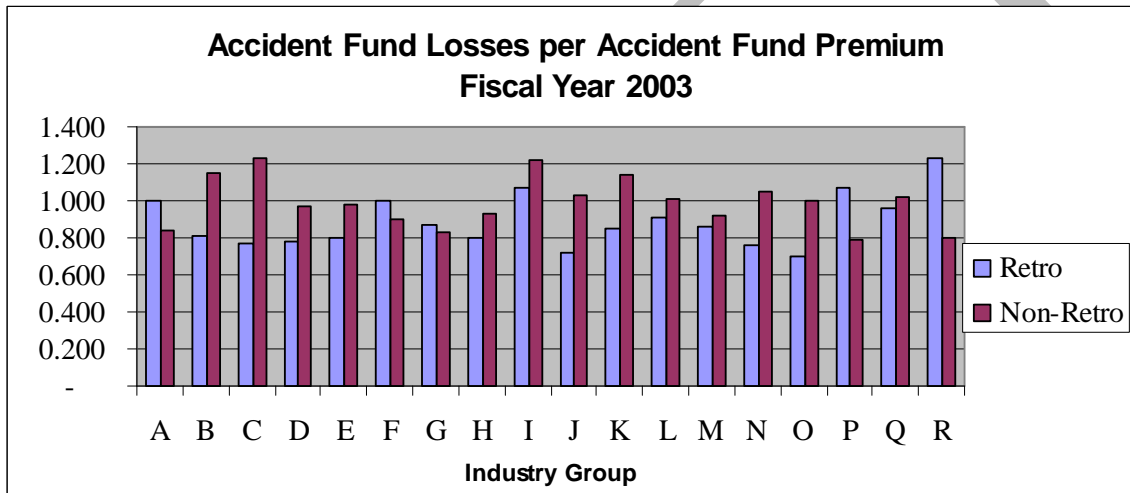
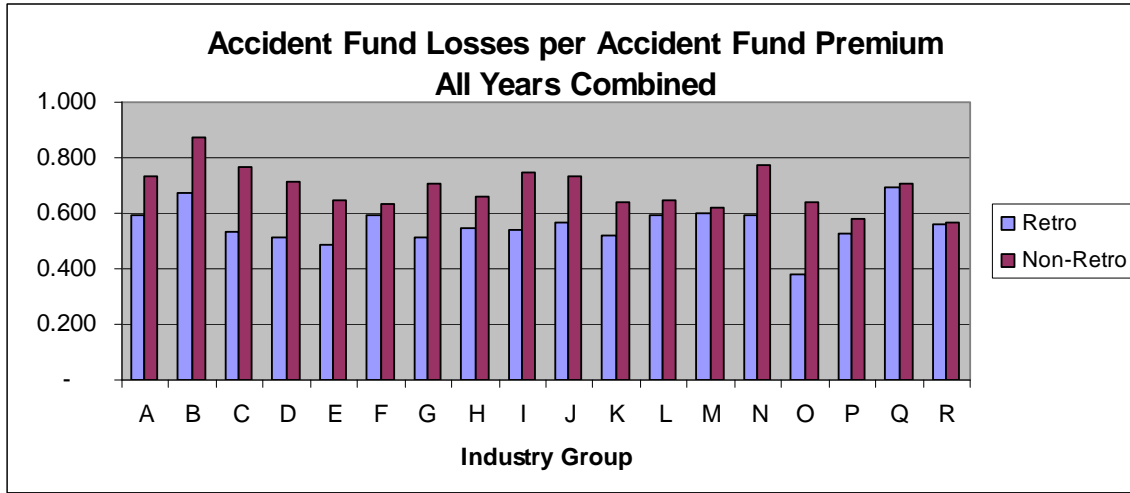


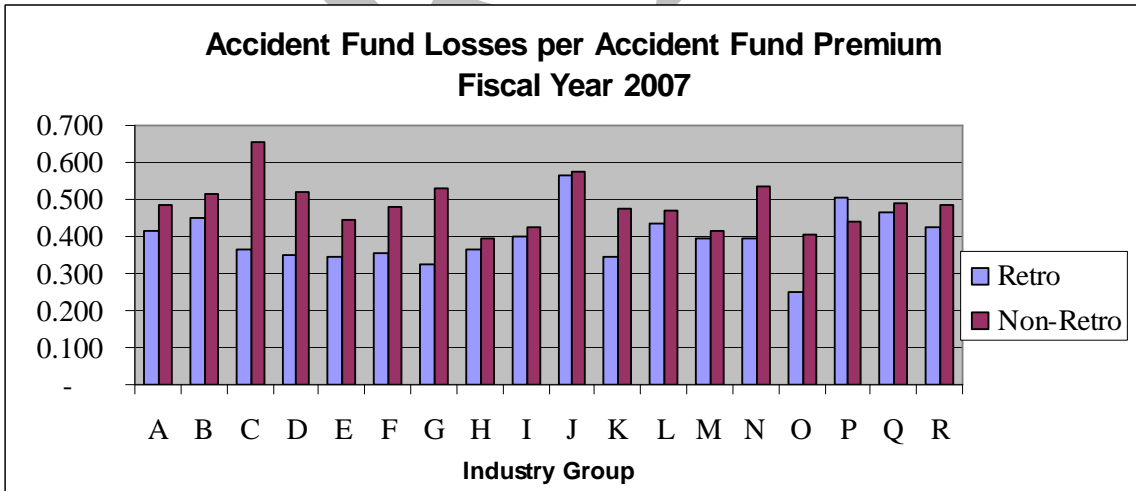
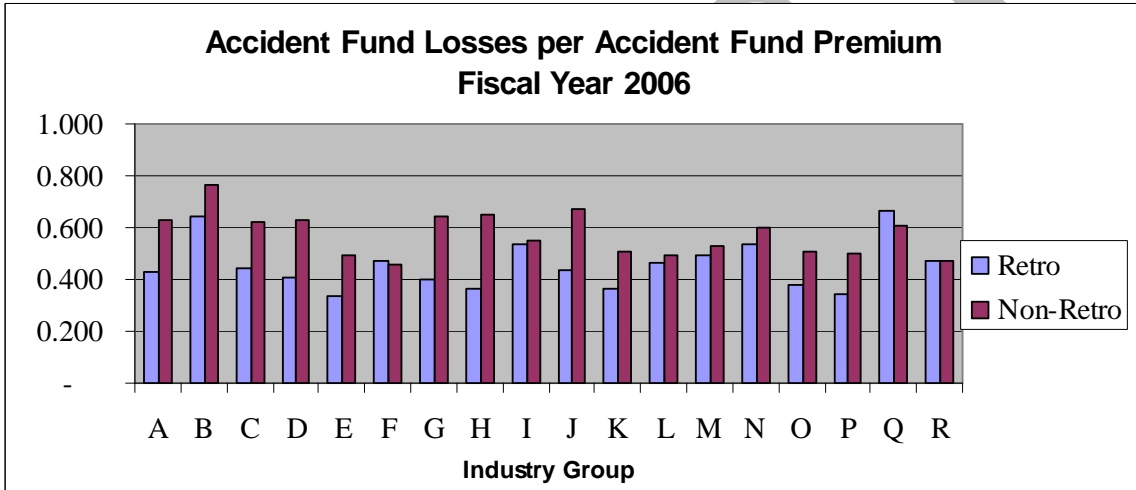
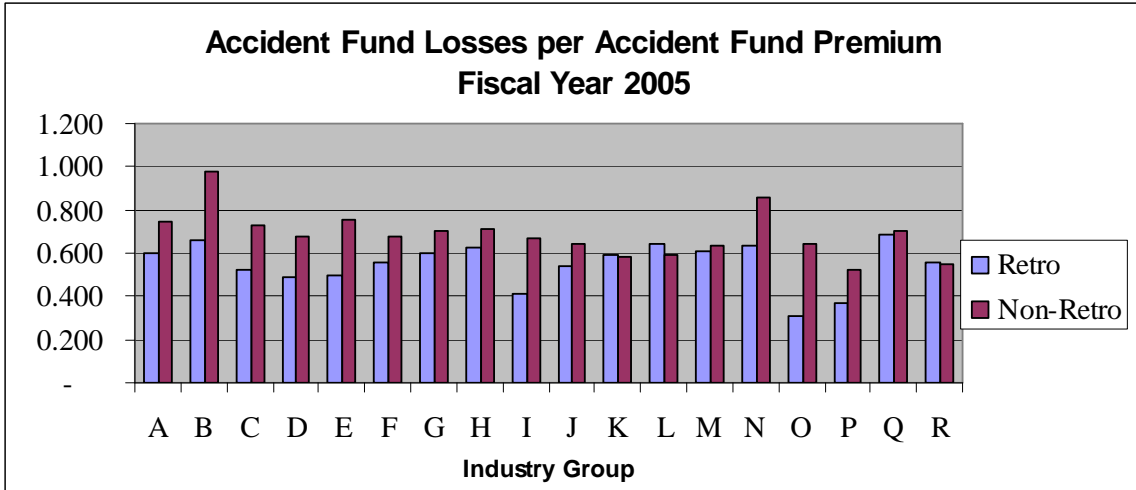
Loss Ratios: Medical Aid Only



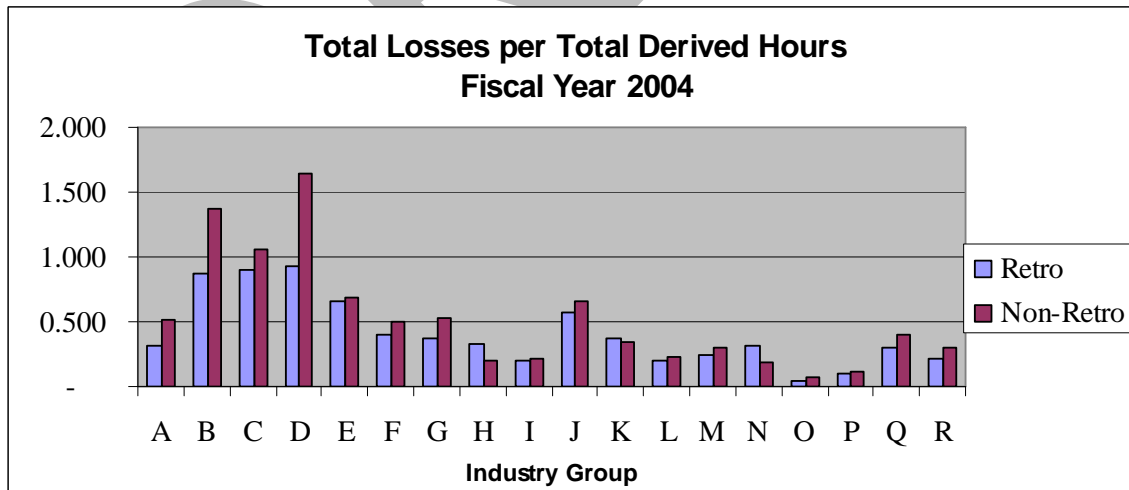
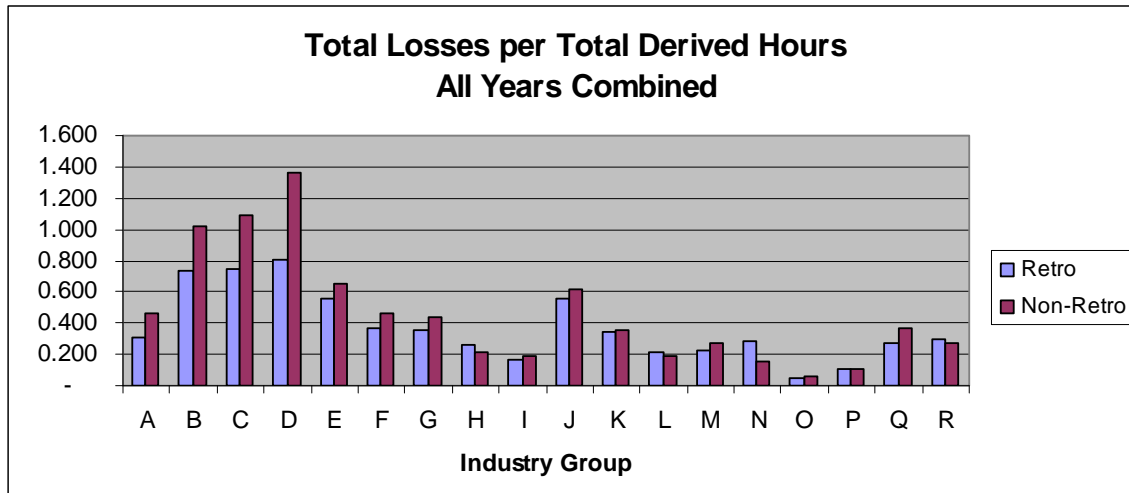


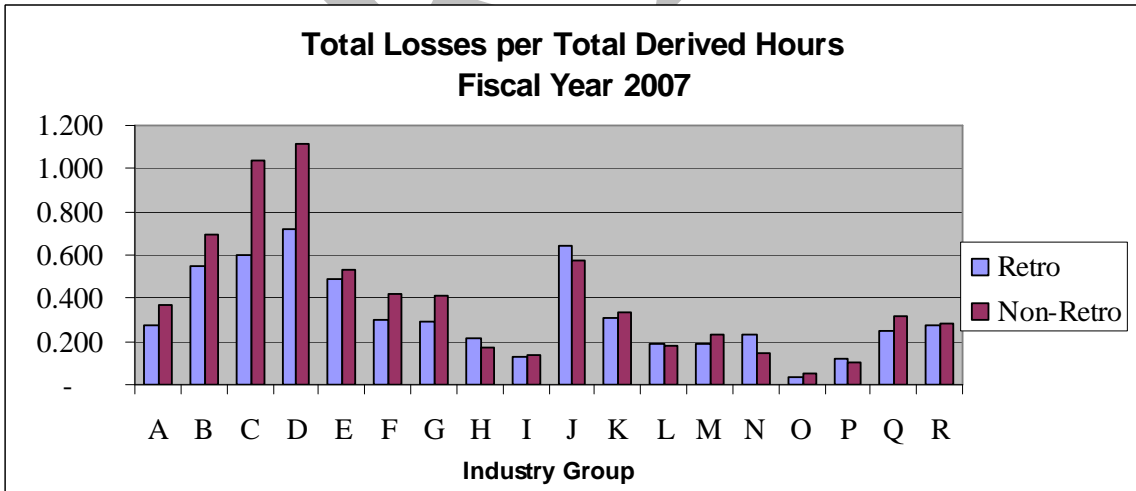
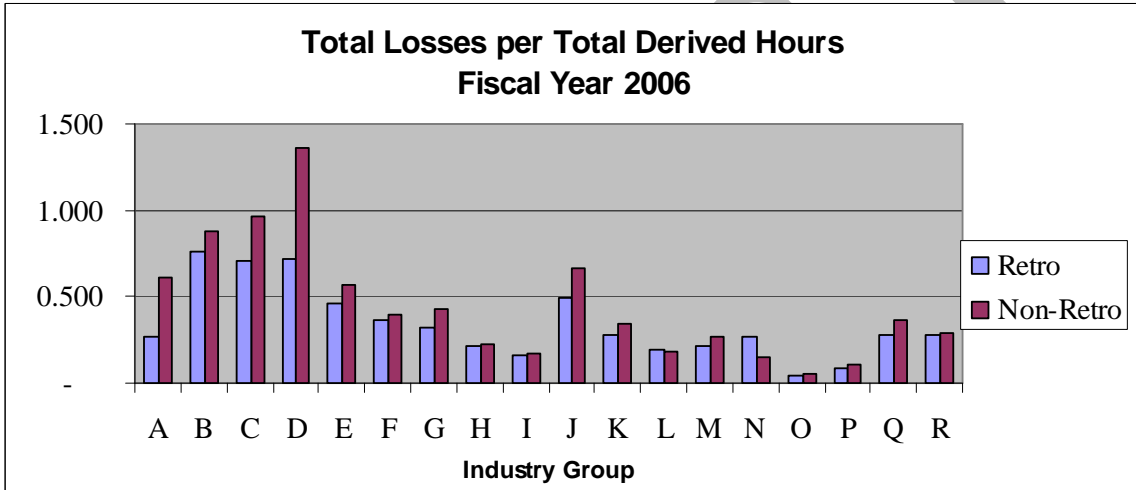
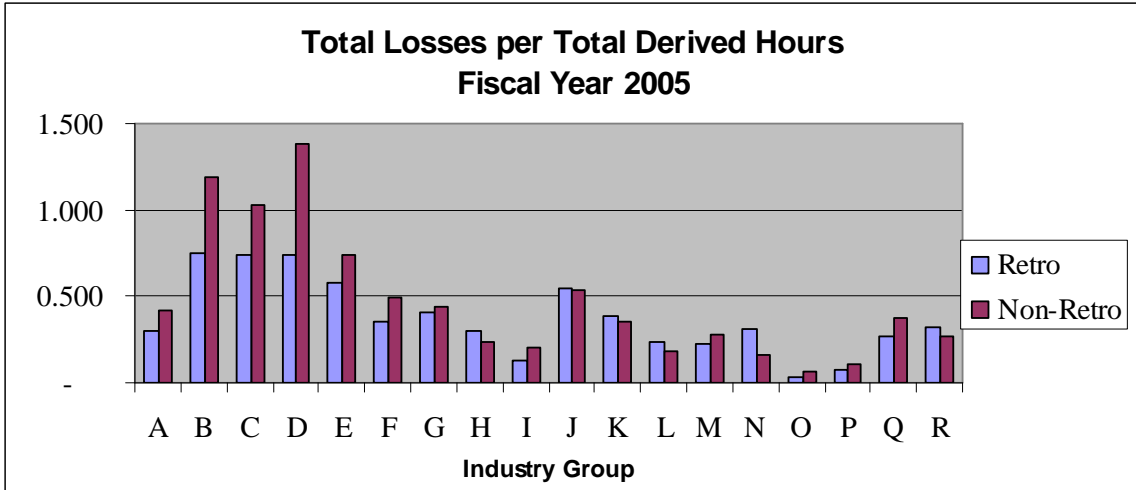
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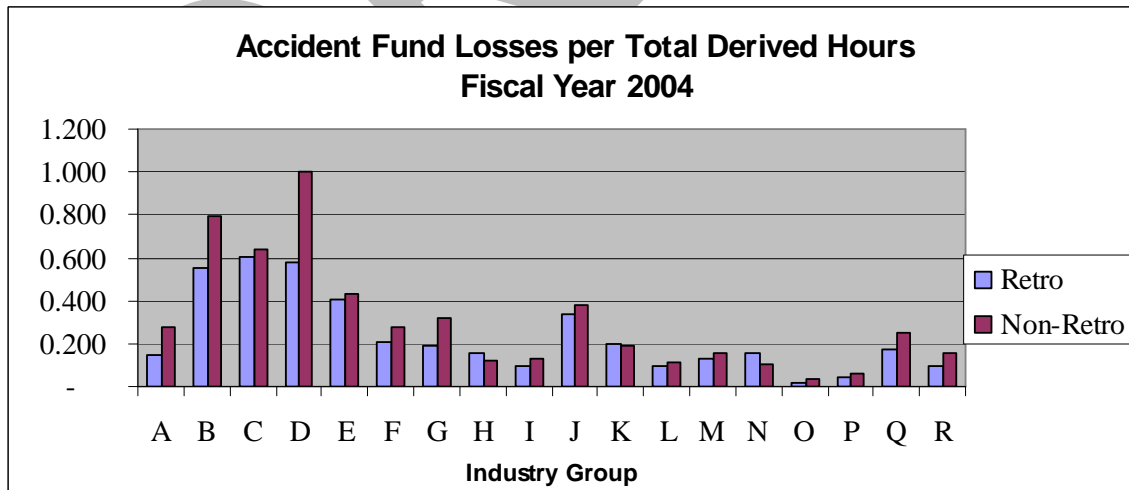
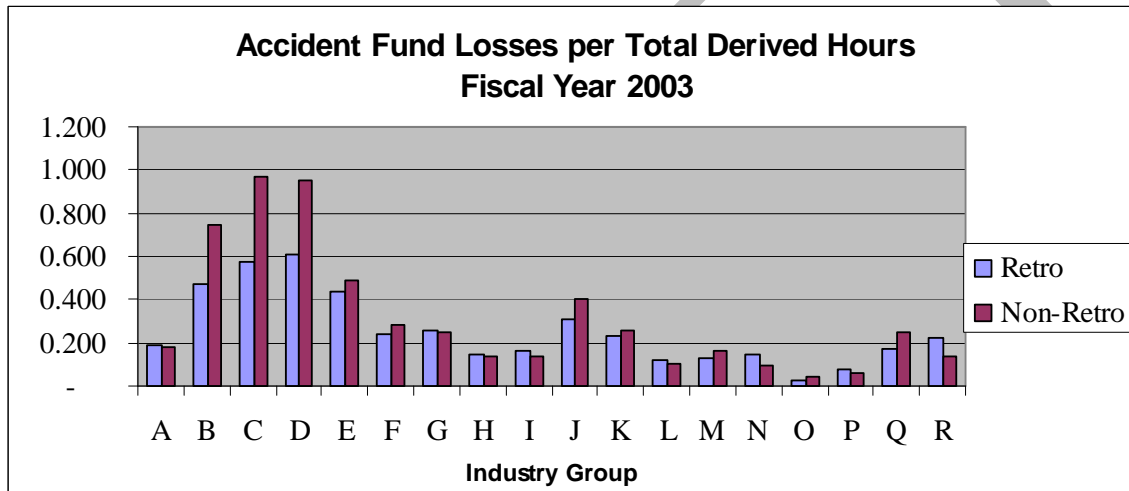
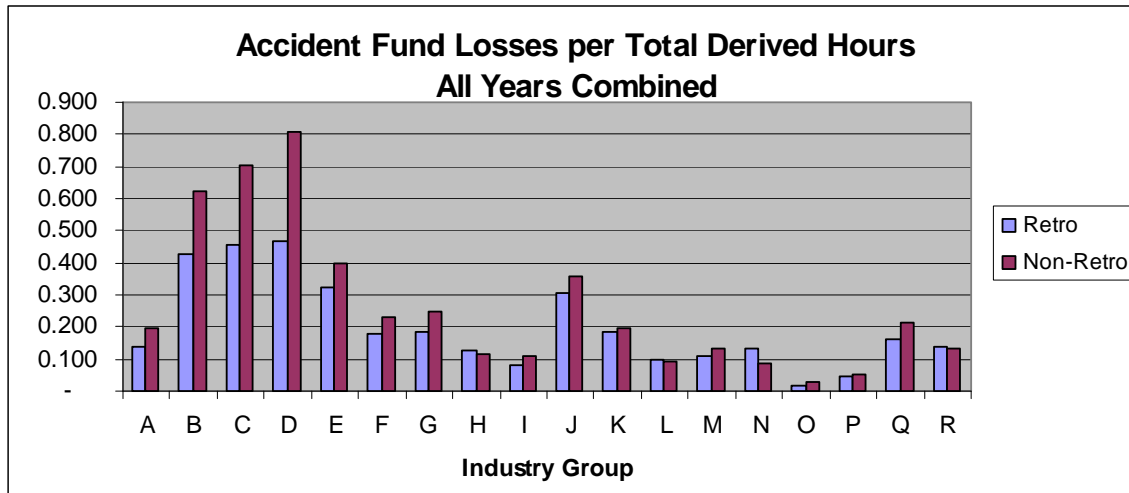


## Reported Loss Rates per Derived Hour: Total Losses

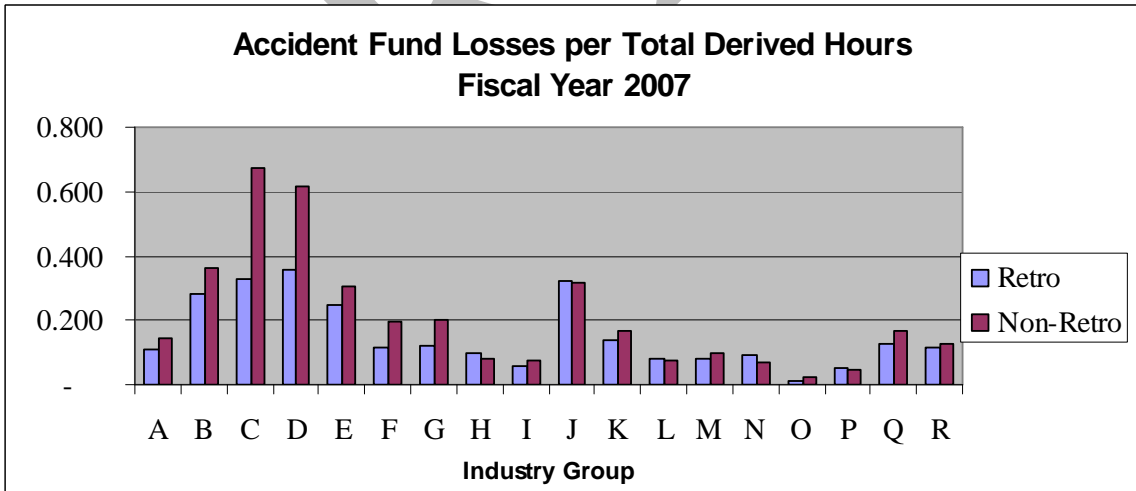
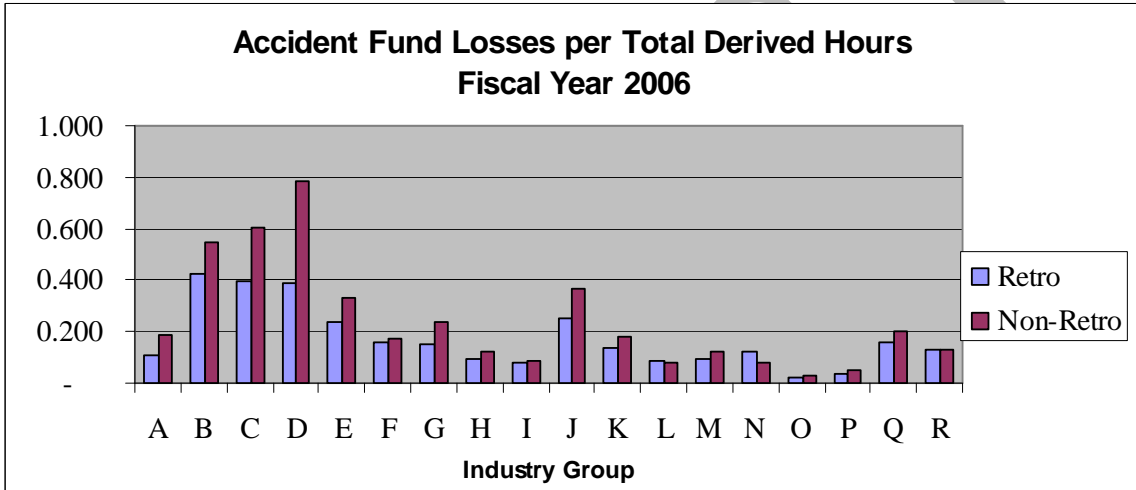
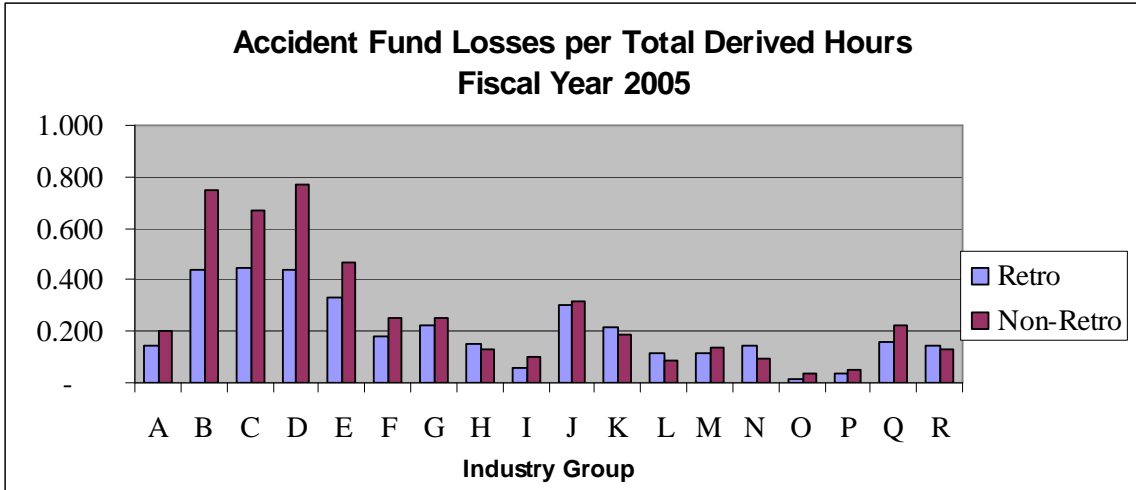




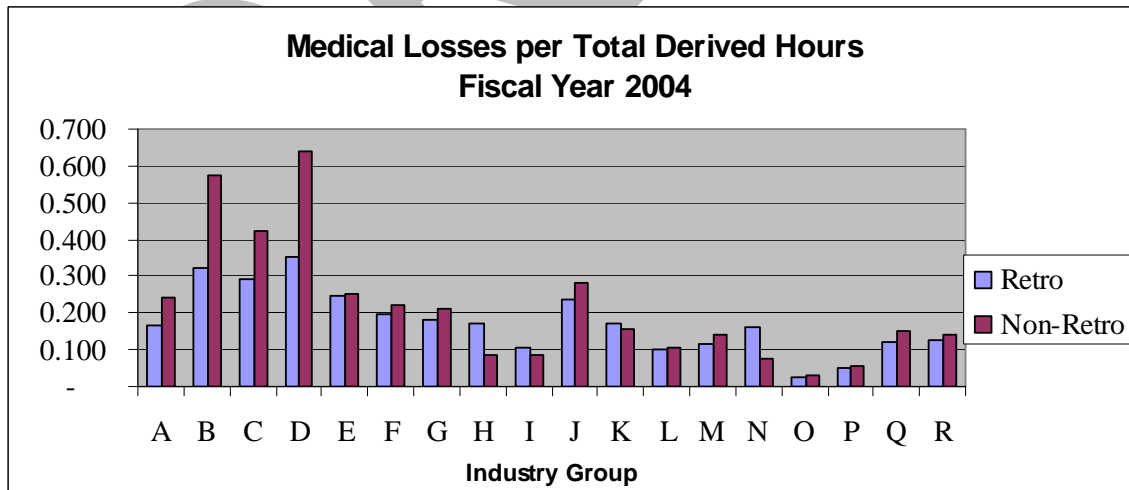
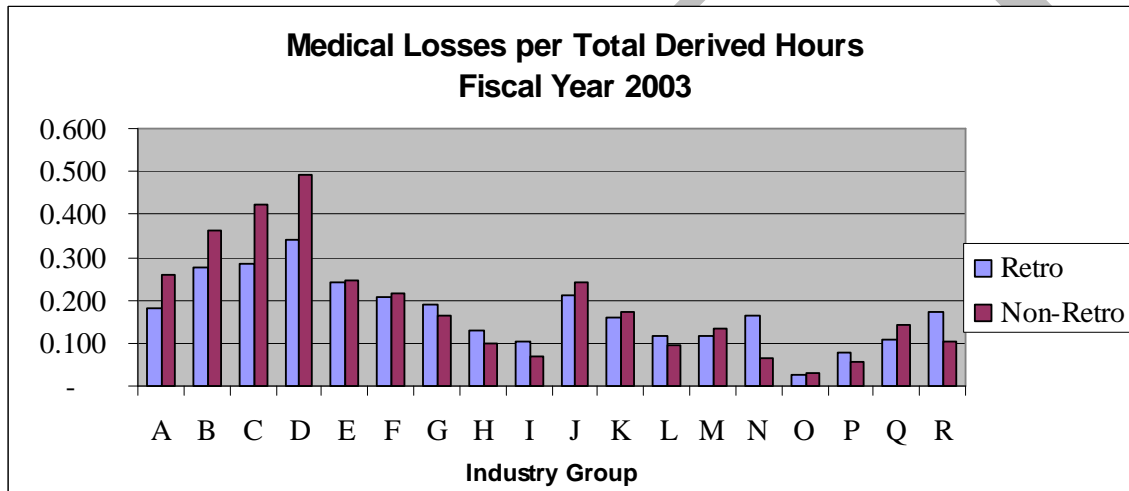
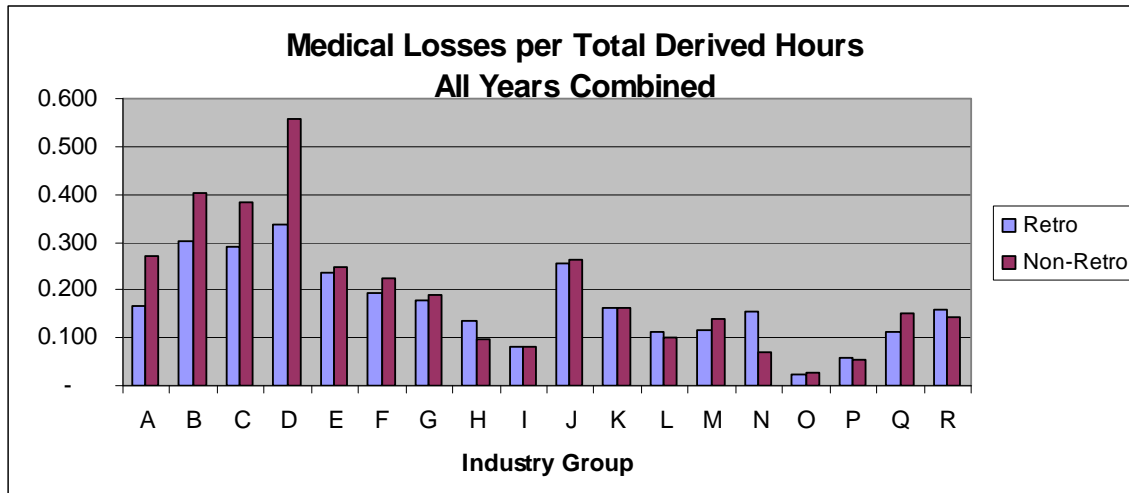
## Reported Loss Rates per Derived Hour: Accident Fund Losses

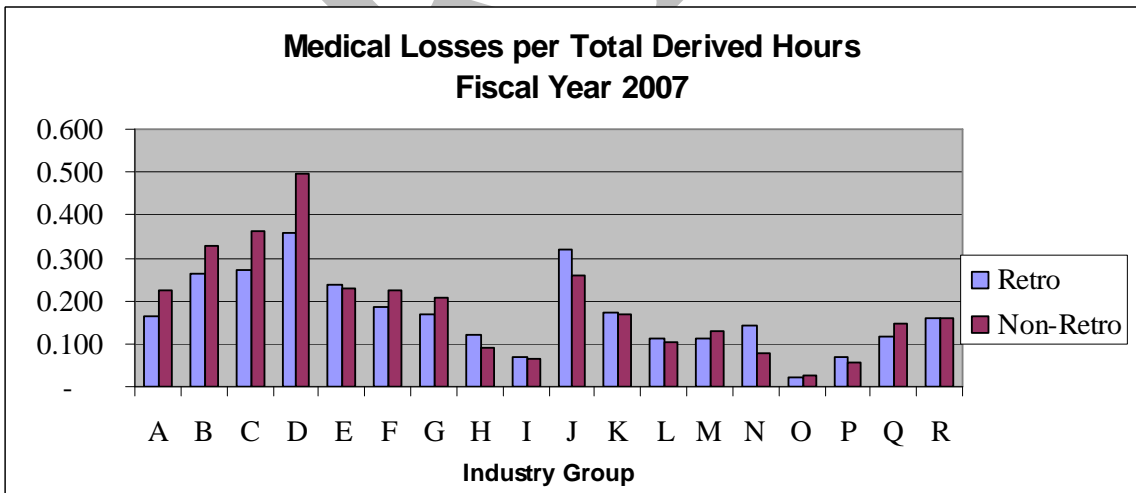
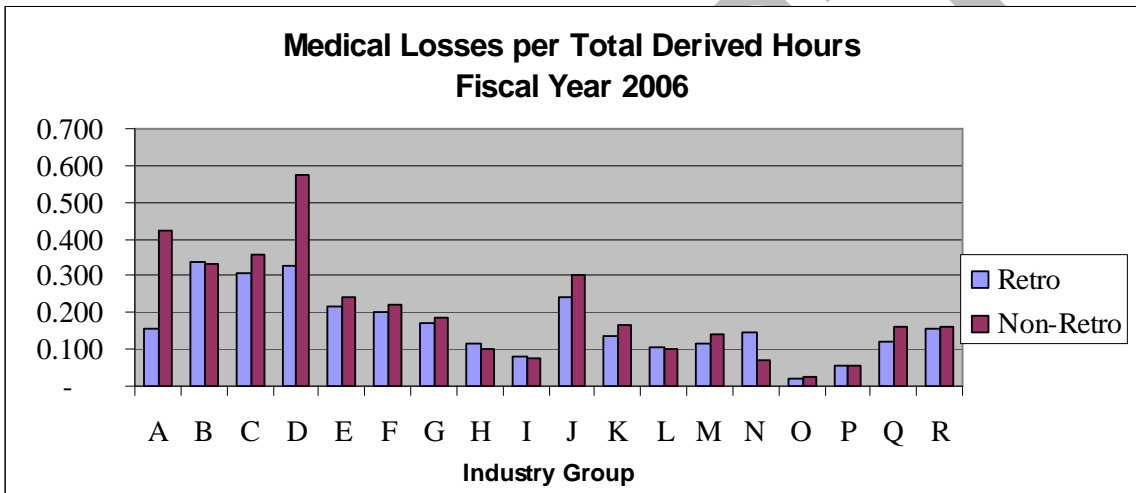
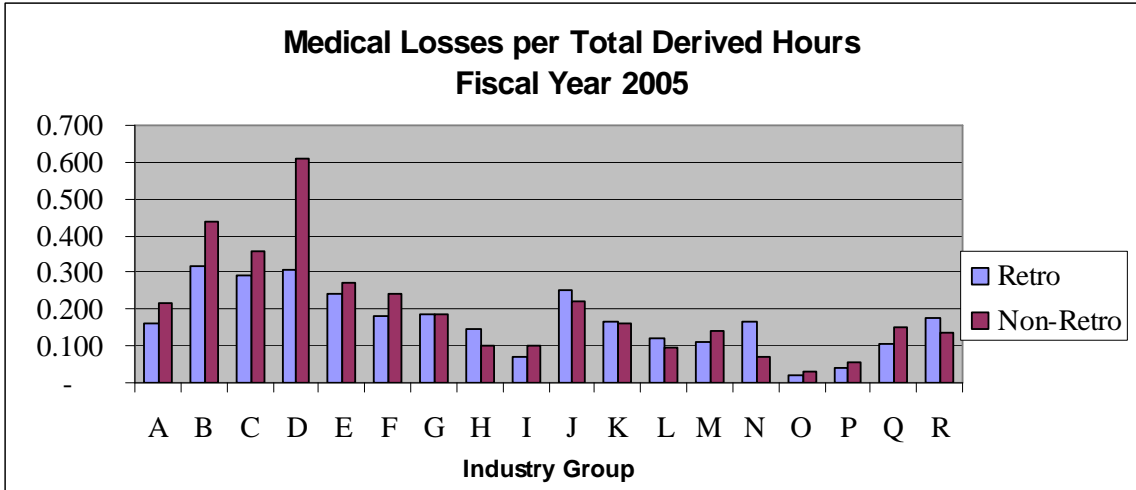




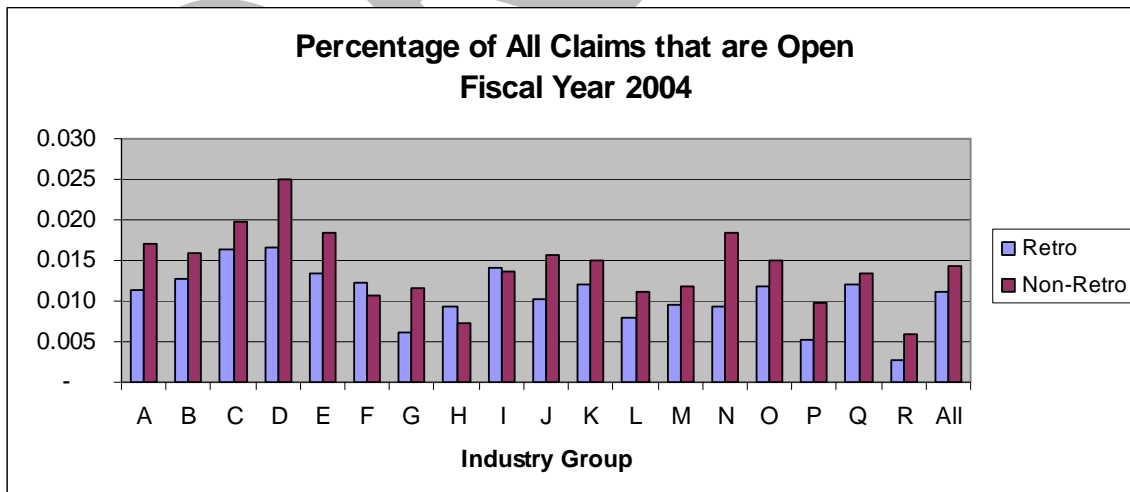
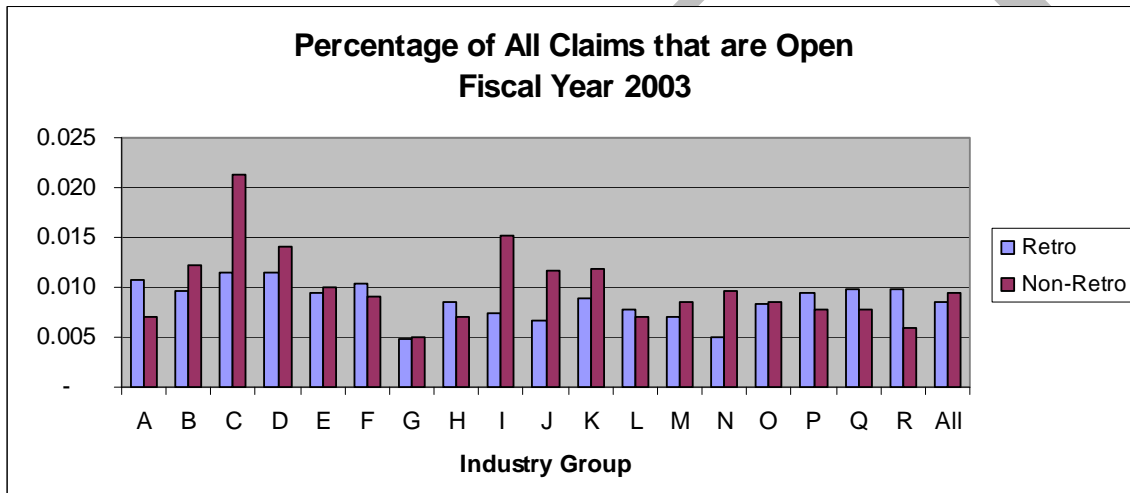
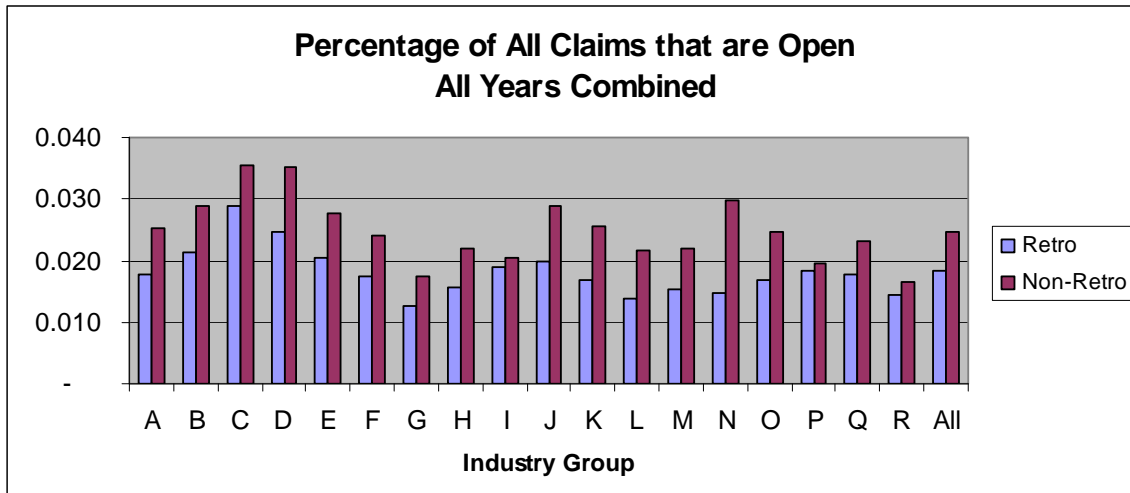


## Reported Loss Rates per Derived Hour: Medical Fund Losses

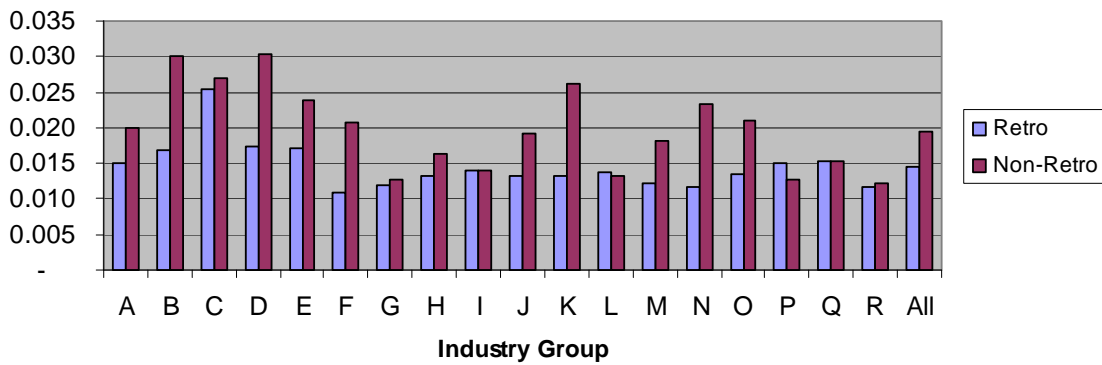




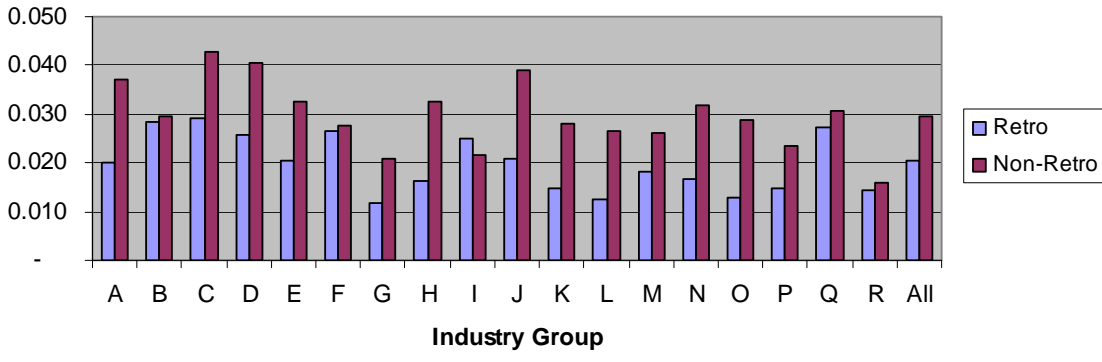
## Open Claim Share: Total Claims



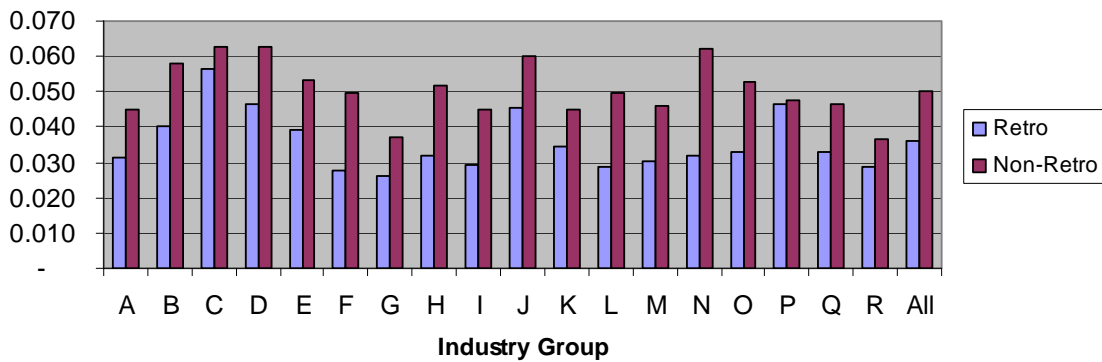
**Percentage of All Claims that are Open  
Fiscal Year 2005**



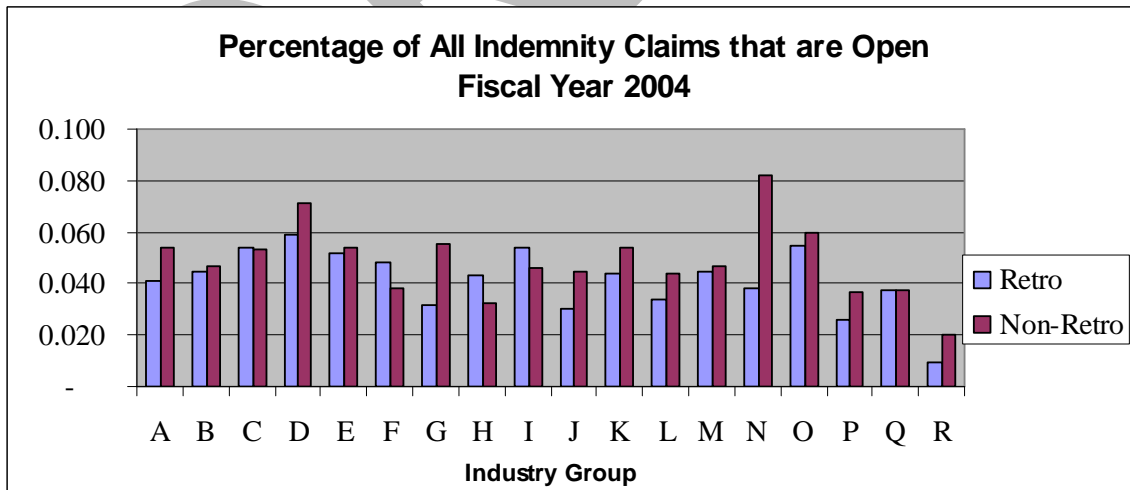
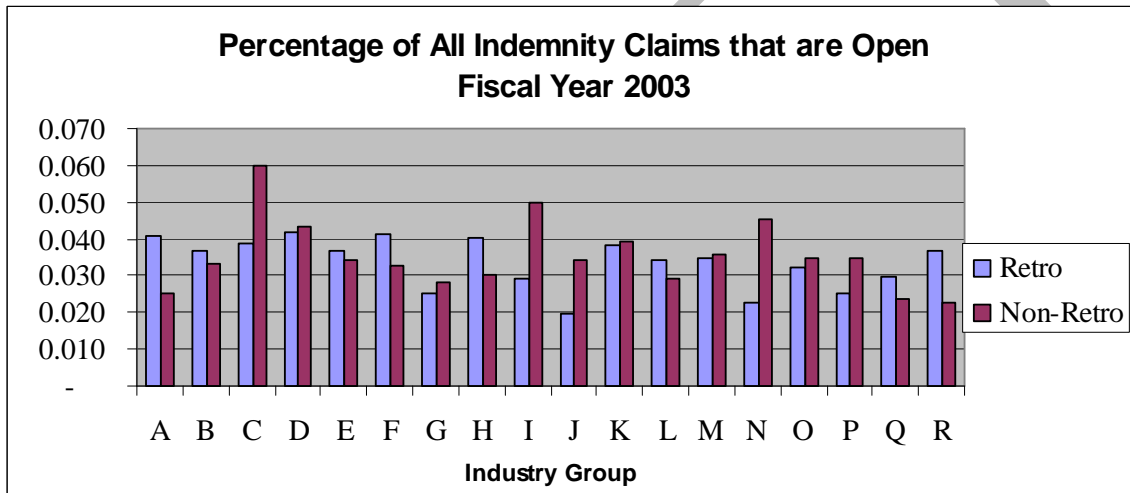
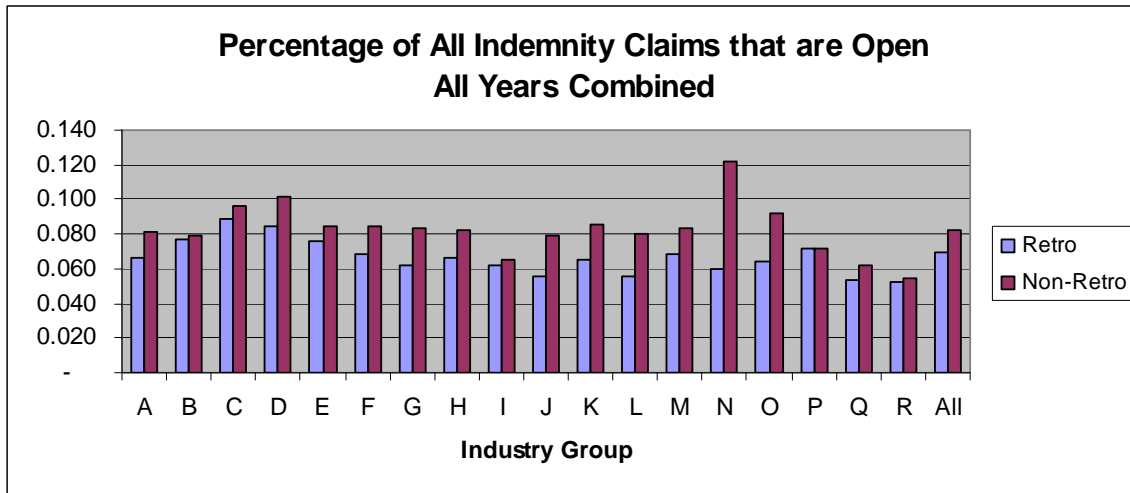
**Percentage of All Claims that are Open  
Fiscal Year 2006**

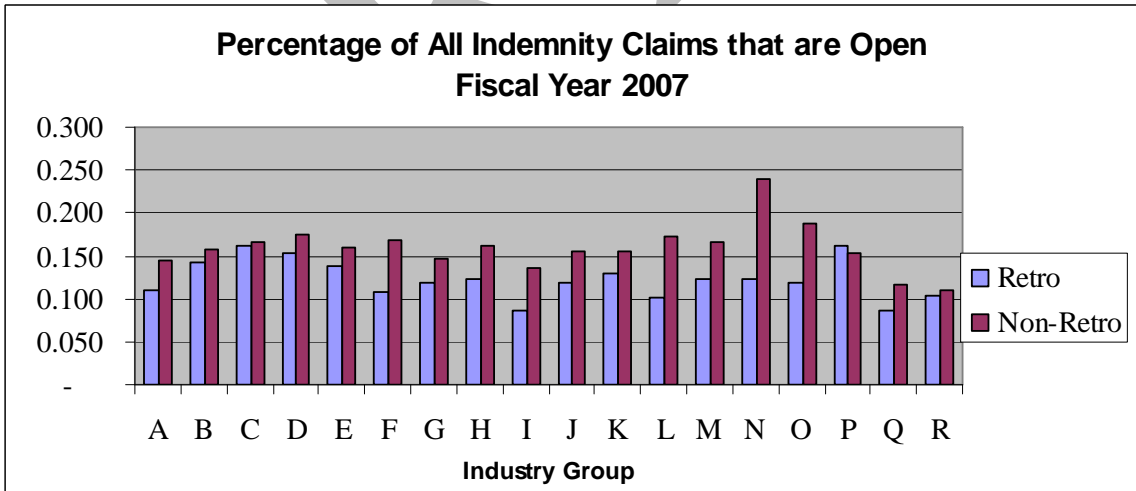
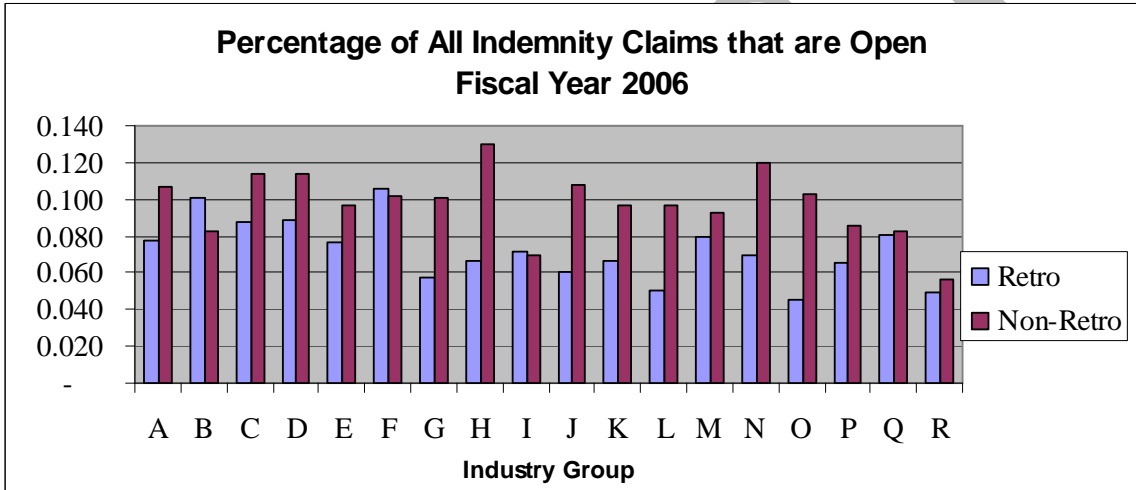
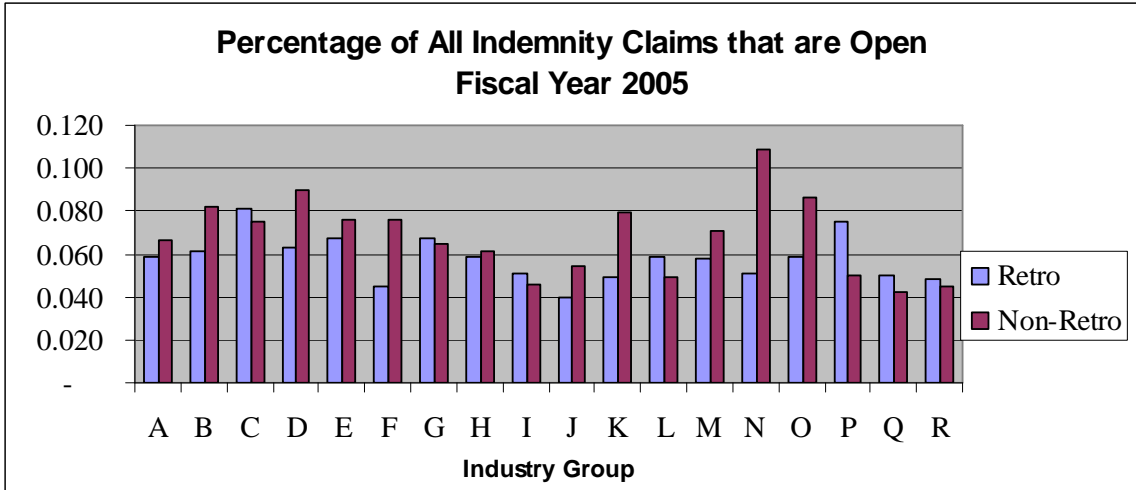


**Percentage of All Claims that are Open  
Fiscal Year 2007**



## Open Claim Share: Accident Fund Claims





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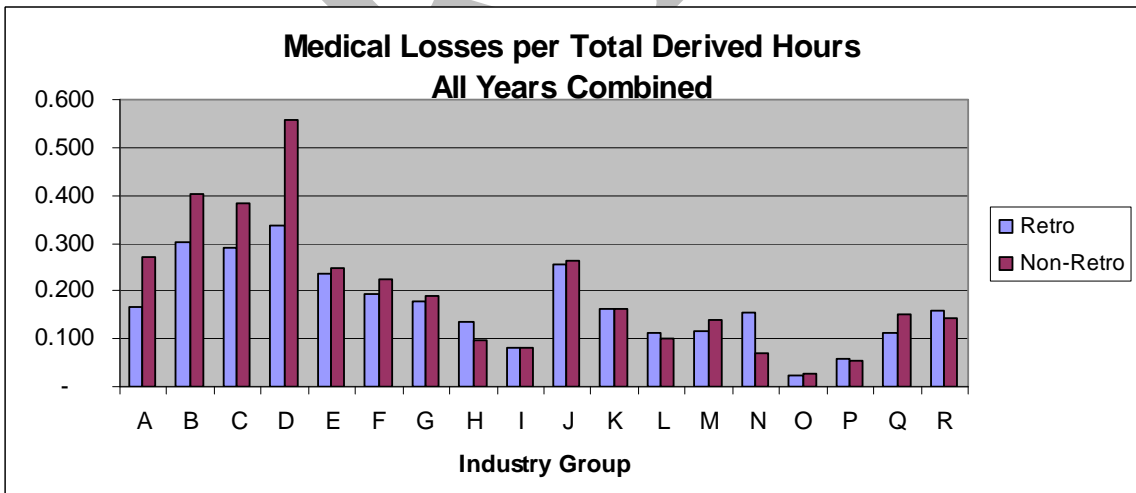
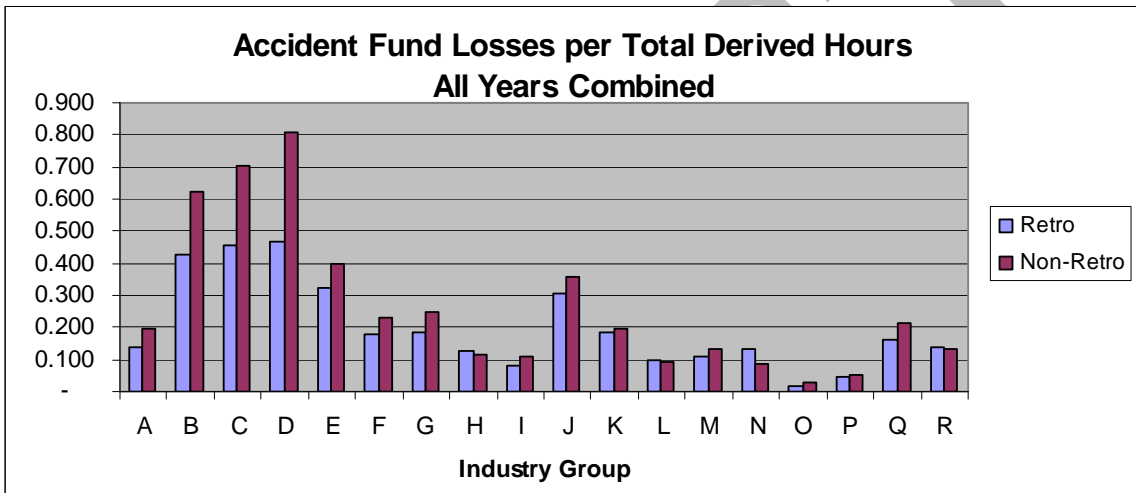
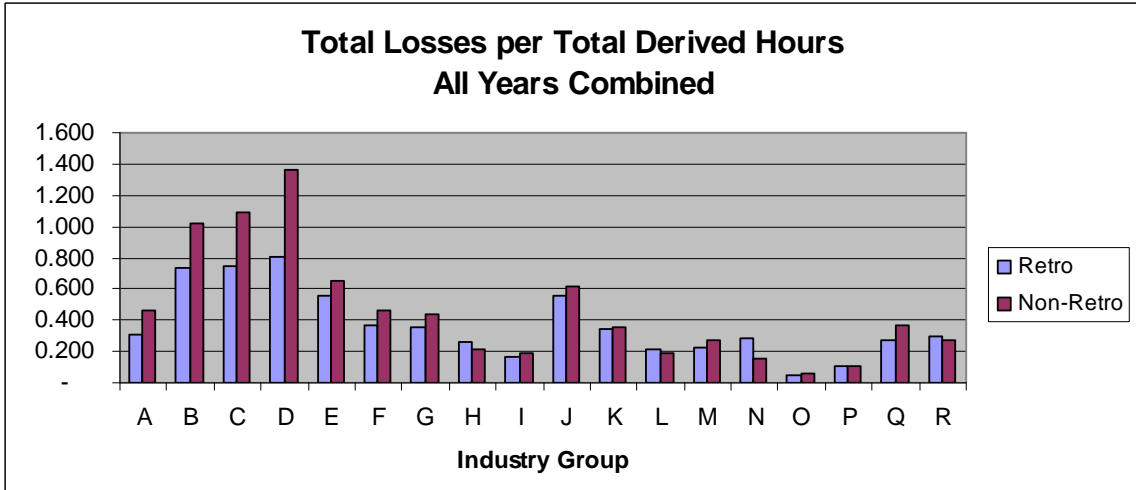
## Impact of Retro Employers on Classification Rates

There is an expectation that with better than expected experience, the impact of retro employer experience would be to decrease the average statewide rates for the classifications in which they participate. We have not compared retro employer experience to non-retro employer experience by individual classification. However, we have calculated incurred losses per derived hour by industry group separately for retro employers and non-retro employers. The comparison was done for total losses combined, and individually for medical aid losses and accident fund losses. The graphs summarizing the results of this analysis are presented in a prior section of this report, but are reproduced on the following page for the convenience of the reader.

For almost all industry groups, retro employers have lower average costs per derived hour than non-retro employers. This is true for total losses, as well as individually for medical aid losses as well as accident fund losses. An argument could be made that it would be inappropriate to conclude that retro employers act to lower classification rates because the observations based on these graphs could be due to varying market share by classification within each industry. If this were the case, though, retro employers would have to have greater market share in lower hazard classifications. This is known not to be the case. Additionally, the observations extend across almost all industry groups. Finally, similar charts presented earlier in this report show that retro employers have lower average experience modifications than their non-retro employer counterparts.

Given this information, it is reasonable to conclude that the experience of retro employers acts to decrease the average rate for individual classifications.





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## Medical Aid Premiums

The treatment of medical aid premium and losses in the calculation of retrospective refunds may result in retrospective premium that is either too high or too low for individual employers. In this respect, the manner by which retrospective premium and therefore retrospective refunds are currently calculated are actuarially unsound. However, given the complexity of the issue and the various interpretations that may be made regarding the situation in Washington, it is unrealistic to expect a stand alone actuarial solution independent of the various interpretations of the situation.

The current retrospective premium calculation presumes that employers fund 100% of standard premium and are responsible for 100% of losses. However, in Washington, it is suggested that employees fund 50% of medical aid premium. This is true for many employers; however, our understanding is that a substantial portion of employers fund 100% of medical aid premium.

Retrospective premium and therefore refunds to retro employers are based on the presumption that employers fund 100% of medical aid premium and are responsible for 100% of medical aid losses. Assuming that all employees fund 50% of medical aid losses and are responsible for 50% of all medical aid losses then the current process of determining retrospective refund is actuarially unsound and potentially could result in:

- Overstated refunds to individual employers
- Overstated surcharges (or overly reduced refunds) to individual employers
- Situations, in the extreme, where an employer might receive a retrospective refund greater than standard premium paid in.

The issue of actuarial soundness could potentially impact the magnitude of the overall retrospective refund, as well as the distribution of the overall retrospective refund to individual employers. The magnitude of the impact, or whether there is any impact at all, will depend on the specific interpretation of the situation.

There are a number of different ways to interpret and possibly correct the situation. In all frankness, the most appropriate method, at least from a technical perspective, would be to ensure that all employers fund 100% of all workers compensation premium, including medical aid premium, as is the case in all other jurisdictions. If this path were taken, then the current approach would be appropriate and medical aid premium would no longer be an issue. (In fact, for employers that fund 100% of medical aid premium, the current approach is appropriate.) However, what might be appropriate and commonplace from a technical perspective may not be appropriate from a socio-economic viewpoint in Washington. In any case, an examination of the appropriateness of funding a portion of medical aid premium through employees is beyond the scope of this analysis. We will continue the discussion with the presumption that the current practice is desired and will continue.

As noted, there are different interpretations and courses of action to adjust the calculation. However, before discussing varying interpretations and adjustments, it is important to understand underlying factors that complicate this issue. These factors are related to the determination of statewide rate level, application of the experience rating plan, the cost of loss prevention and loss

control, balancing the experience of retro and non-retro employers, as required by WAC 296-17-90402, and individual employer behavior as respects actual funding of medical aid premium.

- Accident fund rates are at a materially higher level than medical aid fund rates (see discussion at end of background section). As such, accident fund rates are the primary driver of retrospective refunds.
- The medical aid portion of overall rates varies significantly by classification.
- Experience modifications impact both medical aid premium and accident fund premium. After application of experience rating, and consideration of average rate level, medical aid premium is significantly closer to required levels for retro employers than accident fund premium, which is measurably greater than required.
- The employer funds the cost of loss control and loss prevention, which result in lower experience modifications which benefit *employees* both in terms of reduced medical aid premium payments, as well as the reduced likelihood of a serious disabling accident.
- Employers assume all risk associated with participation in the retrospective program.
- A significant portion of employers in Washington fund 100% of medical aid premium.

In order to better understand how philosophy and interpretation of the issues above can impact the view of how medical aid premium and losses should be treated, consider two extremes:

#### Guaranteed Cost Interpretation

In one extreme, an approach could be taken that treats the employee funded portion of medical aid premium, and therefore one half of medical aid losses, as non-retro experience. With this approach, the following would apply:

- **Determination of Overall Retrospective Refund**  
For the purpose of balancing the experience of retro and non-retro employers, as required by WAC 296-17-90402, one half of the medical aid premium and one half of the medical aid losses would be removed from retro employer experience used to determine the overall retro employer loss ratio and transferred to non-retro employer experience used to determine the overall non-retro employer loss ratio. The impact would be a reduction to the total retrospective premium refund from the current approach in Washington.
- **Distribution of Overall Retrospective Refund to Retro Employers**  
For the purpose of determining individual retro employer refunds, the employer is presumed to have paid one half of the medical aid premium, and therefore one half of the medical aid losses are included in the formula used to determine individual retro employer premium. The impact would be a redistribution of the overall (reduced, as described above) retrospective refund between retro employers when compared to the current approach in Washington.

## Ultimate Payer Interpretation

The other extreme would treat the retro employer as the ultimate payer of medical aid premium.<sup>32</sup> In this extreme, an approach could be taken that treats the employee funded portion of medical aid premium, and therefore one half of medical aid losses, as ultimately the responsibility of retro employers. With this approach, the following would apply:

- **Determination of Overall Retrospective Refund**  
For the purpose of balancing the experience of retro and non-retro employers, as required by WAC 296-17-90402, all medical aid premium and all medical aid losses would be included with retro employer experience used to determine the overall retro employer loss ratio. This is the current approach in Washington.
- **Distribution of Overall Retrospective Refund to Retro Employers**  
For the purpose of determining individual retro employer refunds, the employer is presumed to have paid 100% of medical aid premium and therefore 100% of medical aid losses are included in the formula used to determine individual retro employer premium. This is the current approach in Washington.

The guaranteed cost interpretation gives non-retro employers the benefit of retro employer medical aid experience. The ultimate payer approach presumes that employers pay 100% of workers compensation premium and are responsible for 100% of medical aid losses, and ignores the principle of employee funding in Washington. While arguments could be made for both extremes, given the considerations discussed earlier, it is apparent that neither extreme is an appropriate approach. Unfortunately, the second extreme, the ultimate payer approach, is in fact the current approach in Washington. This is the basis for our criticism of the current approach in Washington.

Given the above discussion, one possible approach is as follows:

### Determination of Overall Retrospective Refund

The current method of determining the overall retrospective refund, which is equivalent to the ultimate payer interpretation, could remain unchanged. The refund is generated by the better than expected experience of retro employers, regardless as to the source of premium payment, and should therefore benefit retro employers.

### Distribution of Overall Retrospective Refund to Retro Employers

In perfect world, all considerations listed earlier in this section could be appropriately considered and a method devised to properly distribute each employer's refund to the appropriate premium payer (employee and employer). This is not possible theoretically, due to innumerable ways that these considerations could be interpreted. It is also not possible from a practical viewpoint.<sup>33</sup> One

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<sup>32</sup> *With this interpretation, the source of funding of the employee's portion of medical aid premium is presumed to be the employer, who therefore bears responsibility for 100% of medical aid losses as well.*

<sup>33</sup> *Given that final retrospective refunds are not determined until 45 months after enrollment (possibly longer if recommendations in this report are adopted) employees would have to be tracked in order to deliver the final refund. Consideration would have to be given to situations where there would be an accident fund refund, but a*

possible way to partially mitigate the issues with the current approach would be to reflect the reality that many employers fund only one half of medical aid premium and are therefore responsible, in theory, for one half of medical aid losses. Therefore, for the purpose of determining individual retro employer refunds, the employer is presumed<sup>34</sup> to have paid one half of medical aid premium, and therefore one half of the medical aid losses are included in the formula used to determine individual retro employer premium.

#### Overall Impact

This approach would leave the overall retrospective refund unchanged. However, it would result in a redistribution of the overall refund amongst retro employers when compared to the current approach in Washington. This would partially address concerns with the current approach, but would not eliminate them. Additionally, it is possible that this specific approach could require modifications to the manner by which rates are established for individual classifications. Finally, this approach still could, in theory, lead to a situation where an employer receives a retrospective refund greater than what was paid into the system.

During the course of this examination, numerous permutations were discussed and examined. The approach suggested above is presented as a practical and realistic way of partially dealing with an extraordinary complex issue. However, this approach is not presented as a recommendation because, as mentioned above, it only partially addresses concerns with the current approach, and potentially may generate additional issues as respects ratemaking.

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*medical aid fund assessment, in which case an employee would have to be asked for payment. These and other considerations were discussed at length with L&I.*

<sup>34</sup> *A possible variant on this approach would be to identify those employers who fund 100% of medical aid premium and modify their retrospective premium formula appropriately. We have not discussed the practical implications of this suggestion with L&I.*

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# Number of Adjustments for Retro Employers

## Introduction

Currently there are three adjustments for retrospective premium, 21, 33, and 45 months after enrollment. At the time of the adjustment, the overall retrospective premium requirement and refund is determined by balancing the experience of retro and non-retro employers, as required by WAC 296-17-90402. Additionally, the premium requirement for individual retro employers, and therefore the distribution of the overall retrospective refund to individual employers, is determined through the use of the retrospective rating formula, as described earlier in this report.

Therefore, the number and timing of retro adjustments impacts all aspects of the retrospective premium calculation.

### Determination of Overall Retrospective Refund: Equity between Retro and Non-Retro Employers:

To the extent that loss development differs between retro employers, as a group, and non-retro employers, as a group, beyond the current third and final adjustment, there will be an inequity between the groups and the requirements as established by WAC 296-17-90402 will be violated. In order for the current third and final adjustment to be appropriate, loss development for both groups of employers would have to be identical after the third adjustment.

### Distribution of Overall Retrospective Refund: Equity amongst Retro Employers:

To the extent that loss development differs between individual retro employers beyond the current third and final adjustment, there will be an inequity between individual retro employers. In order for the current third and final adjustment to be appropriate, expected loss development, on average, would have to be the same for each individual retro employer after the third adjustment.

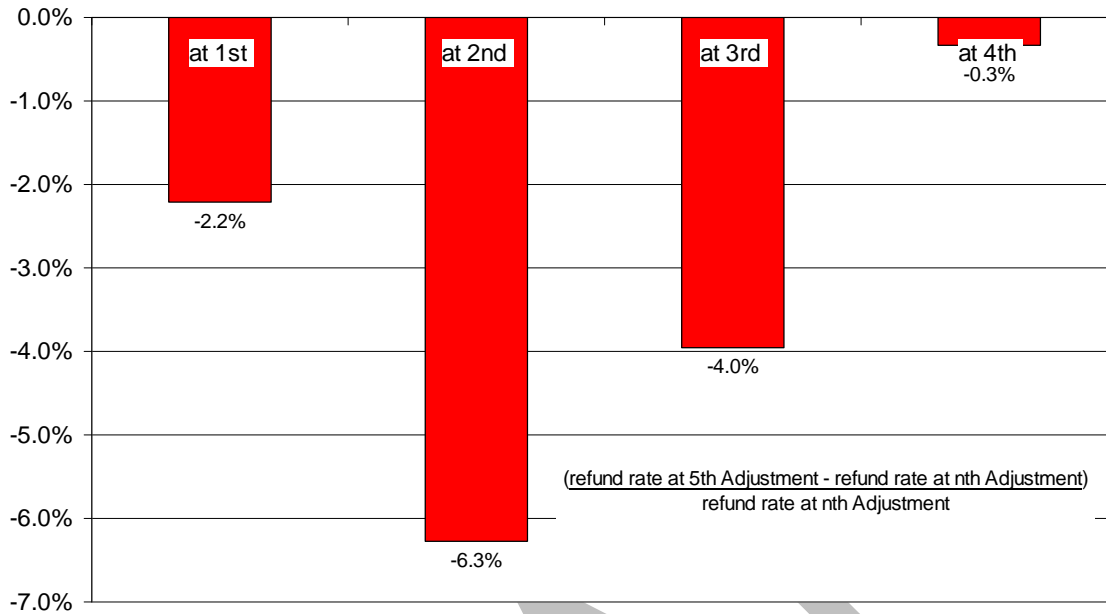
The following is a more detailed discussion of each of these individual items.

## Equity between Retro and Non-Retro Employers

We reviewed studies conducted by L&I, and examined historical loss development data provided by L&I. Information provided demonstrated that the current third and final retro adjustment at 45 months following enrollment is not sufficiently long to capture differences in loss development between retro employers and non-retro employers. As such, the current system creates inequities between retro employers and non-retro employers.

The following chart (supplied by L&I) illustrates this concern:

Refund Development  
All enrollments 4/1/1991 - 1/1/2003

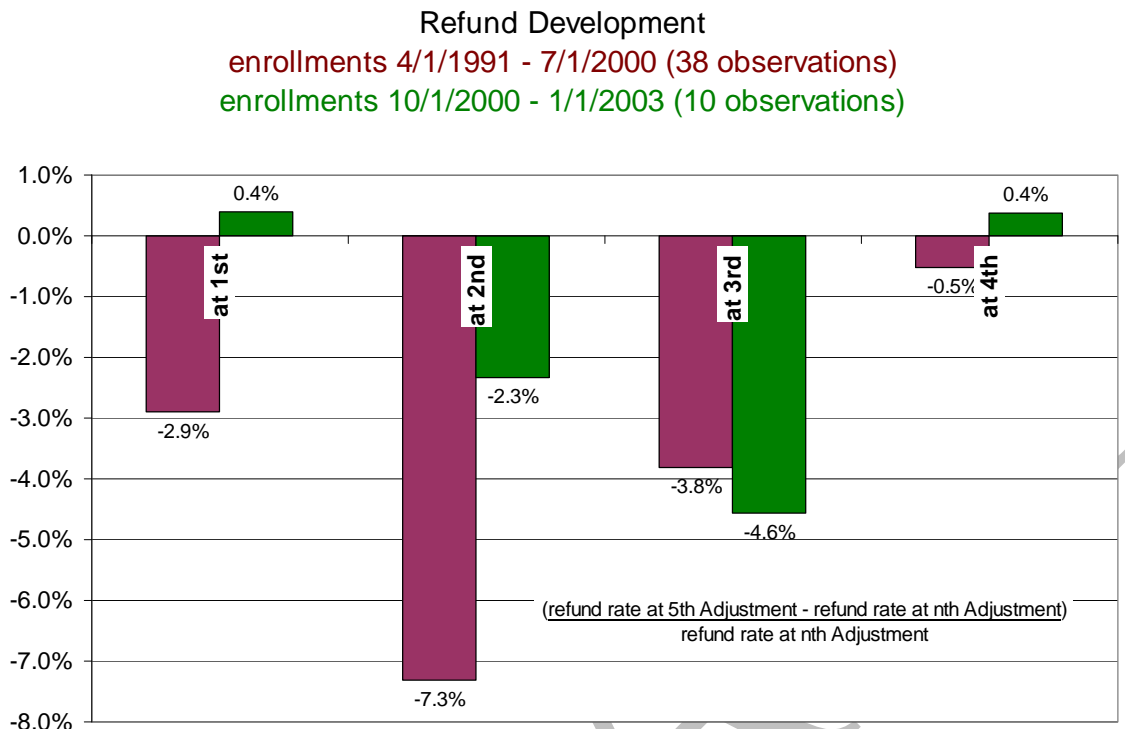


The chart above shows refund development to a theoretical fifth adjustment. The chart is interpreted as follows:

- At the first adjustment, refunds can be expected to decrease by 2.2% through a fifth adjustment
- At the second adjustment, refunds can be expected to decrease by 6.3% through a fifth adjustment
- At the third adjustment, currently the final adjustment, refunds can be expected to decrease by 4.0% through a fifth adjustment
- At the fourth adjustment, refunds can be expected to decrease by 0.3% through a fifth adjustment

The implication is that refunds are 4.0% to high, because subsequent measures of loss experience at a theoretical fourth and fifth adjustment demonstrate significantly different (greater) loss development for retro employers than for non-retro employers.

The following chart (supplied by L&I) displays the same information, but individually for older enrollment periods and more recent enrollment periods.



### Equity amongst Retro Employers

Loss development will naturally vary between employers with different risk exposure. Employers in hazardous classifications that incur a relatively large number of serious claims that are reported and adjusted at relatively immature ages will have materially different loss development patterns than another employer with a lower number of serious cases, but which are reported at later maturities. Both of these employers will have materially different loss development patterns than an employer whose primary exposure is clerical.

Industry data and experience suggests that differences in loss development between employers are material beyond the current third and final adjustment of retrospective premium, 45 months after enrollment. Therefore, increasing the number of retrospective rating adjustments will not only increase equity between retro employers and non-retro employers, but will also increase equity amongst retro employers as a group.



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## Potential Inequities between Retro Employers

The following items were identified in this study as potentially impacting equity between retro employers:

- Performance Adjustment Factor
- Number of Retrospective Rating Adjustments
- Actuarial Tables
- Analysis of Group Size

The first three items are discussed in detail in separate sections of this report. Brief discussions are presented below for completeness. A more complete discussion of the analysis of group size follows.

### Performance Adjustment Factor

The equalization of non-retro employer loss ratios and retro employer loss ratios, as required by WAC 296-17-90402, is based on the combined losses and total premium of all employers in the non-retro program and the combined losses and total premium (basic premium *and* loss based premium) of all employers in the retro program. Therefore, the PAF methodology, which distributes the impact of the equalization process to individual retro employers, should impact all retrospective premium components equally. As discussed elsewhere in this report, it does not. The current PAF methodology excludes the basic premium component of retrospective premium. The entire impact of the PAF is leveraged onto the actual limited loss component.

Notwithstanding equity issues, the current approach also creates a market bias towards one type of retrospective plan or the other, depending on the current values of the PAF. When the PAF is less than 1.000, as it has been, the impact of the PAF is to increase retrospective refunds. It is then advantageous for retro employers to select a plan with the lowest value of basic premium in order to realize the highest leveraged impact of the PAF. This has, in fact, been the case, according to information provided by L&I. Our understanding is that there is a preference for Plan B, which in fact, has the lowest values of basic premium charges, relative to the other available plans.

### Number of Retrospective Rating Adjustments

Industry data and experience suggests that differences in loss development between employers are material beyond the current third and final adjustment of retrospective premium, 45 months after enrollment. Therefore, increasing the number of retrospective rating adjustments will not only increase equity between retro employers and non-retro employers, but will also increase equity amongst retro employers as a group.

## Actuarial Tables

The current actuarial tables in Washington for all retrospective plans are over twenty years old and do not reflect changes in workers compensation claims and exposure that have occurred over the past twenty years. These include, but are not necessarily limited to:

- Impact of medical inflation on claim costs
- Impact of changing medical technology
- Impact of shifting hazard across industry groups
- Impact of aging population
- Impact of decreasing claim frequency
- Impact of shift in mix of claims by type
- Impact of changes and improvements to loss mitigation procedures
- Impact of changes and improvements to loss prevention procedures

These issues have been discussed earlier. As an example, the current tables reflect a single per claim limit of \$500,000. Twenty five years ago, 10% of total losses could have been expected to be above a \$500,000 limit. Currently, that value is 25% (using another state as an example). This is an expected change due to the impact of inflation on claim costs.

Therefore, an employer with a relatively high of number of large claims is being undercharged for the expected cost above \$500,000. This is because the current tables were constructed at a time when this charge was 10% of total loss. Currently, this charge is expected to be 25% of total loss (using another state as an example). Overall retrospective premium is determined by the requirements of WAC 296-17-90402, which demands that the overall loss ratio for retro employers equal the overall loss ratio for non-retro employers. Therefore, the impact of undercharging one employer for costs excess \$500,000 is to overcharge another employer for costs excess \$500,000. In this example, lower hazard retro employers are subsidizing higher hazard retro employers. Updating and adjusting the actuarial tables will increase equity amongst retro employers.

## Analysis of Group Size

### General Observation

We do observe that the relative size of a group is important, and there are measurable differences in cost based on group size. These differences are due to practical availability of claim free discounts to smaller groups, which are offset by tabular advantages, which are likely actuarial in nature, for larger groups.

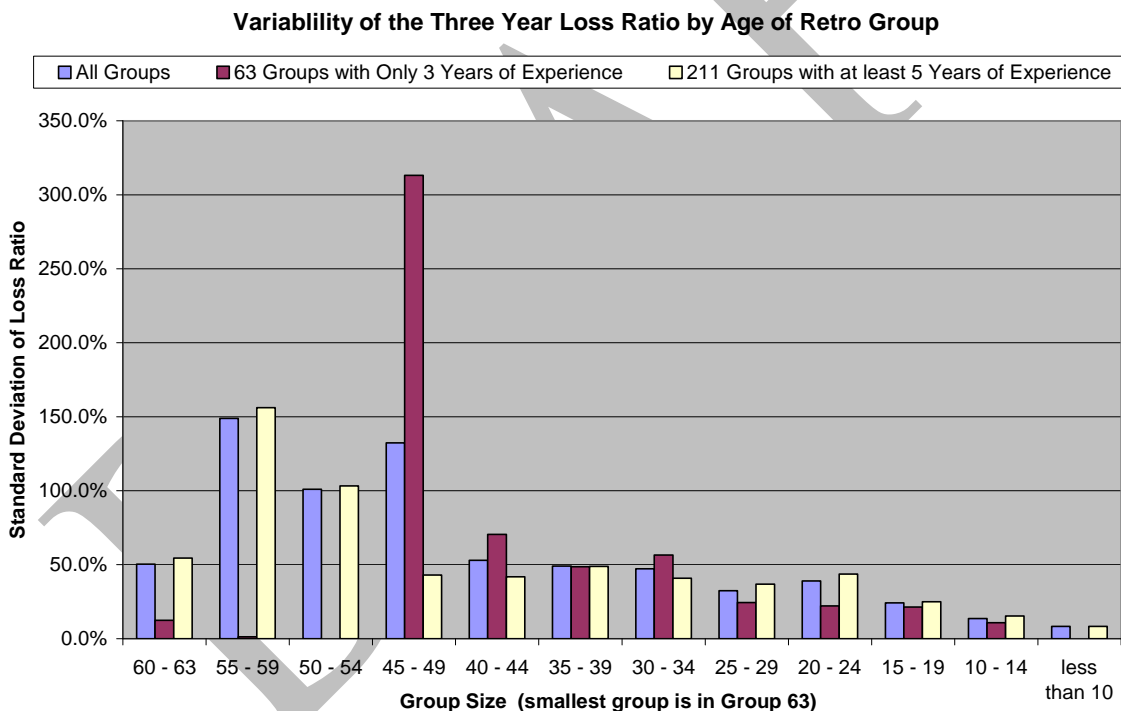
## Discussion

L&I provided a five year history, separately for each retro group, of the following data:

- Standard premium
- Incurred loss (Medical and Accident Fund separately)
- Paid loss (Medical and Accident Fund separately)

We examined the historical losses and premium of 472 retro groups from 2003 to 2007. Many of these retro groups did not have complete history because their retro participation began or ended within the five year period. 211 of the retro groups had the complete 5 year history and an additional 63 groups were examined when we examined only the three year period of 2005-2007.

We observed that the retro groups of smaller size had greater variability of their loss experience, as demonstrated in the chart below. The groups with fewer years of experience in the retro program also tend to have the greater variability.

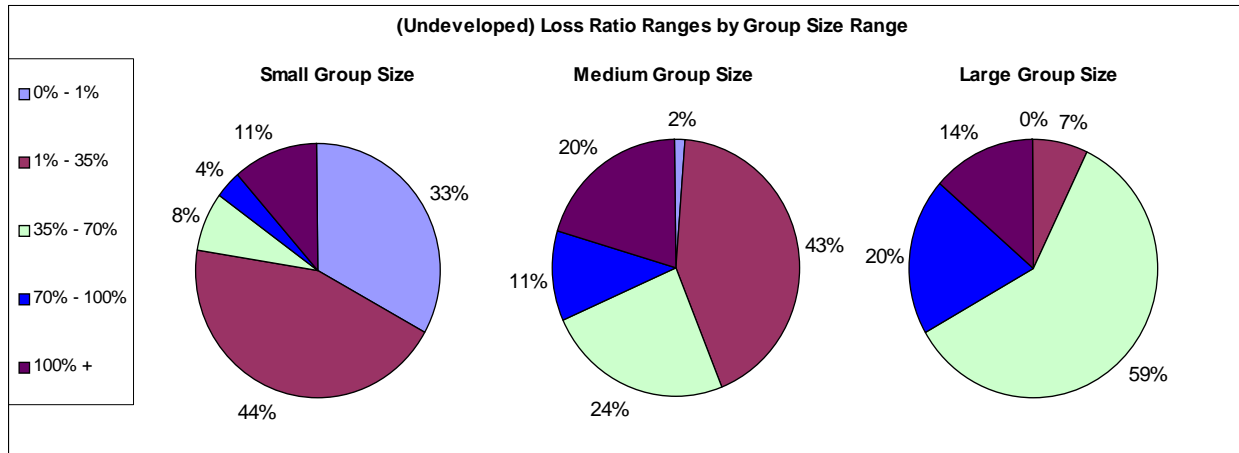


While the retro groups of smaller size have greater variability in their loss experience, they also have the most potential for better experience. We examined the retro groups in three size groups:

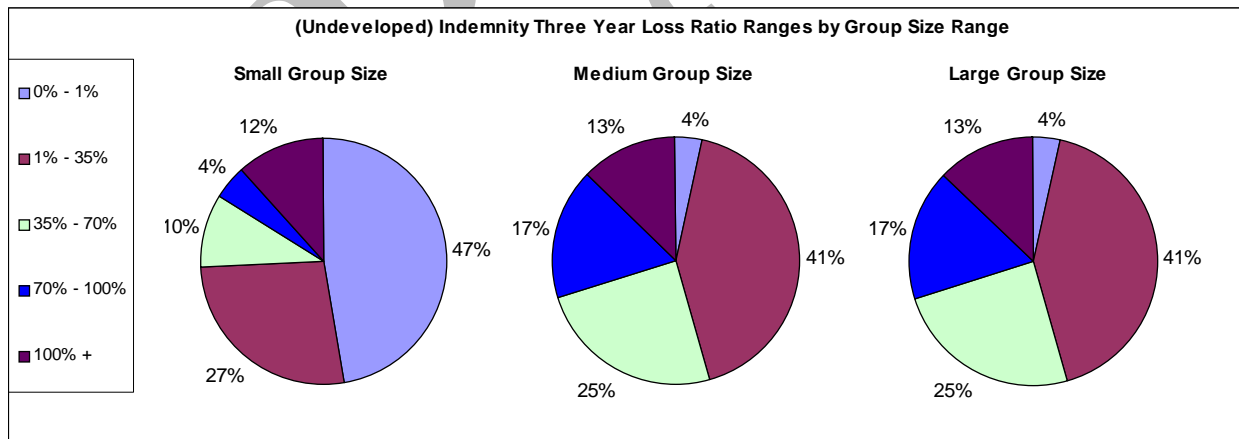
- Small Group Size - Premium <\$100,000,
- Medium Group Size - Premium \$100,000 - \$749,999, and
- Large Group Size - Premium >\$750,000.

Over 75% of the Small Group Size produced an undeveloped loss ratio of 35% or less. Nearly half of the Medium Group Size produced a loss ratio of 35% or less, while fewer than 10% of the Large Group Size produced loss ratios this low.

These results are not necessarily unexpected, as explained by the law of large numbers.



The particularly good loss experience of the smaller sized retro groups is utilized in the claims free discount program. Examining the indemnity only loss experience of the three year period 2005-2007, from 274 retro groups, we see that nearly half of the smaller retro groups could receive a claims free discount.



The propensity of the smaller groups to obtain a claims free discount is offset however by some of the tabular advantages of the larger groups. (The same advantage is seen when comparing a larger employer to a group of smaller employers who, together, generate the same standard premium as a larger employer.)

Consider a risk with 80% expected loss ratio and \$800,000 in Standard Premium. Their expected refunds should be something similar to what appears below:

Loss Ratio	(Return)/Payable Using Maximum of 1.20				
	Plan A	Plan B	Plan A1	Plan A2	Plan A3
<b>50.0%</b>	(342,800)	(418,400)	(90,400)	(139,200)	(342,800)
<b>80.0%</b>	(167,840)	(189,440)	(90,400)	(139,200)	(167,840)
<b>110.0%</b>	7,120	39,520	(90,400)	(52,080)	7,120

Now consider a group that is exactly 10 times that size, also with an 80% loss ratio. Their standard premium would be \$8,000,000 and the refund would look like this:

Loss Ratio	(Return)/Payable Using Maximum of 1.20				
	Plan A	Plan B	Plan A1	Plan A2	Plan A3
<b>50.0%</b>	(4,164,000)	(4,688,000)	(928,000)	(1,600,000)	(4,000,000)
<b>80.0%</b>	(2,414,400)	(2,700,800)	(928,000)	(1,600,000)	(2,414,400)
<b>110.0%</b>	(664,800)	(713,600)	(928,000)	(888,800)	(664,800)

Depending on the plan, the larger group would recognize a refund significantly greater than 10 equal-sized smaller groups, even though the experience that developed is identical.

For example, if each of the 10 smaller groups developed the same experience, they (in total) would have \$8,000,000 of standard premium and an 80% loss ratio, yet their refunds would look much different:

Loss Ratio	(Return)/Payable Using Maximum of 1.20				
	Plan A	Plan B	Plan A1	Plan A2	Plan A3
<b>50.0%</b>	(3,428,000)	(4,184,000)	(904,000)	(1,392,000)	(3,428,000)
<b>80.0%</b>	(1,678,400)	(1,894,400)	(904,000)	(1,392,000)	(1,678,400)
<b>110.0%</b>	71,200	395,200	(904,000)	(520,800)	71,200

Only in Plan A1 is the difference negligible. For the other plans, the difference could be significant.

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## Performance Adjustment Factor

*[A large portion of this information was presented earlier in this report in the Background Section, and the Executive Summary. It is compiled here for the sake of completeness.]*

The formula for the calculation of retrospective premium in Washington follows:

$$\text{Retrospective Premium} = \text{Basic Premium} + \frac{\text{Actual Limited Losses}}{\text{Performance Adjustment Factor}} \times \frac{\text{Loss Conversion Factor}}{\text{Loss Dev. Factor}}$$

This formula is slightly different than the general formula for determining retrospective premium presented earlier in this report. The components of this formula, as well as the differences from the general formula are discussed and explained below. It is important to note that while the Loss Development Factor and the Performance Adjustment Factor are independent quantities that are derived and calculated separately, in practice they are combined into a single number for presentation purposes.

- **Basic Premium**  
Basic premium serves a similar role in Washington as in the general formula, with some differences. In Washington, basic premium provides for:
  - Administrative and other program expenses, which are generally lower than they would be in typical retrospective rating programs
  - There is no profit, and the impact of investment income is included in the LCF
  - The actuarial cost of a maximum limit on retrospective premium payable
  - The actuarial credit for a minimum retrospective premium payable
  - The actuarial cost of the \$500,000 limit on individual claims
- **Actual Limited Losses**  
Actual loss experience during the policy period, adjusted to reflect the \$500,000 limit on individual claims. This is the same as the general formula.
- **Loss Conversion Factor (LCF)**  
In Washington, the LCF provides for the cost of claim adjustment expenses as well as the impact of investment income to account for investment income that could be earned during the period between the time L&I collects premium and the time that losses are actually paid.
- **Loss Development Factor**  
Actual limited losses are developed to reflect the expectation that limited losses will increase over time as claims mature. Loss development is expected in the insurance industry, especially with workers compensation claims. In other jurisdictions, loss development factors may be applied as part of the retrospective premium calculation, or they may only be considered when the insured and the insurer are negotiating a final adjustment. In Washington, loss development factors are applied as part of the retrospective premium calculation.

- Performance Adjustment Factor (PAF)  
The PAF is unique to Washington. Washington regulation WAC 296-17-90402 requires that retro employers and non-retro employers fund the same percentage of losses from premium. This is equivalent to requiring that retro employers and non-retro employers have the same ratio of incurred losses to premium. L&I therefore requires that the overall loss ratio for non-retro employers to equal the overall loss ratio for retro employers. L&I implements this requirement by adjusting the overall premium required from retro employers until this condition is met. The adjustment is made through a modification to actual limited losses in every employer's retrospective premium calculation. The modification is made through application of the PAF, which is initially set at 1.000. The PAF is either increased above, or decreased below, 1.000 until the required retrospective premium is generated.<sup>35</sup>
- Tax Multiplier  
There are no premium tax charges in Washington.

### Retrospective Premium Adjustments and Refunds

Retro employers are initially charged standard premium.<sup>36</sup> Retrospective premium is calculated using the formula described earlier in this report at three points in time: 21, 33, and 45 months following enrollment. These points in time are generally referred to as adjustments. At the first adjustment, the calculated formula retrospective premium is compared to the initial standard premium charged. If the formula retrospective premium is greater than standard premium, additional premium is paid. If the formula retrospective premium is less than standard premium, premium is refunded to the employer. The process is repeated at the two subsequent adjustments, except comparisons are made to standard premium net of any prior premium surcharges or refunds. The first adjustment has generally resulted in premium refunds to retro employers because first, retro employers generally have less than average loss experience and second, the manner by which premium rates are established in Washington. This latter issue is

<sup>35</sup> A description of the actual process may be simplified as two basic steps:

*Step One: The ratio of incurred actual unlimited losses to standard premium for non-retro employers is compared to the ratio of incurred actual unlimited losses to standard premium for retro employers. Standard premium for retro employers is reduced until the loss ratio for both groups are equal. The amount by which standard premium for retro employers is reduced is the aggregate retrospective refund. The difference is termed a refund because the initial premium paid by retro employers is equal to their standard premium.*

*Step Two: The retrospective premium for every retro employer is calculated, using the formula in the text, with a starting PAF of 1.00. This is the formula retrospective premium. The PAF is adjusted until the difference between standard premium for retro employers and the formula retrospective premium equals the aggregate retrospective refund determined in Step One.*

*Step One may be viewed as the process used to determine the required aggregate retrospective refund. Step Two may be viewed as the process by which this refund is distributed to individual employers.*

*The actual process requires adjustments for investment income and rate level changes. However, the basic algorithm is as described above.*

<sup>36</sup>  $Hours\ worked \times premium\ rate\ per\ hour \times experience\ modification$

material, and is discussed separately for the medical aid component and the accident fund component of premium rates.

- The medical aid component of premium rates is established in a manner that is expected to be adequate for all employers, retro and non-retro combined, in the state. Therefore, prior to experience rating, there is an expectation that medical aid portion of rates will be higher than necessary for retro employers, given that retro employers have lower than average claim experience. Experience rating mitigates, but does not eliminate, this issue.
- The accident fund component of premium rates is established in a manner that is adequate for *non-retro employers*. Non-retro employers generally have claim experience that is higher than average, but significantly higher than retro employers. As such, the accident fund component of rates will be materially higher than necessary for retro employers. Experience rating mitigates, but does not eliminate, this issue.

The second and third adjustments are less likely to produce refunds than the first adjustment. Regardless, retro employers can expect, in the aggregate, net premium refunds after the final adjustment at 45 months following enrollment.<sup>37</sup>

The current methodology used to apply the PAF creates biases for or against specific employers depending on program selected, actual loss experience, and program availability. The current methodology applies the PAF only to the actual limited loss component of retrospective premium. It does not apply the PAF to the basic premium component. As such, the current methodology leverages the impact of the PAF on employers who select programs with a small or absent basic premium component.

If the PAF is greater than 1.000, employers in plans with little or no basic premium will receive *less* than their fair share of the aggregate retrospective refund, while employers in plans with larger basic premium charges will receive more than their fair share. If the PAF is less than 1.000<sup>38</sup>, employers in plans with little or no basic premium will receive *more* than their fair share of the aggregate retrospective refund, while employers in plans with larger basic premium charges will receive less than their fair share.

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<sup>37</sup> Under WAC 296-17-90428, retro groups forfeit their eligibility if they are required to pay additional premium for three consecutive coverage periods.

<sup>38</sup> Historically, PAF's have ranged from 0.600 to 1.100, although they have been below 1.000 prior to the last few years. The very low PAF's in the early 2000's were a direct result of low rate levels, and therefore high loss ratios, during this period of time. More recently, rate levels have increased (in part due to significantly reduced investment income). With higher rate level and lower loss ratios, PAF's have increased significantly.



The retrospective premium formula is shown below, and clearly demonstrates that basic premium is not impacted by the PAF.

$$\text{Retrospective Premium} = \text{Basic Premium} + \frac{\text{Actual Limited Losses}}{\text{Actual Limited Losses}} \times \frac{\text{Loss Conversion Factor}}{\text{Loss Conversion Factor}} \times \frac{\text{Loss Dev. Factor}}{\text{Loss Dev. Factor}} \times \frac{\text{Performance Adjustment Factor}}{\text{Performance Adjustment Factor}}^{39}$$

The formula for retrospective premium is designed to be adequate after consideration of all components. This is easily understood after considering how expense and actuarial charges are shifted from basic premium to the LCF to create different plans. The current approach treats employers who elect plans with higher basic premium differently than employers who elect plans with smaller or no basic premium. There is no actuarial justification for this.

The equalization of non-retro employer loss ratios and retro employer loss ratios, as required by WAC 296-17-90402, is based on the combined losses and total premium of all employers in the non-retro program and the combined losses and total premium (basic premium *and* loss based premium) of all employers in the retro program. Therefore, the PAF methodology, which distributes the impact of the equalization process to individual retro employers, should impact all retrospective premium components equally. Clearly, it does not.

The current approach also creates a market bias towards one type of retrospective plan or the other, depending on the current values of the PAF. When the PAF is less than 1.000, as it has been, the impact of the PAF is to increase retrospective refunds. It is then advantageous for retro employers to select a plan with the lowest value of basic premium in order to realize the highest leveraged impact of the PAF. This has, in fact, been the case, according to information provided by L&I. Our understanding is that there is a preference for Plan B, which in fact, has the lowest values of basic premium charges, relative to the other available plans.

On the other hand, when the PAF is greater than one, the impact of the PAF is to *decrease* retrospective refunds. It would then be advantageous for retro employers to select a plan with the highest value of basic premium, in order to dilute the impact of the PAF.

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<sup>39</sup> *The Loss Development Factor and the Performance Adjustment factor are independent quantities that are derived and calculated separately. However, as mentioned earlier, in practice they are combined into a single number for the purpose of presentation.*

A simple adjustment to the retrospective premium formula will address this issue, as shown below:

$$\text{Retrospective Premium} = \left[ \text{Basic Premium} + \frac{\text{Actual Limited Losses}}{\text{Conversion Factor}} \times \frac{\text{Loss Dev.}}{\text{Loss Dev. Factor}} \right] \times \text{Performance Adjustment Factor}$$

This is the approach we recommend that L&I use. It is important to note that this adjustment *does not impact the overall retrospective refund*. However, it will redistribute the overall retrospective refund more equitably. Retro employers with a larger portion of their retrospective premium in the basic portion will see their refunds increased, all else being equal, and retro employers with a smaller portion of their retrospective premium in the basic portion will see their refunds decreased, all else being equal.

## Loss Development Factors & Case Reserving

This task considers the level of loss development factors in Washington as compared to other states, and addresses the concern as to whether it is impacted by Washington's case reserve practices.

An examination of loss development factors used by L&I in the retrospective formula shows that the loss development factors are significantly higher than workers compensation insurance industry factors from other states.

STATE	PD/INC	TYPE	12	24	36	48	60	72	84	96
NCCI <sup>40</sup>	Inc	Ind	1.945	1.351	1.182	1.114	1.083	1.066	1.052	1.045
NCCI	Pd	Ind	7.152	2.520	1.703	1.419	1.288	1.214	1.168	1.137
NCCI	Inc	Med	1.620	1.318	1.261	1.230	1.206	1.188	1.168	1.153
NCCI	Pd	Med	3.253	1.721	1.502	1.406	1.351	1.312	1.284	1.259
OR	Inc	Ind	2.180	1.255	1.095	1.064	1.046	1.035	1.024	1.014
OR	Pd	Ind	5.968	2.078	1.461	1.273	1.196	1.152	1.128	1.111
OR	Inc	Med	1.786	1.381	1.354	1.339	1.319	1.297	1.258	1.217
OR	Pd	Med	3.086	1.689	1.519	1.449	1.410	1.376	1.350	1.329
<b>WA</b>	<b>INC</b>	<b>COMB</b>	<b>3.872</b>	<b>2.451</b>	<b>1.989</b>	<b>1.738</b>	<b>1.594</b>	<b>1.499</b>	<b>1.445</b>	<b>1.420</b>

There are a number of reasons for this observation.

First, this is not a correct comparison. The loss development factors used in the retrospective rating calculation exclude pension claims. Insurance industry data from other states is for all claims. Excluding pension cases, which tend to be the largest cases, will likely have the impact of *increasing* loss development factors because these cases, once established, tend to develop very slowly into the future. Loss development factors are ratios of expected final cost to reported costs to date. Removing pension cases from the calculation is equivalent to removing large fixed amounts from the numerator and denominator of the LDF ratio. The remaining ratio will likely be significantly larger.

Second, case reserving practice in Washington does not place a case reserve on a claim until that claim is eight months old. This has the impact of delaying loss development early on in a claim's life cycle. This explains the very high factors at 12 and 24 months of age. These ages may be interpreted as time from enrollment for the purpose of comparison to Washington.

<sup>40</sup> *Combined experience from all states reporting to National Council on Compensation Insurance (NCCI).*

Finally, nearly every state in the country allows for the resolution and settlement of claims prior to awarding a pension disability. This program, referred to as “Compromise and Release,” is not permitted under Washington statute. As a result, there is no ability to settle claims for a fixed amount, or lump sum. A direct result is that the average claim duration in Washington is significantly longer than in other jurisdictions (as many more claims become pension claims, and those claims are paid for the life of the injured worker).

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## Case Reserve Levels

This task asked Oliver Wyman to examine whether case reserve levels have been consistent over time.

In order to examine this question, Oliver Wyman asked for, and received from L&I, a random sampling of claims that had closed in the following ranges:

- Between \$24,000 and \$26,000
- Between \$74,000 and \$76,000
- Between \$123,000 and \$127,000
- Between \$245,000 and \$255,000

L & I does not maintain development records for individual claims beyond seven years, so they were not able to fulfill our original request of ten claims that closed in each of these ranges for each of the last ten years.

The intent of this review was to identify any shifts in data that might lead us to conclude that there had been a material change to case reserve levels over time.

Using this data, we were unable to identify any patterns in the data that would lead us to conclude that loss reserves have been inconsistent.

We also held a teleconference with Dan Dorris, a Case Reserve Supervisor at L&I. Dan informed us that there have not been any significant changes in how case reserves have been handled over the past several years and also that there is no difference in how case reserves are handled for retrospectively rated claims and non-retro claims.

Finally, we examined a history, as available, of the average case reserve per open claim. This history did not indicate a change in case reserving practices over time.

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## Evaluation of Tables

Evaluate and make recommendations on the following tables:

- Table of Insurance Charges
- Plan Tables A, A1, A2, A3, B
- Size Group Tables
- Single Loss Limitation Table

Oliver Wyman has reviewed the Tables and offers the following conclusions.

### Table of Insurance Charges and Plan Tables

The Table of Insurance Charges and Plan Tables are well out of date. Absent of any other changes, the Tables should be updated to reflect current experience. While it is impractical to adjust Tables annually, we would recommend that the Tables be revised on a regular cycle – perhaps every 3 to 5 years. This would allow the Tables to reflect the changes in experience as they occur.

The Workers Compensation market has changed significantly since these tables were first used in the 1980's or 1990's. The distribution of losses has changed, as well as claim frequency.

The "A" Tables (A, A1, A2, A3) include a Loss Conversion Factor of .729.<sup>41</sup> The factor is calculated using the following parameters:

- Claims Administration Expense Ratio( to Loss ) = 9%
- Discount Factor = 66.9%

Neither of these factors has been revised in many, many years. Again, just from the passage of time, these factors need to be revisited and updated.

Each of the five plans (six, if you consider that Plan B is really two plans combined as one) has its own advantages and disadvantages. The Plans are outlined in the table below:

<b>Plan</b>	<b>Basic Premium</b>	<b>Minimum Premium</b>	<b>LCF</b>
<b>A</b>	Tabular	Equals Basic	.729
<b>A1</b>	.058	Tabular	.729
<b>A2</b>	Tabular	Tabular	.729
<b>A3</b>	Tabular	Tabular	.729
<b>B (small employers)</b>	Tabular	Equals Basic	Tabular
<b>B (large employers)</b>	0	0	Tabular

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<sup>41</sup> The Loss Conversion Factor for Table B varies based on the size of risk and the Maximum Premium selected.

For entries shown as Tabular, the value decreases as the selected maximum premium increases.

Each of the plans appeals to slightly different risks and the final cost paid by a retro participant could differ significantly based on the plan that is chosen, particularly if the retro risk experiences particularly good or particularly bad experience.

The differences can be hundreds of thousands of dollars, even for a moderately sized risk.

Consider, for example, a risk that generates \$800,000 of standard premium, with an expected loss ratio of 80% and selected maximum of 120%. Depending on the plan selected, if the insured was to realize an 80% loss ratio, they could expect a refund ranging from \$90,000 to \$190,000. However, if this risk were to have a particularly good year and realize a 50% loss ratio, the refunds would range from \$90,000 to \$418,000 while if they were to have a particularly poor year and realize a 110% loss ratio, the results would range from a \$40,000 charge to a \$90,000 refund.

The Table below demonstrates the range of results:

Loss Ratio	(Return)/Payable Using Maximum of 1.20				
	Plan A	Plan B	Plan A1	Plan A2	Plan A3
50.0%	(342,800)	(418,400)	(90,400)	(139,200)	(342,800)
<b>80.0%</b>	(167,840)	(189,440)	(90,400)	(139,200)	(167,840)
110.0%	7,120	39,520	(90,400)	(52,080)	7,120

The usage of the multiple tables provides for many choices for insureds. Some of the tables prevent wide swings. In the example above, the Plan A1 insured would have had the same refund under any of the three scenarios. Plans A and B, however, can have significant swings, \$350,000 and \$450,000 respectively in the above example.

Other factors can influence the choice of Plan, particularly the size of insured. In the example above, Plan B would have produced the greatest retrospective refund at the 80% Expected Loss.

However, with the same loss ratio and a standard premium of \$80,000, Plan A2 would have been more favorable. If the same loss ratio was expected with a standard premium of \$8,000,000, the retrospective return under Plan B would be from \$300,000 - \$1.8 million greater than any of the other plans.

There is a significant effect on this analysis from the Performance Adjustment Factors (PAF), which are discussed earlier in this report. As presently utilized, the PAF is applied only to the loss portion of the retrospective premium and not to the basic premium portion. As a result, when the PAF is less than 1.0 (which is the usual case), large risks in Plan B benefit more than other risks because large risks in Plan B pay no basic premium. As a result, their entire retrospective premium is reduced by the PAF. Risks in Plan A are less affected, because the PAF is not applied to basic premium. In recent quarters, the PAF has been approaching 1.000.

Should the PAF become larger than 1.0, the reverse effect could be seen, with Plan B participants being penalized to a greater degree than other participants. Absent of other changes, this could lead to a movement of participants from Plan B to other plans.

Having five Tables does complicate the issue somewhat. However, as long as the tables are updated correctly, the same Tables could remain in use. It is up to the Department to consider whether streamlining the number of Tables would be a worthwhile revision.

### **Size Group Tables**

The Size Group Tables are updated annually by the Department. The Tables are based on Standard Premium and are adjusted by the annual change in Accident and Medical Aid rates.

The Size Group Tables are used as entry points on the retrospective rating plan tables. The purpose of updating them annually is to not have an employer change groups solely due to rate changes.

The NCCI, and most other jurisdictions use an Expected Loss Table for a similar purpose. In those plans, the Expected Losses increase each year for inflation.

While different from the NCCI, we don't find a problem with the current Washington method as it appears to be accomplishing the intended purpose.

### **Single Loss Limitation Table**

The Single Loss Limitation Table in Washington is not a table at all. It's a single value, and we view this as inappropriate.

The value of any loss applied in a retrospective rating calculation in Washington is limited to \$500,000. This produces numerous issues, not limited to the following:

- The \$500,000 limitation is too large for smaller insureds. Smaller insureds will never benefit from the limitation because a large loss will hit their maximum premium before it ever hits the \$500,000 threshold. Consider a risk with an expected loss of \$300,000 and a 150% maximum premium. The maximum premium of \$450,000 (regardless of Plan) is below this threshold. These insureds would benefit from lower optional limitations because there would at least be the possibility of coverage.
- The \$500,000 limitation is too small for larger insureds. Larger insureds can hit this limitation fairly frequently; in some cases several times a year. Those losses can be planned for, and thus the limitation is not performing the function that it was designed. These insureds would benefit from higher optional limitations because the charge for a higher limitation would be lower than it is for the current \$500,000 limitation.



- Beyond the value of the limitation being \$500,000 for all insureds, there are other equity issues. There is no distinct charge/credit for the limitation, so essentially all insureds are paying the same amount for it. As demonstrated above, this is unfair to small risks, as they are paying for coverage from which they will never collect as well as to large risks, who are paying for coverage that they don't need.
- Even if the \$500,000 level was appropriate for an insured, Hazard Groups, which are utilized by the NCCI in other jurisdictions, do not apply in Washington. Two risks could have identical expected losses, but one risk may be in a more hazardous group and thus more likely to have a large loss. For example consider the following:
  - Risk A expects 100 losses of \$10,000 each.  
Total expected loss \$1,000,000  
Loss for retro rating calculation \$1,000,000
  - Risk B expects 20 losses of \$10,000 each and one loss of \$800,000  
Total expected loss \$1,000,000  
Loss for retro rating calculation \$700,000

An actuarially appropriate loss limitation must recognize the difference in expected losses entering the retro rating calculation. The current program in Washington does not.

In other jurisdictions, the Single Loss Limitation varies by the size of the insureds, and to some degree by the insureds' choice of limit. We view this as a better process than in Washington and recommend that L&I move to a program more similar in construction to other jurisdictions.

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## Examination of Bias in Current Tables

### 14. Examination of bias in current tables

Is there any significant actuarial bias in the current tables and calculation with respect to:

- Size of enrollee
- Loss limitation
- Quarter of enrollment
- Third annual adjustment as the final adjustment
- Group enrollment vs. individual enrollment
- No underwriting of safety process effectiveness used by enrollee
- Risk classes of enrollee
- Choice of table selected
- Loss development factors/PAF

Oliver Wyman has reviewed the Tables and offers the following conclusions.

#### **Size of Enrollee**

As detailed in our response to previous Tasks, the Tables are designed in such a way that a larger participant will generally have a better result than smaller participants, even if you combine smaller participants' experience so that it mirrors a larger participant. This is one of the reasons why Retro Groups have been so popular in Washington as compared to individual retro participants.

#### **Loss Limitation**

As detailed in our response to the previous Task, there is clearly a bias in the current tables and procedures with respect to loss limitation.

#### **Quarter of Enrollment**

Retrospective rating participants can enroll effective the first date of each calendar quarter. This improves the flexibility of the program, by not requiring enrollees to wait nearly a full year before they could enter the program. While each quarter's results is calculated individually, the results are rolled together for a full year before refunds are calculated.

While results for the 1<sup>st</sup> and 3<sup>rd</sup> quarters are often significantly different from the other, larger quarters, they are then combined with the results for the 2<sup>nd</sup> and 4<sup>th</sup> quarters. As a result, we do not see any bias in this procedure.

#### **Third annual adjustment as the final adjustment**

As detailed in our response to previous Tasks, the data provided clearly indicates a bias in only having three annual adjustments. Retro losses develop at a rate of about 4% higher than non-retro losses between the third annual adjustment and the fifth annual adjustment.

#### **Group enrollment vs. individual enrollment**

Groups that enroll in retro do benefit from the law of large numbers as compared to individual enrollees. A group enrollee could potentially benefit from a Single Loss Limitation, for example.

The functioning of the Tables could also produce significantly lower costs for group enrollees (assuming the enrollment is of a group of equal sized insureds).

*For example:*

Consider an individual enrollee with \$80,000 of standard premium and an 80% loss ratio. Given a maximum premium ratio of 1.2, their costs will range from \$69,000 to \$87,000 if losses match the expected. (The exact result depends on which Table is selected)

Now consider a group enrollee with \$800,000 of standard premium and an 80% loss ratio. Given a maximum premium ratio of 1.2, their costs will range from \$610,000 to \$710,000.

While the group enrollee could experience a refund of 11% - 23%, the individual enrollee will see results ranging from an 11% debit to a 9% refund.

### **No underwriting of safety process effectiveness used by enrollee**

Whether or not the safety process is effectively underwritten is immaterial. Retrospectively rated insureds develop better loss experience than those risks that do not enroll in retrospective rating. As a result, Washington law requires that these risks receive a reduction in their premium. If one enrollee were to more effectively underwrite safety, then, all else being equal, their results would be better than other enrollees.

### **Risk classes of enrollee**

We have not found any bias based on risk class.

### **Choice of table selected**

As detailed in our response to the previous Task, there is clearly a bias regarding the application of PAF's to the current Tables, as PAFs are only applied to the loss portion of the retrospective premium calculation. As a result, Table B will be preferred, particularly by larger risks, if the PAF is significantly less than 1.0. Otherwise, the Tables represent a choice for the enrollee as to how much risk they are willing to take and what reward that they will recognize given that risk, if their results are good. However, we do not view this as a bias.

### **Loss development factors/PAF**

Other than the application of the PAF to only the loss portion of the retrospective premium calculation, we do not believe that there is any bias. The calculation of the PAF does result from what we believe to be a misallocation of occupational disease losses, however this does not mean that the PAF itself is biased.

The Department is currently introducing a more precise loss development methodology. Currently, the other separation of losses is between accident and medical fund losses. The revised methodology should lead to a more accurate result as generally speaking retro employers engage in more hazardous work; applying development factors that are specific to the type of loss should improve equity.

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## Comparison to Industry

Task 15 asked Oliver Wyman to identify differences between the Retrospective Rating Program in place in Washington with the programs in place in other jurisdictions.

For the purpose of completing this task, we are comparing the Washington program to three other programs:

- The standard NCCI program, used in multiple jurisdictions, including (unless otherwise noted) the neighboring state of Oregon
- California
- New York

Many of the differences, as will be defined below, are necessitated by some of the intricacies of the Washington program, including the provision that retro and non-retro policyholders pay an equitable share of premium.

### **Effective Date:**

In the three other programs cited, the effective date for retrospective rating generally matches the effective date of the policy.

In Washington, entities can enroll in one of four dates: the first day of each calendar quarter (January 1, April 1, July 1 and October 1).

The restriction on enrollment date is required in Washington due to the provision that retro and non-retro policyholders pay an equitable share of premium. In Washington, the intent is to balance all retrospective rating policies vs. all non-retrospectively rated policies; to do this, it is expected that overall a significant retrospective rating refund will be earned. In other jurisdictions, the intent is for retrospective rating to be balanced on an individual policy level, and the expectation is that credits to some policyholders will offset debits to other policyholders.

### **Number of Retro Adjustments:**

In the three other programs cited, there are no limits on the number of retro adjustments. Rather, the NCCI rules state that there should be "...as many (adjustments) as they need until carrier and insured agree to no longer adjust". New York's language is the same while California notes that there can be "one or more" adjustments.

In Washington, there are presently three, and only three adjustments. Adaptation of the NCCI rule would be impractical in Washington due to the requirement that retro and non-retro policyholders pay an equitable share of premium. As noted earlier in our report, Oliver Wyman is recommending that the number of adjustments be increased from three to five.

**Eligibility:**

In the three other programs cited, risks are eligible for Retrospective Rating if the standard premium is at least \$25,000. Workers Compensation can be combined with other casualty insurance to reach the \$25,000 threshold as well as, under the NCCI and New York plans, a \$75,000 threshold for a 3-year plan. The 3-year plan does not exist in California; risks in California are eligible for the Large Risk Alternative Rating Option if Standard Premium is greater than \$1,000,000.

In Washington, many smaller risks are eligible for Retrospective Rating. Risks are eligible if the Annual Standard Premium is greater than \$3,202.

**Standard Premium** is defined differently between the various rating algorithms.

NCCI – Premium for the risk determined on the basis of authorized rates, any experience rating modification, loss constants where applicable, and minimum premiums. Determination of standard premium shall exclude:

1. Premium discount
2. Expense constant
3. Premium resulting from Non-Ratable Element Codes listed in the Experience Rating Plan Manual
4. Premium developed by the passenger seat surcharge under Code 7421 – Aircraft Operation – flying crew
5. Premium developed by the occupational disease rates for risks subject to the Federal Coal Mine Health and Safety Act.
6. Premium developed by catastrophe provisions as outlined in Rule 3-A-24 of the Basic Manual

New York – Standard Premium means the premium for the risk determined on the basis of authorized rates, any experience rating modification, loss constants where applicable, and minimum premiums. Determination of standard premium shall exclude:

1. Premium discount
2. Expense constant
3. Premium resulting from Non-Ratable Element Codes listed in the New York Experience Rating Plan Manual
4. Premium developed by the passenger seat surcharge under Code 7421 – Aircraft Operation – flying crew
5. Premium developed by provisions for foreign terrorism, domestic terrorism, natural disasters and industrial accidents.

California – Standard premium is the WC insurance premium for the risk determined on the basis of the insurer's authorized rates, the exposure subject to this plan, any applicable experience modifications and shall include any other authorized premium charge applicable, excluding premium discount. Standard premium shall exclude premium charges arising from the Terrorism Risk Insurance Act of 2002 as amended by the terrorism Risk Insurance Extension Act of 2005.

The definition in Washington is simpler. Standard premium denotes the total accident fund and medical aid fund premium paid (due) by a group or individually enrolled employer for a given coverage period.

**Incurred Losses:**

NCCI – Incurred losses are the actual losses paid and outstanding, interest on judgments, expenses incurred in obtaining third party recoveries, and allocated loss adjustment expenses for employers liability insurance.

Incurred losses resulting from an accident involving two or more persons under any classification code containing a non-ratable catastrophe element shall be limited to the two most costly claims, subject to any further loss limitation applicable.

The rating formula shall not include losses involving passenger employees resulting from the crash of an aircraft under Classification Code 7421.

New York – Same as NCCI except expenses incurred in obtaining third party recoveries are limited to the amount of a third party recovery.

California – Incurred losses used in the retro rating formula are the actual losses paid and outstanding, incurred against the policy, including ALAE on employers' liability. Incurred losses directly arising from certified terrorism losses, as defined by the Terrorism Risk Insurance Act of 2002 as amended by the terrorism Risk Insurance Extension Act of 2005, shall be excluded.

Washington – Same as NCCI except assume a 50% recovery on pending third party recoveries and do not have an exception for passenger employees under Classification Code 7421.

**Premium Determination:**

While the terminology is slightly different, the three other programs cited use a similar formula for determining retro premium

$$\text{Retro Premium} = [\text{Basic Premium} + \text{Converted Loss}] * \text{Tax Multiplier}$$

Retro Premium is subject to Min and Max

We note that in some jurisdictions (although not California or New York), ALAE is included in the definition of Converted Loss.

In Washington, the formula is similar, but there is a major difference in the calculation.

Washington –  $\text{Retro Premium} = (\text{Basic Premium Ratio} * \text{Standard Premium}) + (\text{Loss Conversion Factor} * \text{Developed Losses})$   
Retro Premium is subject to Min and Max, although company/group can forego maximum premium protection if enrolled in Plan A and large enough to qualify as a self-insurer under Washington Law.

While (Basic Premium Ratio \* Standard Premium) is essentially analogous to Basic Premium in other jurisdictions, the Loss Conversion Factor in Washington, as currently used, incorporates the Policy Adjustment Factor (PAF). The PAF is applied in such a manner as to balance the loss ratios between Retro and Non-Retro policyholders in Washington. We note that this factor currently is applied only to losses. Previously in our report, we noted that this introduces inequities between retrospectively rated risks and recommended that the PAF be applied to the entire Retro Premium and not just the loss portion.

**Large Risk Alternative Rating Option (LRARO):**

This is a common option that allows larger risks to be retrospectively rated as mutually agreed upon by carrier and insured.

Under the NCCI plan, LRARO is an available option for risks with an estimated annual standard premium of at least \$1,000,000 individually or in any combination with GL, HPL, Commercial Auto, Crime, Glass, or WC. We note that LRARO is not an available option in Oregon. (The NCCI is currently filing a revision that would reduce the premium eligibility standard to \$500,000.)

New York follows a plan similar to the NCCI; however, risks need to have an estimated annual standard premium of only \$500,000 to qualify.

California – Offers LRARO for risks with an estimated annual standard premium > \$1,000,000.

LRARO is not offered in Washington; however, Washington does offer an option, as noted earlier, for risks to forego maximum premium protection.

**LCF:**

The Loss Conversion Factor is a commonly used term; however its application differs amongst the programs cited.

NCCI – The Loss Conversion Factor usually covers claim adjustment expenses and the cost of the insurance carrier's claim services such as investigation of claims and filing claim reports. For the ALAE Option, the LCF would not typically include allocated claim adjustment expense.

The definition of the LCF in New York is similar to the NCCI's LCF. However in California, the Loss Conversion Factor is established by agreement of the insured and insurer. The California LCF should not be large enough to result in negative expenses in the calculation of the basic premium factor.

Washington's application is slightly different, in that the LCF represents an expense charge for claims handling and the present value of developed losses.

**Tax Multiplier:**

For the NCCI, a tax multiplier covers licenses, fees, assessments and taxes which the insurance carrier must pay on the premium which it collects. The multiplier includes a provision for subsidiary of the assigned risk market.

In New York, the tax multiplier covers licenses, fees and taxes which the insurance carrier must pay on the premium which it collects.

In California, the tax multiplier primarily reflects the cost of premium taxes and other miscellaneous costs that the insurer pays based on premium that is not otherwise provided for in this plan.

There is no explicit tax multiplier in Washington.

**Per Occurrence Limitations:**

The NCCI's program currently has a rule stating that the minimum per claim limitation is \$25,000 (with a standard premium threshold of \$100,000). The NCCI allow higher per claim limitations, provided that they do not exceed 50% of standard premium. However, the NCCI is currently filing a program that would remove all such constraints.

In New York, per occurrence limits range from \$25,000 to \$10,000,000. The credits for these limitations vary by hazard group.

California also offers a variety of per occurrence loss limitations, also ranging from \$25,000 to \$10,000,000.

In Washington, the Per Occurrence Limitation is \$500,000, regardless of the size of the insured. The single limitation is too large for smaller insureds (the losses needed to reach the maximum premium are smaller than \$500,000) and is too small for larger insureds (the insureds would be willing, and able, to absorb more volatility in their losses in exchange for a greater discount on the rate).



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# CAVEATS AND LIMITATIONS

1. The conclusions within this study are developed in the accompanying text and exhibits, which together comprise the report.
2. The report was prepared for the use of L&I. This report may be distributed only in its entirety.
3. The information and advice contained in this document is not intended by Oliver Wyman to be used, and it cannot be used, for the purpose of avoiding penalties under the Internal Revenue Code that may be imposed on the taxpayer.
4. Oliver Wyman's findings that specific processes, judgments, or assumptions were reasonable, or its lack of issue with the same, do not necessarily mean that Oliver Wyman endorses them or would take the same approach if Oliver Wyman were to conduct its own independent analysis.
5. The exhibits and conclusions drawn thereof in this report rely on the accuracy and completeness of the data and information provided without independent audit. If the data or information is inaccurate or incomplete, the findings and conclusions of this report may have to be revised.
6. The conclusions are projections of the financial consequences of future contingent events and are subject to uncertainty. There may have been abnormal statistical fluctuations in the past, and there may be such fluctuations in the future. Due to the inherent uncertainties actual costs may vary significantly from published rates.
7. Unanticipated changes in factors such as judicial decisions, legislative actions, claim consciousness, claim management, claim settlement practices, and economic conditions may result in actual experience that is significantly different from estimates.
8. In addition to the assumptions stated in this report, numerous other assumptions underlie the calculations and results presented herein.
9. Numbers in tables and exhibits are generally displayed to more significant digits than their accuracy suggests.
10. The opinions set forth in this document are for purposes of discussion of Oliver Wyman's findings with L&I. Oliver Wyman reserves the right to revise its recommendations should additional analysis performed in the future, or additional data and information that emerge in the future, indicate the need to do so.
11. These caveats and limitations notwithstanding, the conclusions represent Oliver Wyman's professional opinion as respects the analysis presented in this report.