



Ohio Bureau of Workers' Compensation Comprehensive Study

Pricing Process: Class Ratemaking

Pricing Process: Statewide Rate Level

Pricing Process: Experience Rating

Pricing Process: MIRA II

Pricing Process: Salary Continuation and the \$15,000 Medical
Only Program

Report 1.1

Deloitte Consulting LLP

Group 1

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Contents

Executive Summary	1
Statewide Rate Level	5
Class Ratemaking	13
Experience Rating	24
MIRA II	54
Salary Continuation and the \$15,000 Medical Only Program	61
Appendix – Deliverable Matrix	67

Executive Summary

Introduction

Deloitte Consulting LLP (Deloitte Consulting) has been engaged by the Board of the Bureau of Workers' Compensation (BWC) to conduct an assessment of the Ohio workers' compensation system's performance relative to peers of the BWC and the private workers' compensation industry. One of the important components of the system's performance is the pricing structure, in terms of its effectiveness, equity, and transparency. The specific aspects of the pricing of workers compensation for Ohio employers considered in this report include the following:

- The methodology for establishing the overall statewide rate level
- The methodology for establishing base rates by classification
- The experience rating methodology, including group rating
- The discount programs available to certain employers
- The reserving methodology, as used in the ratemaking process
- How Ohio's rates compare to other states
- Optional programs which impact experience rating, including salary continuation and the \$15,000 medical only program.

Private employers and public employer taxing districts are included in the scope of this report. The findings and conclusions in this report are based on our analysis of the information provided by BWC as well as our experience working with other state funds and private carriers. The data used in our analysis was provided by BWC and was not audited by Deloitte Consulting. If the data provided to Deloitte Consulting includes inaccuracies, our results and conclusions may require revision.

The Deloitte Consulting team appreciates the time and effort dedicated by BWC to help us understand the pricing process, as well as the resources devoted by BWC to provide the data we received to perform this analysis. Also, the input from interviews of various constituents, in addition to BWC staff, has been very helpful in appreciating different perspectives on the issues.

Conclusions

Findings

- The current pricing structure has created substantial inequity in the premiums paid by different employers in the state of Ohio.
- The primary driver of this inequity is the current approach to group rating.
- Ohio's base rates are much higher than those of other states, largely as a result of the significant off-balance created by group rating.
- Ohio's base rates reflect a significant discount applied to projected losses, related to the anticipation of future investment earnings on the premiums needed to pay losses; the disparity between Ohio's base rates and those of other states is even larger when discount is removed from the comparison.
- The actuarial methodology for establishing the statewide rate level relies on the results of the reserving analyses, which Deloitte Consulting is also reviewing. Changes to the reserve estimates may have implications for future statewide rate level changes.
- The actuarial methodology for establishing the statewide rate level is reasonable, but overly emphasizes stability, which results in a lack of responsiveness to more recent data.

- The actuarial methodology for establishing classification rates is reasonable, but improvements could be made to the process, including the discontinuation of large off-balances applied in arriving at classification rates and loadings in those rates for large losses that should vary by NCCI hazard group rather than industry group.
- The individual experience rating plan includes features that are inconsistent with industry practice, such as the exclusion of certain claims and high credibility levels. Nevertheless, our analysis indicates that the individual experience rating plan appears to perform adequately, based on an analysis of experience rating results.
- In contrast to experience rating, the performance results of the group rating program indicate a substantial lack of actuarial soundness with respect to equitable rating. A basic test of the performance of experience rating is that modified loss ratios should demonstrate less dispersion about the average than unmodified loss ratios. Our analysis indicates that group rating has led to the opposite effect, with group modified loss ratios displaying much greater variability than unmodified loss ratios. In addition, a substantial bias is indicated by the group rating results where the group modified loss ratio increases dramatically as the group discount increases.
- The other discount programs offered by BWC, such as PDP, PDP+, Drug Free Workplace, Drug Free EZ, etc., appear to be similar to those offered in other states, though in some cases the credits given by the BWC are much larger than in other states. While it is difficult to accurately gauge the effectiveness of the programs due to relatively low participation, in general, these programs do not appear to be effective. Employers who participate in these programs do not consistently demonstrate better loss ratios than those who do not participate. Consequently, BWC incorporates in the ratemaking process a rate change factor, a component of which is to adjust for “premium slippage”. Premium slippage is charged to all policyholders to account for more rate discount being provided to program participants than is actuarially indicated from the resultant change in participants’ loss ratios.
- Programs that are effectively designed, maintained, and monitored can have a positive impact on safety and rehabilitation of injured workers. Other possible programs could be considered such as a merit rating program which are offered in several states and provide a rate credit, usually for smaller policyholders for loss free experience.
- There is little information available to review the salary continuation and \$15,000 medical program. However, based on discussions with BWC and our understanding of these programs, we believe that the motivation for these programs is primarily to reduce the experience rating modification factor, or to assist in gaining access to group rating. The performance of these programs cannot be evaluated because the relevant data is not reported to BWC. It is recommended that these programs should be discontinued in their present form.
- It is expected that the replacement of MIRA, an automated case reserving model, on July 1, 2008 with MIRA II (a significantly improved version) will lead to major changes in class and experience modification rating for individual employers. BWC has been very transparent in its communications to stakeholders as to the potential impact of the switch from the current MIRA to MIRA II. This transparency will need to continue as the system is implemented and the impact on individual premium rates emerges. The practice of setting case reserves for all claims using an automated process is not typical in the workers compensation industry, where experienced claims adjusters will use various tools, like MIRA, or other guides to estimate individual case reserves, as part of the overall claims management process. It is not clear whether a new version of MIRA will improve transparency to be comparable with individual claim adjuster estimates.
- In general, there is limited data and information available to evaluate the effectiveness of BWC’s programs. We recommend that BWC maintain and track the performance of these programs, on both a standalone basis and in terms of the interactive effects of programs.

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Recommendations – Group Rating

- Eliminate the use of the individual experience rating formula for group rating.
- Determine group rating through the use of a group discount factor.
- Apply a separate group rating off-balance adjustment to the group discount factors, rather than applying an overall off-balance adjustment to all employers through class rating.
- Apply the group discount factor to the individual e-mod adjusted premium of each member of the group.

Recommendations – Overall Statewide Rate Level

- Provide more responsiveness to more recent Ohio experience by using fewer years to develop the indicated rate level, such as 3-5 years rather than the 10 years currently used for the private employer statewide rate level indication.
- Perform the baseline indication before discounting and then apply discounting in arriving at the final indicated rate change in order to be transparent as to the impact of discount on the rates.
- Apply a separate group rating off-balance adjustment to the group discount factors, rather than applying an overall off-balance adjustment to all employers through class rating.

Recommendations – Class Ratemaking

- Eliminate the use of experience rating off-balance adjustment factor for class base rates.
- Calculate the catastrophe factor by NCCI hazard group rather than industry group.
- Provide more detailed documentation for the adjustment factors applied to the class rates, such as the rate change factor.

Recommendations – Experience Rating

- Change the credibility associated with an individual employer's experience to be in line with industry practices. One manner to accomplish this is through the use of a split rating plan, the methodology developed and used by the NCCI, which is currently planned to be implemented by BWC.
- Prohibit the exclusion of claims from the experience rating calculation, particularly salary continuation and the 15,000 medical only claims, which is in line with industry practice.
- Discontinue the salary continuation program and the \$15,000 medical only program. Appropriately priced deductible programs may serve as an alternative to employers who wish to self-insure a portion of their workers' compensation exposure.

Recommendations – MIRA II

- Develop a long term alternative which uses MIRA II, or other claim predictive model, in conjunction with other processes to manage claims, in addition to being a means to set case reserve values. MIRA II could be used as input for managing claims, negotiating settlements and setting benchmarks for case reserve values. Standard industry practice is to have a claim function set case reserves, and use tools, such as MIRA II, to assist in managing claims, particularly above some threshold, such as \$50,000 or \$75,000.

Recommendations – Discount Programs

- Perform periodic actuarial studies to evaluate the appropriateness of the credits offered under the various discount programs. Our analysis indicates that the current credits for the Premium Discount Program and the Drug Free Work Place are not supported by the loss experience of those participating in these programs.
- The One Claim Program, which is too recent for meaningful results to have emerged, offers a credit of 40%, which is much larger than the credits for similar programs in other states. As such, this program should be closely monitored.

The recommendations above are those we consider most important. In the sections that follow, additional recommendations are provided.

Statewide Rate Level

The Situation

Task Background

RFP Task Reference	RFP Task Description	Task Category
Section 5.1.2 #1, page 12	Review and make written recommendations with regard to the private employer premium and public employer taxing district rate calculations. This review would include a complete analysis of the rating program including but not limited to the experience period, the credibility tables used, loss information including quality and reliability of the data, payroll information, the off-balance calculation, the expected loss rates, the grouping of employers for experience rating, the use of reserves in the rate calculation, the payroll inflation factors, rating rules and laws, the transparency of the rate making process, and all rating calculations. This analysis should compare the BWC's rating calculation to industry standards, other state insurance funds and monopolistic state insurance funds, actuarial ratemaking principles as promulgated by the Casualty Actuarial Society, and the Actuarial Standards of Practice promulgated by the Actuarial Standards Board of the American Academy of Actuaries.	Pricing and Programs

This section of the report includes our review of BWC's process for determining the statewide rate level. The RFP task above also includes a review of class ratemaking, which is described in the next section. The primary objectives of our review of the statewide rate level were:

- Understand the process by which the Board adopts statewide rate levels
- Review the actuarial analysis of the indicated statewide rate level performed by Mercer Oliver Wyman (Oliver Wyman)
- Compare the methodology and basis for assumptions in the Oliver Wyman actuarial analysis to those typically used in the industry and to actuarial standards

Methodology

Completion of our analysis of the statewide rate level involved the following activities:

- Discussions with BWC and Oliver Wyman on the process used to determine the statewide rate level
- Review of the Oliver Wyman rate recommendations for private employers and public employer taxing districts
- Consideration of our review of Oliver Wyman's reserve analysis, a key input to the rate recommendations

Primary Constituents

- **Oliver Wyman** – provides range of rate level indications
- **BWC Actuarial** – reviews rate indication and considers other factors, including economy and market trends
- **BWC Administrator, BWC Chief Actuarial Officer** – make overall rate change recommendation to Actuarial Committee to take to Board

Information and Data Gathered

Interviews

We met with several members of BWC's actuarial and underwriting functions to discuss the process for determining the statewide rate level. These members included:

- Chief Actuary – Actuarial Department
- Director - Actuarial Department
- Assistant Director - Actuarial Department
- Actuarial Supervisors - Actuarial Department
- Executive Director - Employer Management
- In addition, we discussed the process with Oliver Wyman.

Information Provided

The primary sources of information used in our analysis included:

- Oliver Wyman Private Employer Rate Recommendations, 7/1/03-7/1/08
- Oliver Wyman Public Employer Taxing Districts Rate Recommendations, 1/1/04-1/1/08
- Presentation from BWC Actuarial Committee Educational Session, "Rate Indication and NCCI Class Indication"
- Various NCCI and other state rate filings

Review and Analysis

Benchmarking

We compared the process by which BWC sets the overall rate level to those used by the NCCI, as well as other ratemaking entities. Specific states in our peer comparison include Indiana, Kentucky, Michigan, Pennsylvania, Washington, and West Virginia. Considerations included the following elements of the ratemaking process:

- Reasonableness of the actuarial approach used to derive the rate recommendation
- Basis for deriving the actuarial assumptions underlying the rate recommendation
- Transparency of the underlying actuarial assumptions used to derive the rate recommendation

Analysis

The rate level analysis is based on discounted loss costs. Medical, indemnity, and total pure premiums are displayed by accident year. Ten historical years are included for private employers, while seven historical years are included for public employer taxing districts. The historical discounted loss costs are derived from Oliver Wyman's reserve analysis. Annual percentage changes in the discounted loss costs are displayed for different time periods. In the 7/1/08 private employers rate study, annual changes in discounted loss costs are shown for accident years 2000-2006, 1998-2007, and 1999-2004. Based on these annual changes, a projection is made for the loss cost in the prospective year. In the 7/1/08 private employers rate study, the 1998-2007 period is used as the baseline to project the 2008-2009 loss cost. The projected 2008-2009 loss cost is \$1.54 per \$100 of payroll in the baseline scenario. The projected loss cost is lower using the more recent 2000-2006 period (\$1.44) and is much higher using the 1999-2004 period (\$1.76).

A range of rate level changes is provided based on the standard deviation of the historical discounted loss costs. In the 7/1/08 private employers rate study, the standard deviation is 6.65% of the selected pure premium. This leads to an indicated range of \$1.44 ("Reasonable Expectation – Optimistic") to \$1.65 ("Reasonable Expectation – Conservative"), with \$1.54 as the baseline loss cost from the method described above.

For the 1/1/08 public employer taxing districts rate study, the methodology for selecting a baseline indicated loss cost is similar to that described above for private employers. Annual loss cost changes are shown for 2000-2006 and 2003-2006. The resulting indicated loss costs for the 2008 year are \$1.52 and \$1.44, respectively. The selected baseline loss cost for 2008 is \$1.48, the average of the two indications.

The range of rate level indications is derived in a different manner for public employer taxing districts from that described above for private employers. The range is characterized as "deviation from baseline due to claim cost and/or frequency trends". In the 1/1/08 study, the Reasonable Expectation – Optimistic assumption is a downward deviation of 2.7% from baseline, or a \$1.44 loss cost. Based on the text, this selection is taken from the 2003-2006 projection as described above. The Reasonable Expectation – Conservative assumption is an upward deviation of 7.49%, or a \$1.59 loss cost. Based on the text, this selection is based on the projection that would result from an assumption of a 2% pure premium trend. For comparison, the 2000-2006 pure premium trend is 0.8% and the 2003-2006 pure premium trend is -1.1%.

Once the range of discounted pure premiums is selected, loadings are made for various costs that are not contemplated in the loss data used to derive the projections. Of these loadings, the most significant is HPP. This loading is based on actual payments to MCO's. We reviewed the data available to Oliver Wyman to make this selection and found that the HPP assumption appeared to be reasonable.

Conclusions

Findings

Based on our analysis of the statewide ratemaking process, we have the following comments:

- The overall ratemaking process uses a fairly standard actuarial approach with typical assumptions. However, there are significant differences in methodology compared to peer states, particularly in estimating ultimate losses for past years. The reserving methodology underlying the loss costs generally relies on an incremental paid loss approach. The rate level indications in the reserve audit report are not tested using alternative methods.
- The process is not fully supported by detailed documentation, which results in reduced actuarial transparency. Historically, examples include the impact of discount and the impact of exposure, frequency, and severity trends as well as benefit level changes. We do note that the 7/1/08 private employer analysis includes information on frequency, severity, and payroll trends, and compares the composite pure premium trend to the selected pure premium trend based on the discounted loss costs underlying the rate recommendation. This is in keeping with industry practice. However, changes in benefit levels over time are not shown in the analysis. Also, the impact of the discounting of loss payments, which has a very large impact on the rates, is not shown; we believe that it is difficult to understand the impact of discounting unless it is explicitly displayed in the analysis.
- The process incorporates more stability than necessary by using 10 years for the baseline indications; typical industry practice for statewide ratemaking is to use 2 to 3 years. Also, this stability may conflict with overall financial strength of the system, i.e., rates may be stabilized by the use of 10 years leading to indications of rate decreases (or small increases) when the financial strength of the system is lower than desired and rate changes should not be overly stabilized.
- The current methodology produces a broad range of “Reasonable” scenarios for “Optimistic” and “Conservative” based on the standard deviation of the loss cost estimates for prior years. There is no recognition of the current financial strength of the system to absorb the variability indicated by the range.
- The actuarial methodology for establishing the statewide rate level relies on the results of the reserving analyses, which Deloitte Consulting is also reviewing. Changes to the reserve estimates may have implications for future statewide rate level changes.

Performance Assessment

We assessed the performance of the Ohio workers' compensation system compared to these four overarching themes: Effectiveness & Efficiency; Financial Strength & Stability; Transparency; and Ohio Economic Impact. Each broad study element (Ohio Benefit Structure; Pricing Process; Cost Controls; Financial Provisions; and Actuarial Department Functions & Resources) is reviewed with these themes in mind to develop a performance assessment of the current state. Our performance assessment is made on each element in the context of its contribution to supporting the overarching themes.

For these performance assessments, the following scoring method applies:

	Strongly supports system performance
	Supports system performance
	Some support for system performance
	Some opportunity for system performance change/enhancement
	Significant opportunity for system performance change/enhancement

Based on this scoring method, our performance assessment for the statewide rate level is as follows:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Statewide Rate Level				

Peers and Industry Standards Considered
NCCI, Indiana, Kentucky, Michigan, Pennsylvania, Washington, West Virginia.

Recommendations

The following recommendations address the opportunities identified above, listed in prioritized order:

- Provide more responsiveness to more recent Ohio experience by using fewer years, such as 3 to 5 years.
- Perform the baseline indication before discounting, and then apply discounting in arriving at the final indicated rate change.
- Develop the range of indicated rate changes (Optimistic to Conservative) in light of the potential impact on financial strength, rather than using a variability measure for private employers (standard deviation) to arrive at the range of actuarially sound rate changes.
- Include an alternative method, such as one based on incurred losses, in calculating an indicated rate change.
- Display the historical loss costs at the proposed cost and wage levels by making explicit adjustments needed for frequency and severity loss trend, wage changes and benefit changes.
- Display the impact of collecting premium in arrears on the rate change indication.

Impact

- The impact (high, moderate, or low) of these recommendations as they relate to the overarching themes is shown in the following table:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Provide More Responsiveness to Ohio Trends				
Perform Baseline Indication Before Discounting				
Include Alternative Method in Calculating Indicated Rate Change				
Display Historical Loss Costs at Proposed Cost and Wage Levels				
Display Impact of Collecting Premium in Arrears on the Rate Change Indication				

Legend

High Impact	Moderate Impact	Low Impact	No Impact	Adverse Impact
				

Class Ratemaking

The Situation

Task Background

RFP Task Reference	RFP Task Description	Task Category
<p>Section 5.1.2 #1, page 12</p>	<p>Review and make written recommendations with regard to the private employer premium and public employer taxing district rate calculations. This review would include a complete analysis of the rating program including but not limited to the experience period, the credibility tables used, loss information including quality and reliability of the data, payroll information, the off-balance calculation, the expected loss rates, the grouping of employers for experience rating, the use of reserves in the rate calculation, the payroll inflation factors, rating rules and laws, the transparency of the rate making process, and all rating calculations. This analysis should compare the BWC's rating calculation to industry standards, other state insurance funds and monopolistic state insurance funds, actuarial ratemaking principles as promulgated by the Casualty Actuarial Society, and the Actuarial Standards of Practice promulgated by the Actuarial Standards Board of the American Academy of Actuaries.</p>	<p>Pricing and Programs</p>
<p>Section 5.1.2 #24, page 14</p>	<p>Conduct a study of the loss rates and base rates of the Ohio BWC as compared to other states. This study would evaluate the trends in Ohio as compared to other peers.</p>	<p>Pricing and Programs</p>

This section of the report includes our review of BWC's class ratemaking process. The primary objectives of our review of class ratemaking were:

- Understand the process by which the Board determines class rates
- Understand the extent to which BWC base rates vary from those in the industry
- Compare the methodology and basis for assumptions in the class ratemaking process to those typically used in the industry and to actuarial standards

Methodology

Completion of our analysis of class ratemaking involved the following activities:

- Discussions with BWC on the process used to determine class rates
- Review of data provided by BWC underlying historical classification rates
- Comparison of BWC classification rates to industry

Primary Constituents

- **Oliver Wyman** – provides range of rate level indications
- **BWC Actuarial** – incorporates the rate level indication into the class ratemaking process
- **BWC Board** – adopts manual classification rates

Information and Data Gathered

Interviews

We met with several members of BWC's actuarial and underwriting functions to discuss the process for determining the statewide rate level. These members included:

- Chief Actuary – Actuarial Department
- Director - Actuarial Department
- Assistant Director - Actuarial Department
- Actuarial Supervisors - Actuarial Department
- Executive Director - Employer Management

Information Provided

The primary sources of information used in our analysis included:

- Presentation from BWC Actuarial Committee Educational Session, "Rate Indication and NCCI Class Indication"
- Exhibit showing the derivation of the Policy Year 2007 manual class rate for class 8810
- Spreadsheets detailing the private employer manual rates and components of these rates by class for policy years 2004-2007
- Spreadsheets detailing the public employer taxing district manual rates and components of these rates by class for policy years 2003-2008
- Databases containing exposure and claim information at the policy level for private employers and public employer taxing districts for the 2003-2007 (2006 for private employers) policy periods, evaluated as of 12/31/07. NCCI class code is included in the database, which allowed us to summarize and compare premium and loss experience by class for various policy periods.

Review and Analysis

Benchmarking

We compared the process by which BWC determines manual classification rates to those used in the industry. We also compared Ohio's rate levels themselves to those in other states. Specific states in our peer comparison include Illinois, Indiana, Kentucky, Michigan, New York, Pennsylvania, Virginia, and West Virginia. Considerations included the following elements of the ratemaking process:

- Reasonableness of the actuarial approach used to derive the manual classification rates
- Basis for deriving the actuarial assumptions underlying the manual classification rates
- Transparency of the underlying actuarial assumptions used to derive the manual classification rates

Analysis

Ohio uses the NCCI manual classification system for rating calculations. 536 classes are in use for private employers. Public employer taxing districts have 14 classes. Manual classifications are divided into 10 industry groups for certain aspects of the class ratemaking process. Base rates and Expected Loss Rates (ELRs) are determined for each class through the class ratemaking process. The experience period used to determine base rates is the oldest four of the last five calendar years preceding the effective date of the rates. Incurred losses (paid plus case reserves) limited to \$250,000 per claim are developed to ultimate by class and brought to current rate levels to determine indicated class loss costs. Classifications are assigned credibility based on the volume of losses in the experience period; full credibility is used for classes with more than \$1 million of losses. The complement of credibility is the prior year loss cost for the class, adjusted for the indicated change for the industry group to which the class belongs. The selected loss cost is loaded for several factors. Significant loadings include the catastrophe factor, off-balance factor and rate change factor.

In the class ratemaking process, certain assumptions and loadings are common to all classes, including:

- 1) **Loss development factors applied to compensation (indemnity) and medical losses:** These factors vary by year, and are based on the relationship of actual unlimited reported losses for all classes in the aggregate relative to the Oliver Wyman projected ultimate losses for compensation (indemnity) and medical in the reserve study, separately by accident year.
- 2) **Rate level loss factors:** These factors also vary by year, and have the effect of adjusting the historical accident year ultimate loss cost in the Oliver Wyman reserve study to the baseline loss costs in the proposed period estimated in the Oliver Wyman rate study.
- 3) **Rate change factor:** This factor represents the estimated adjustment required to allow BWC to collect the required premium rate. Our understanding is that there are several underlying causes for this factor, including "premium slippage", which relates to employers who opt to participate in discount programs subsequent to the issuance of rates. We found that there was a lack of clear documentation to support the rate change factor. Given the magnitude of the rate level factor, we believe there is an opportunity to strengthen the class ratemaking process by improving the documentation for this item.
- 4) **Premium Payment Security Factor:** This factor is meant to cover the cost of employers who go out of business and do not make their final premium payment.
- 5) **Safety and Hygiene Factor:** This funds BWC's Division of Safety and Hygiene.
- 6) **Caps on rate change:** The rate change for an individual class is limited to +/- 30%.

Other assumptions and loadings are common to industry groups, including:

- 1) **Prior Year Pure Premium Factor:** This represents the indicated rate change for the industry group. This factor impacts class base rates to the extent that the indicated pure premium for an individual class is not fully credible. In these cases, the complement of credibility is assigned to the prior year pure premium for the class, adjusted by the prior year pure premium factor.
- 2) **Catastrophe Factor:** This factor spreads the cost of losses in excess of \$250,000 over all manual classes for each industry group.

Assumptions specific to each manual class include:

- 1) **Credibility:** Credibility is based on the volume of losses in the experience period. Classes with reported losses in excess of \$1 million are assigned full credibility.
- 2) **Off-Balance Factor:** Off-balances are determined at the class level to balance the impact of experience rating. These factors are typically well in excess of 1.0, in contrast to the industry. This is a reflection of the impact of group experience rating, which has the effect of producing a very large overall credit from experience rating. We note that the off-balance is applied to all employers in a given classification, regardless of whether or not the employer is base rated, individually experience rated, or participates in group rating. We will discuss this further in the next section of the report.

Once the various assumptions and loadings have been determined at the overall, industry, and individual class level, the process for calculating the base rate for a manual class entails 10 steps:

- 1) **Determine the current year pure premium:** This is calculated as the developed losses in the experience period, adjusted to current rate levels, divided by payroll for the experience period, with the result multiplied by 100.
- 2) **Determine the pure premium used for the complement of credibility:** The complement of credibility is the prior year pure premium for the class multiplied by the prior year pure premium factor described above.
- 3) **Determine the credibility for the class**
- 4) **Determine the credibility-adjusted current year pure premium:** This is based on weighting the current year pure premium and the adjusted prior year pure premium based on the credibility of the class.
- 5) **Apply the catastrophe factor**
- 6) **Apply the off-balance factor**
- 7) **Apply the rate change factor**
- 8) **Apply the premium payment security factor**
- 9) **Apply the safety and hygiene factor**
- 10) **Cap the base rate if the indication from the calculations above leads to a rate change in excess of a 30% increase or decrease.**

COMPARISON TO OTHER STATES AND TRENDS

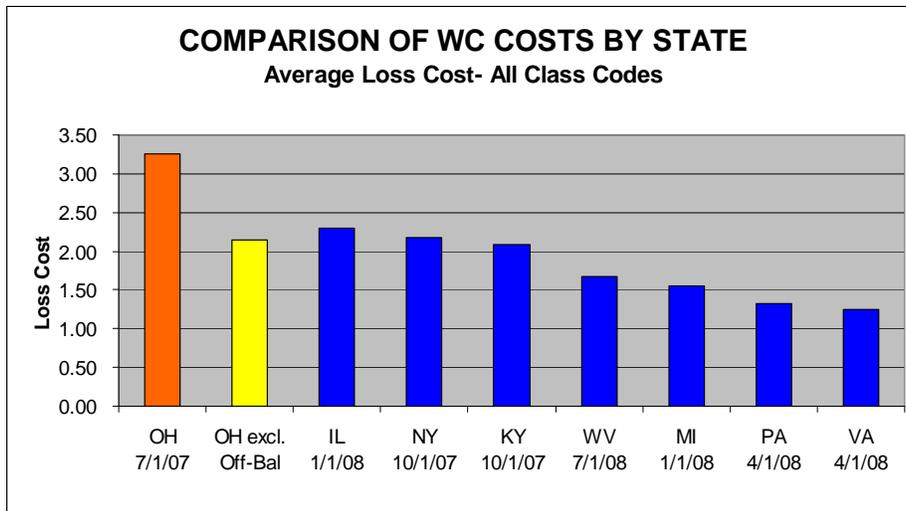
Based on a study produced by the Oregon Department of Consumer and Business Services Ohio's premium rates are on the higher end of industry:

2006 Ranking	2004 Ranking	State	Rate	Median
1	2	Alaska	5.00	201%
2	1	California	4.13	166%
3	7	Delaware	3.91	158%
4	6	Kentucky	3.78	152%
5	8	Montana	3.69	149%
6	3	Florida	3.32	134%
7	17	Vermont	3.24	130%
8	13	Maine	3.21	129%
9	19	Alabama	3.17	128%
10	18	New York	3.15	127%
11	9	Louisiana	3.1	125%
12	5	Ohio	3.00	121%
13	15	Oklahoma	2.96	119%
14	11	Connecticut	2.9	117%
15	4	Hawaii	2.89	116%
16	10	DC	2.86	115%
17	14	Texas	2.84	114%
18	20	Pennsylvania	2.8	113%
19	12	New Hampshire	2.75	111%
20	23	Illinois	2.69	108%
21	21	Minnesota	2.69	108%
22	16	Rhode	2.68	108%
23	29	New	2.52	102%
24	22	Missouri	2.5	101%
25	39	South Carolina	2.5	101%
26	25	Tennessee	2.48	100%
27	27	New Mexico	2.41	97%
28	28	Wyoming	2.4	96%
29	31	Colorado	2.4	96%
30	26	Nevada	2.36	95%
31	36	Mississippi	2.29	92%
32	34	Idaho	2.29	92%
33	38	Nebraska	2.25	91%
34	24	West Virginia	2.2	88%
35	33	Wisconsin	2.18	88%
36	35	Washington	2.17	88%
37	32	North Carolina	2.17	87%
38	46	Utah	2.06	83%
39	30	Michigan	2.05	82%
40	40	Maryland	2.03	82%
41	37	Georgia	2.02	82%
42	42	Oregon	1.97	79%
43	44	Kansas	1.84	74%
44	41	South Dakota	1.83	74%
45	43	Iowa	1.75	71%
46	49	Arizona	1.73	70%
47	45	Massachusetts	1.7	68%
48	48	Arkansas	1.59	64%
49	47	Virginia	1.52	61%
50	50	Indiana	1.24	50%
51	51	North Dakota	1.1	44%

Ohio improved from the 5th highest state in 2004 to the 12th highest in 2006. It should be noted however that Ohio's 2004 and 2006 rates are discounted at a 5.5% and 5% rate, respectively, for investment income (time value of money), in contrast to peer states in general. This causes the comparison to be skewed, as Ohio's rates would be much higher (possibly as much as 167%) in the absence of a discount factor.

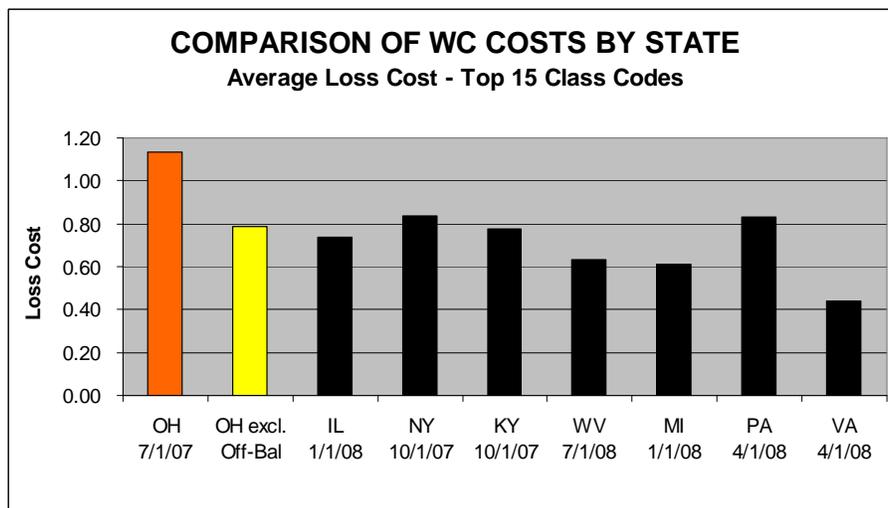
In terms of trends, Ohio appears to be improving relative to the industry, consistent with the movement in ranking in the table above. BWC's indemnity severity trend has been lower than the countrywide trends, and BWC's medical severity trend has been substantially lower than industry.

We compared BWC's 7/1/07 private employer base rates in total and for its largest classes to several peer states. The results are shown below:



These results show Ohio's actual overall loss cost on the far left. Next to this is the overall loss cost excluding the off-balance factors. In absence of the off-balance factors, Ohio's rates would be much more in line with industry. However, Ohio's rates are discounted, in contrast to other states. Removal of discount would increase Ohio's rates well above the average for the industry, as discounted loss costs in the 12/31/07 Oliver Wyman reserve study are approximately 60% of undiscounted loss costs for private employers for the most recent accident years. This suggests that a combination of Ohio's benefit structure, percentage of severe claims, and claims practices are leading to loss levels much higher than those in the industry. From the discussion above, this does not appear to be a recent phenomenon, as loss trends in Ohio are accelerating less rapidly than those in the industry.

The results for the top 15 classes, measured by losses in the experience period, are shown in the table below:



A similar picture emerges for the top 15 classes as that described above for the overall rate level. The top 15 classes include:

- 8810 CLERICAL OFFICE EMPLOYEES NOC
- 8742 SALESPERSONS OR COLLECTORS-OUTSIDE
- 8832 PHYSICIAN & CLERICAL
- 8868 COLLEGE: PROFESSIONAL EMPLOYEES & CLERICAL
- 8380 AUTOMOBILE SERVICE OR REPAIR CENTER & DRIVERS
- 9082 RESTAURANT NOC
- 8803 AUDITORS, ACCOUNTANT OR FACTORY COST OR OFFICE SYSTEMATIZER-TRAVELING
- 8829 CONVALESCENT OR NURSING HOME-ALL EMPLOYEES
- 8820 ATTORNEY-ALL EMPLOYEES & CLERICAL, MESSENGERS, DRIVERS
- 9083 RESTAURANT: FAST FOOD
- 8601 ARCHITECT OR ENGINEER-CONSULTING
- 8833 HOSPITAL: PROFESSIONAL EMPLOYEES
- 3632 MACHINE SHOP NOC
- 8017 STORE: RETAIL NOC
- 8018 STORE: WHOLESALE NOC

Conclusions

Findings

Based on our analysis of the class ratemaking process, we have the following observations:

- Ohio base rates are much higher than those seen in the peer states. Large off-balance factors resulting from group rating is the primary cause for this difference. The difference between Ohio and the peer states is masked in part by the fact that the Ohio class rates implicitly reflect discounting; other states typically do not, or do so only to a limited extent.
- Case reserves in the class ratemaking process are attributed to compensation (indemnity) losses only, rather than divided between the compensation (indemnity) and medical portions. This approach is not used elsewhere and is a potential source of bias.
- The class ratemaking process is complex relative to peer states and could be simplified to improve actuarial transparency.
- The experience period for class ratemaking is consistent with industry practice.
- There is limited documentation provided for the adjustment factors that are applied to the class pure premiums to determine the class base rates.
- The indication of class loss costs is too limited where the small historical exposures in Ohio for a given class is given low credibility year after year. The current method of applying the weight to complement the class credibility to the prior pure premium is a flawed approach. Low credibility classes are not appropriately adjusted in line with their expected loss. Other states use external indications for low credibility classes, such as NCCI class relativities from other states and/or comparisons to similar classes.
- The Expected Loss Rates underlying the base rates are relatively high compared to the peer states we reviewed; the comparison should be considered in the context of Ohio's benefit structure to other states. That work is part of the Comprehensive Study yet to be completed.
- The base rate change is limited to +/- 30%, which is at the upper end of the limits in the peer states we reviewed.

Performance Assessment

Our performance assessment for the class ratemaking process is as follows:



Peers and Industry Standards Considered
NCCI, Illinois, Indiana, Kentucky, Michigan, New York, Pennsylvania, Virginia, West Virginia.

Recommendations

The following recommendations address the opportunities identified above, listed in prioritized order:

- Eliminate the use of experience rating off-balance adjustment factor for class base rates.
- Modify the e-mod formula to apply the individual experience rating off-balance adjustment to individual experience rated risks only. (See separate recommendations for group rating off-balance.).
- Calculate the catastrophe factor by NCCI hazard group rather than industry group.
- Provide more detailed documentation for each adjustment factor, e.g. “rate change factor”.
- Use an alternative indication of class loss costs to credibility weight Ohio class loss costs, such as NCCI class relativities from other states and/or by comparisons to similar classes.
- Separate case reserves between compensation (indemnity) and medical for incurred losses in estimating the historical class loss costs.

Impact

The impact (high, moderate, or low) of these recommendations as they relate to the overarching themes is shown in the following table:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Eliminate Use of ER Off-Balance Adjustment Factor for Class Base Rates				
Apply Individual ER Off-Balance Adjustment to Individual ER Risks Only				
Calculate Catastrophe Factor by NCCI Hazard Group				
Provide More Detailed Documentation for Each Adjustment Factor				
Use Alternative Indication of Class Loss Costs to Credibility Weight Class Loss Costs				
Separate Case Reserves in Estimating Historical Loss Costs				

Experience Rating

The Situation

Task Background

RFP Task Reference	RFP Task Description	Task Category
Section 5.1.2 #6, page 13	Review and make recommendations to enhance the equity of the experience-rating system and the resulting rates (public and private), including, but not limited to, discounts and dividends. This review would include analysis of the Drug Free Workplace program, the One Claim Program, the Premium Discount Program, the group rating program, and the safety council program. The analysis should include a study of the cost effectiveness of each program and an evaluation of each program with respect to industry standards	Pricing and Programs

This section of the report includes our review of BWC’s experience rating process. The primary objectives of our review of experience rating were:

- Understand the experience rating process
- Test for equity in the experience rating system
- Compare the methodology and basis for assumptions in the experience rating process to industry standards
- Test for equity in the experience-rating system within group rating
- Test for stability in the experience-rating system within group rating
- Provide improvement recommendations specific to opportunities identified within group rating
- Test for effectiveness of the discount programs

Methodology

Completion of our analysis of experience rating involved the following activities:

- Discussions with BWC on the process used to determine experience rating factors
- Discussions with Oliver Wyman on prior studies of experience rating and the proposed change of the experience rating structure to the NCCI split plan
- Discussion with representatives from several firms managing groups in the state
- Review of the data provided by BWC

Using the data provided, several analyses were conducted to test for balance of the individual experience rating system, the extent to which group rating impacts equity and stability, and the effectiveness of the discount programs.

Equity was tested by comparing loss ratios between rating structures, base, experience, and group, using the charged experience rating factor, and the original calculated experience rating factor. With regard to stability, various tests were conducted to measure the migration of group rated policies from one policy year to the next and the impact such migration has on an individual policy's experience rating factor and the resulting premium.

Primary Constituents

- **BWC Actuarial** – Responsible for calculation of employer credits and experience adjustment
- **Group Rating Sponsors and Managers** – Responsible for formulation and administering of groups

Information and Data Gathered

Interviews

We met with several members of BWC's actuarial and underwriting functions to discuss the process for determining the statewide rate level. These members included:

- Chief Actuary – Actuarial Department
- Director - Actuarial Department
- Assistant Director - Actuarial Department
- Actuarial Supervisors - Actuarial Department
- Executive Director - Employer Management
- In addition, we spoke to a number of group sponsors.

Information Provided

The primary sources of information used in our analysis included:

- Presentation from BWC, "Experience Rating Overview"
- Databases containing exposure and claim information at the policy level for the private employer and public employer taxing district for the 2003-2007 (2006 for private employers) policy periods, evaluated as of 12/31/07. Experience modification factors, rating classification (group, experience-rating, base-rating), and participation in discount programs NCCI class code is included in the database, which allowed us to summarize and compare premium and loss experience by class for various policy periods.

Review and Analysis

Benchmarking

We compared the process by which BWC determines experience rating factors to those used in the industry. This comparison includes consideration of the minimum policy size qualifying for experience rating as well as the credibility assigned to individual risks. We also compared the discount programs and the group rating program to industry practices.

Analysis

The purpose of an experience rating plan is to create equity amongst risks. In order to evaluate the performance of the BWC experience rating, two basic criteria were analyzed.

- 1) The plan should produce experience rated loss ratios which are closer to the overall average than before experience rating.
- 2) The plan should balance stability of premium adjustments with responsiveness to changes in the claims experience of the employer(s).

Our review of Ohio's experience rating system indicates that the individual experience rating plan does meet these basic criteria. However, group rating does not.

Experience rating applies to Private Employer (PA) and Public Employer Taxing Districts (PEC) for employers with greater than or equal to \$8,000 of expected losses. The process for individual experience rating is consistent in principle with common methodologies used in the industry. An employer's actual losses in the experience period (the oldest four of the last five calendar years) are compared to expected losses to determine whether the employer's experience rating factor will be a credit or a debit. The maximum size of loss that enters the experience rating calculation is limited to thresholds that depend on the policy size. The current BWC experience rating formula is:

$$EM = [(TML - TLL)/TLL] * C + 1$$

The notation is as follows:

EM = Experience Modification (e-mod)

TML = Total Modified Losses

TLL = Total Limited Losses

C = Credibility

TML represents the actual losses for the employer in the experience period, limited by the policy maximum value, reduced by handicap relief and subrogation collections. Handicap relief applies in certain cases where injured employees have pre-existing medical conditions. Actual losses consist of paid losses and MIRA case reserves.

TLL represents expected losses for the experience period. This is based on payroll by manual class.

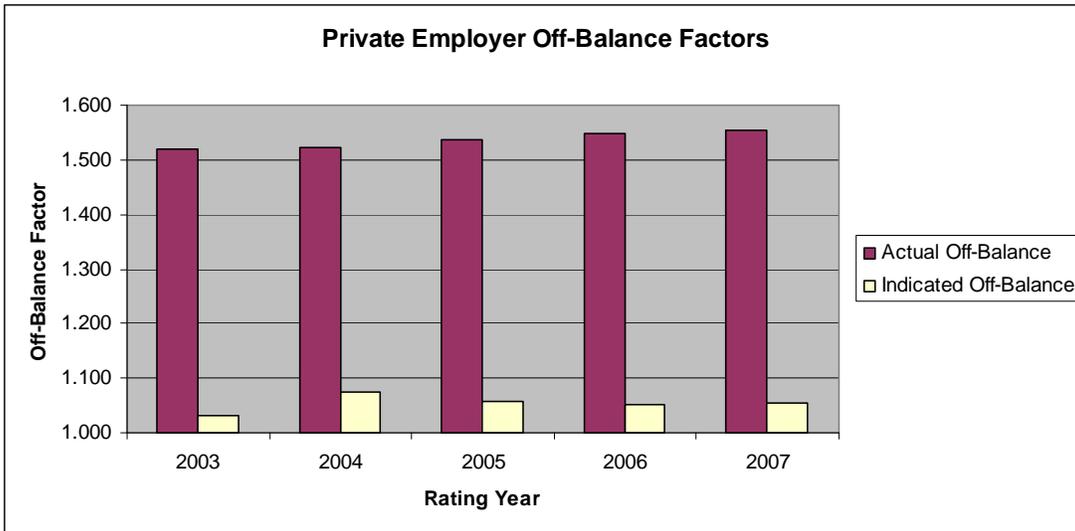
C is the credibility assigned to the employer's experience. The maximum credibility is currently 85%.

GROUP RATING

Group rating allows employers to be combined and treated as one entity for experience rating purposes. Typical groups have many employers, numbering in the hundreds. Approximately one-third of employers are group-rated. Much of our analysis that follows relates to the impact of group rating on Ohio's workers' compensation system.

OFF-BALANCE

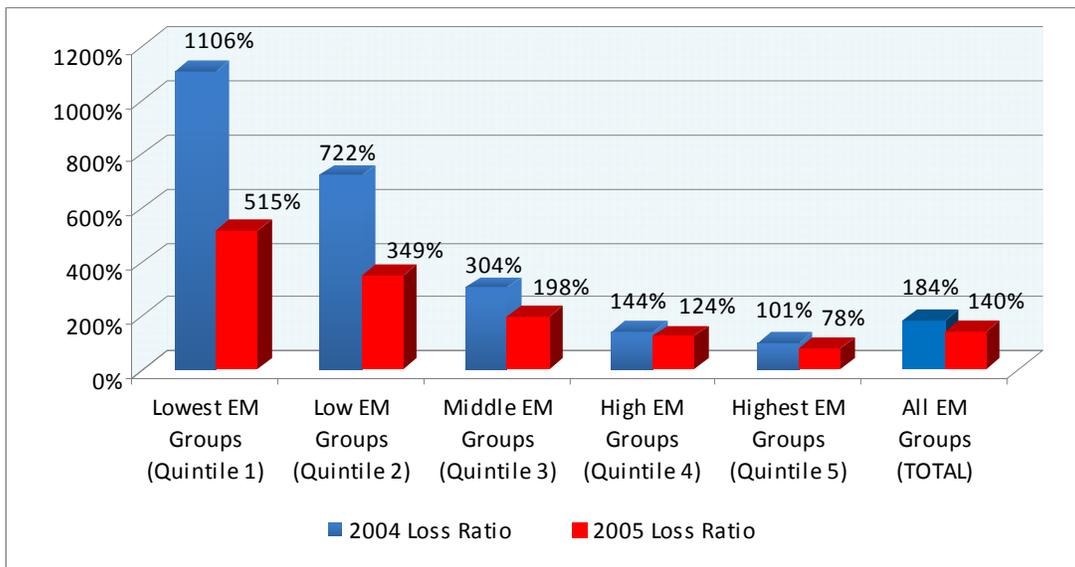
The chart below displays the off-balance factors produced by experience rating, with and without the effect of group rating:



As can be seen in the table above, actual off-balance factors for PA have been in excess of 1.50 in each of the most recent five years. The indicated off-balance factors are those that would result if all employers were individually experience rated and group rating was not used. In most states, off-balance factors are close to 1.0. This comparison indicates that the individual experience rating plan is largely in balance, but that the magnitude of group rating credits creates a large overall average credit over the whole system. A large debit off-balance factor, which results from this situation, is needed to keep the aggregate level of premium in actuarial balance with the projected losses. As described in the class ratemaking section, this off-balance factor is applied to all employers, whether base rated, individually experience rated, or group experience rated.

GROUP RATING - EQUITY

We tested the equity of group rating for PA employers by ranking each group by size of e-mod and summarizing into quintiles, 5 roughly equal sized groupings of group rated employers with similar credits. We reviewed the resulting reported loss ratios for policy years 2004 and 2005 as of 12/31/07. The results are displayed in the chart below:



The chart above clearly demonstrates that the groups with the largest credits (those with the lowest e-mods) produce the highest loss ratios. If e-mods were equitable, we would expect similar loss ratios for each of these quintiles, the bars would be roughly the same height for each quintile.

The loss ratios displayed in the chart above, and those that follow, are based on the ratio of actual incurred losses limited to \$250,000 per occurrence to pure premium. Losses are evaluated as of 12/31/07. Limited losses were chosen to remove any distortions created by unusually severe claims. The pure premium is based on payroll by class multiplied by the credibility-adjusted pure premium for the class and the employer's e-mod. In order to avoid potential differences due to loadings, all loss loadings were excluded, including off-balance, catastrophe factor, and the other loadings described in the class rating section, as well as any expense loadings.

We conducted additional analyses involving the comparison of loss ratios by policy year after the application of the e-mod separately for PA policies and PEC policies. Separate analyses were performed using the actual charged e-mod and the policy's original calculated e-mod (individual e-mod) in order to evaluate the potential impact of group rating as respects the degree of equity (inequity). The charged e-mod and the individual e-mod are equal for all except group rated policies.

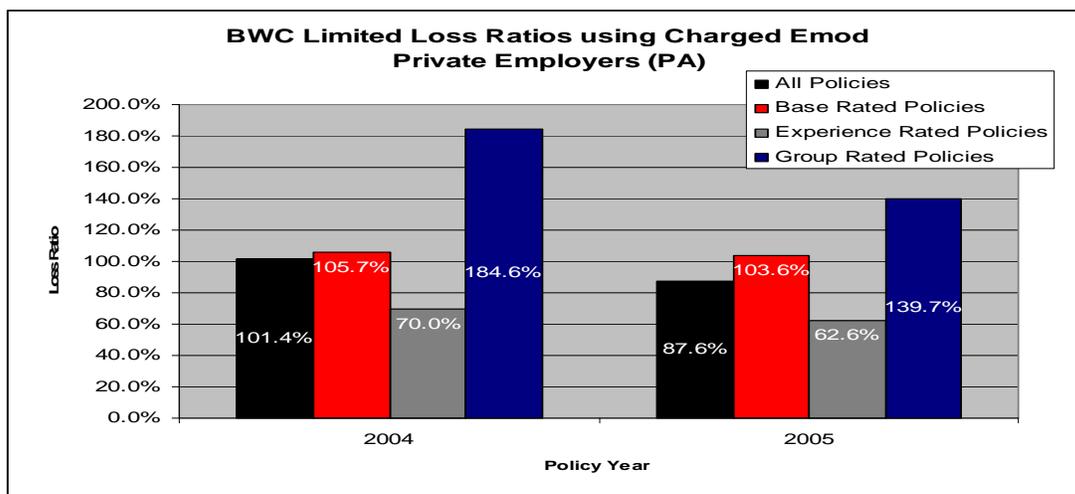
Additional tests in the manner described above were performed using premium size to determine if the results differed by premium size. In performing these analyses, the following bands of premium size were utilized:

- Premium less than or equal to \$5,000
- Premium greater than \$5,000, but less than or equal to \$25,000
- Premium greater than \$25,000, but less than or equal to \$100,000
- Premium greater than \$100,000, but less than or equal to \$250,000
- Premium greater than \$250,000

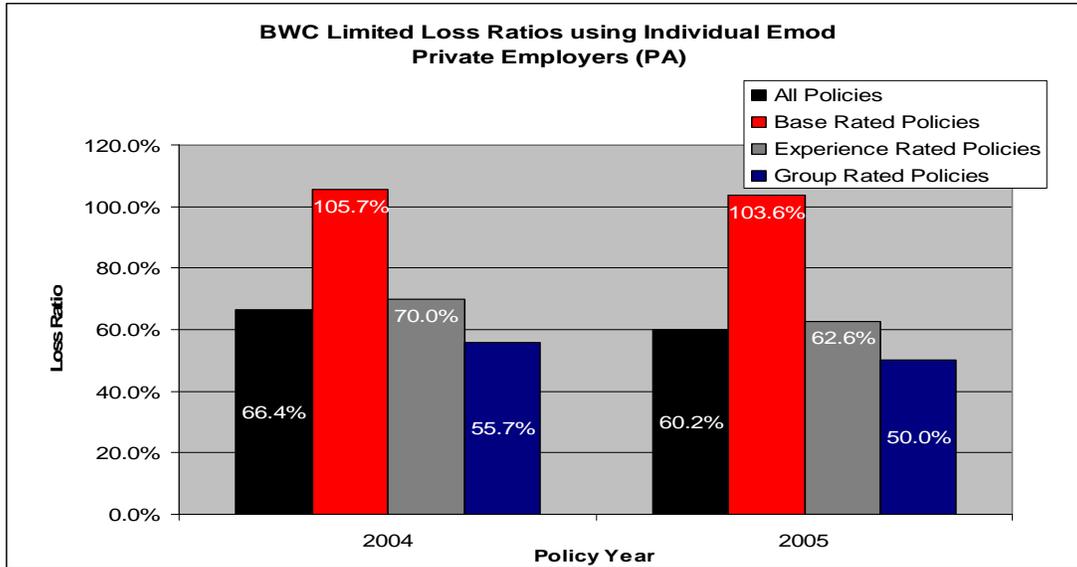
As with the analyses above, these tests were done by policy year with both the charged e-mod as well as the individual e-mod, and were performed separately for PA policies and PEC policies.

We also tested equity by determining whether there is a correlation between the loss ratio and the size of the e-mod. For this test, instead of examining loss ratios on a policy level, loss ratios were examined at the group level relative to the e-mod. In other words, only group rated policies were utilized, and premiums and losses were summed over all policies within a group. The groups were sorted by highest charged e-mod to lowest charged e-mod and then placed into deciles based on payroll. As with the analyses above, both the charged e-mod and individual e-mod were used.

- A basic indication of whether experience rating is functioning properly was determined by analyzing the loss ratios after the application of the e-mod. For PA policies, using each policy's charged e-mod, the following chart shows a significantly higher overall loss ratio in each policy year for group rated policies versus non-group rated policies. The results of this analysis indicate a material inequity from group rating and therefore group rated employers on an overall basis receive substantially more premium credit than is merited by their experience.



As displayed below, when each policy's individual e-mod is used for each of the group rated policies, the difference in loss ratios is lessened substantially for policy years 2004 and 2005 respectively, thereby indicating much closer parity between group-rated policies (re-rated with individual emods) and non-group experience rated policies. The disparity indicated for the base rated policies may be due, in part, to the small policies that are included in groups. This suggests that further evaluation of the base rated policy experience and whether the significant differences noted here are indicating that premiums for base rated policies are inadequate.

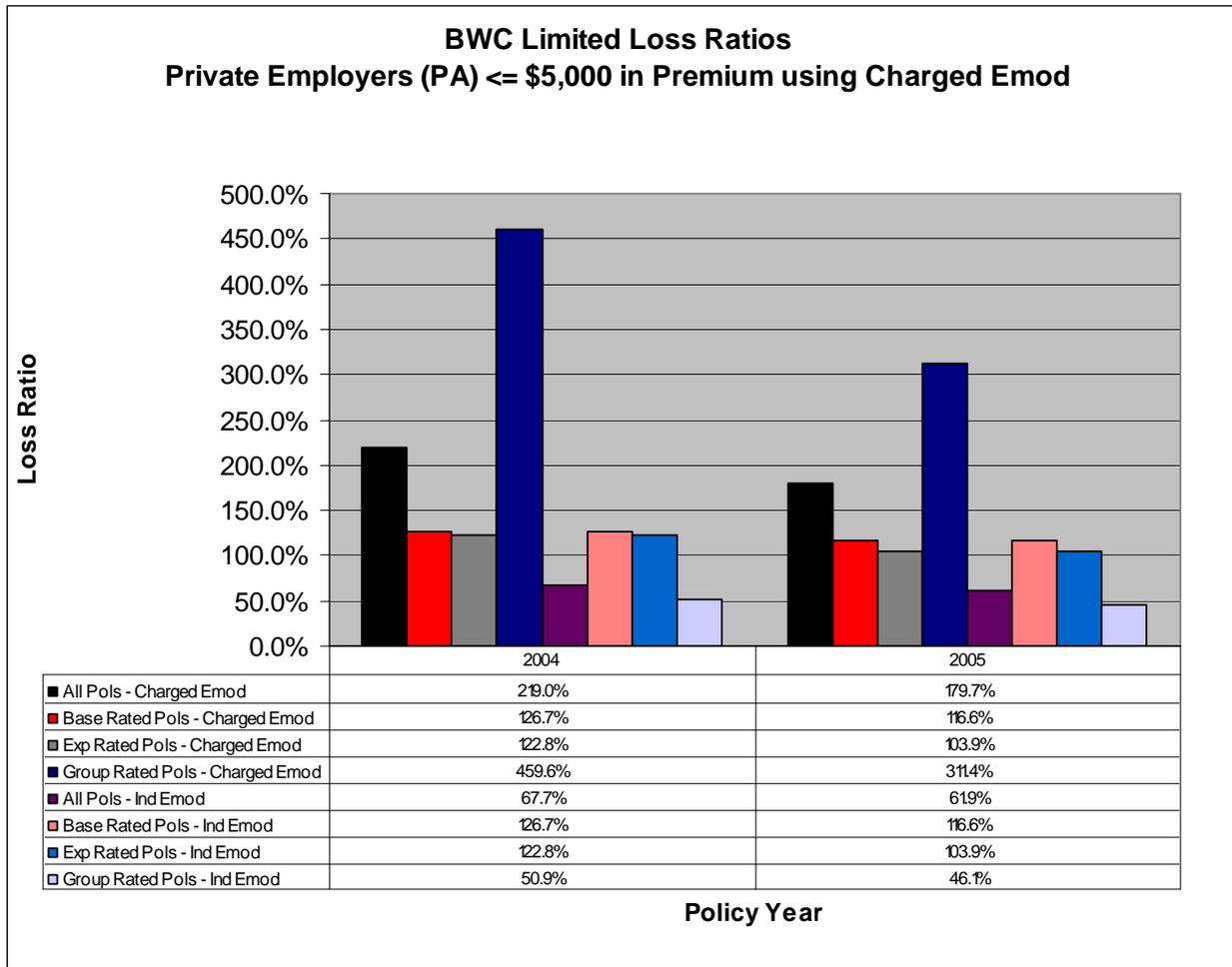


We next tested whether the inequity associated with group rating exists for different policy premium sizes. The policy data were divided into the following size bands based upon premiums using the charged e-mod:

- Policies with premium less than or equal to \$5,000
- Policies with premium greater than \$5,000, but less than or equal to \$25,000
- Policies with premium greater than \$25,000, but less than or equal to \$100,000
- Policies with premium greater than \$100,000, but less than or equal to \$250,000
- Policies with premium greater than \$250,000

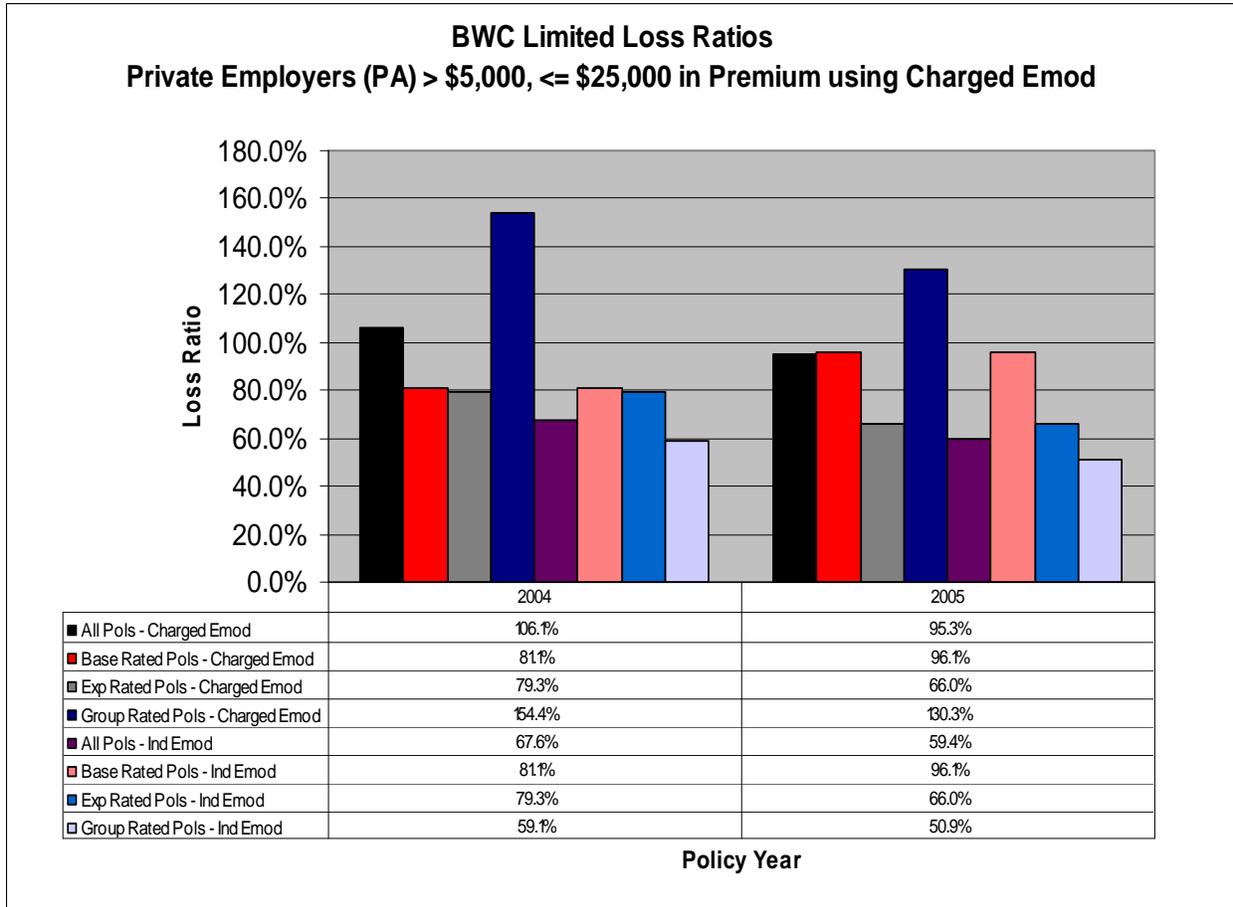
Our analysis confirms that an inequity from group rating is indicated in each of the five size bands above. The largest differences in loss ratio due to group rating are for policies with premiums less than or equal to \$100,000. In the two size bands where policy premium is above \$100,000, the policy count and payroll tend to be more heavily weighted toward experience rated policies versus group rated policies. This is not unexpected; an individual insured with large premiums is likely to heavily influence the size of the group e-mod if they are a group member. Consequently, the group e-mod loss ratio of the group which includes large employers is likely to be similar to that of the individual e-mod loss ratio.

As shown in the chart below, there are smaller differences in overall loss ratio for employers with less than \$5,000 in premium when each insured's individual e-mod is used compared to the loss ratios when the charged e-mod is used.



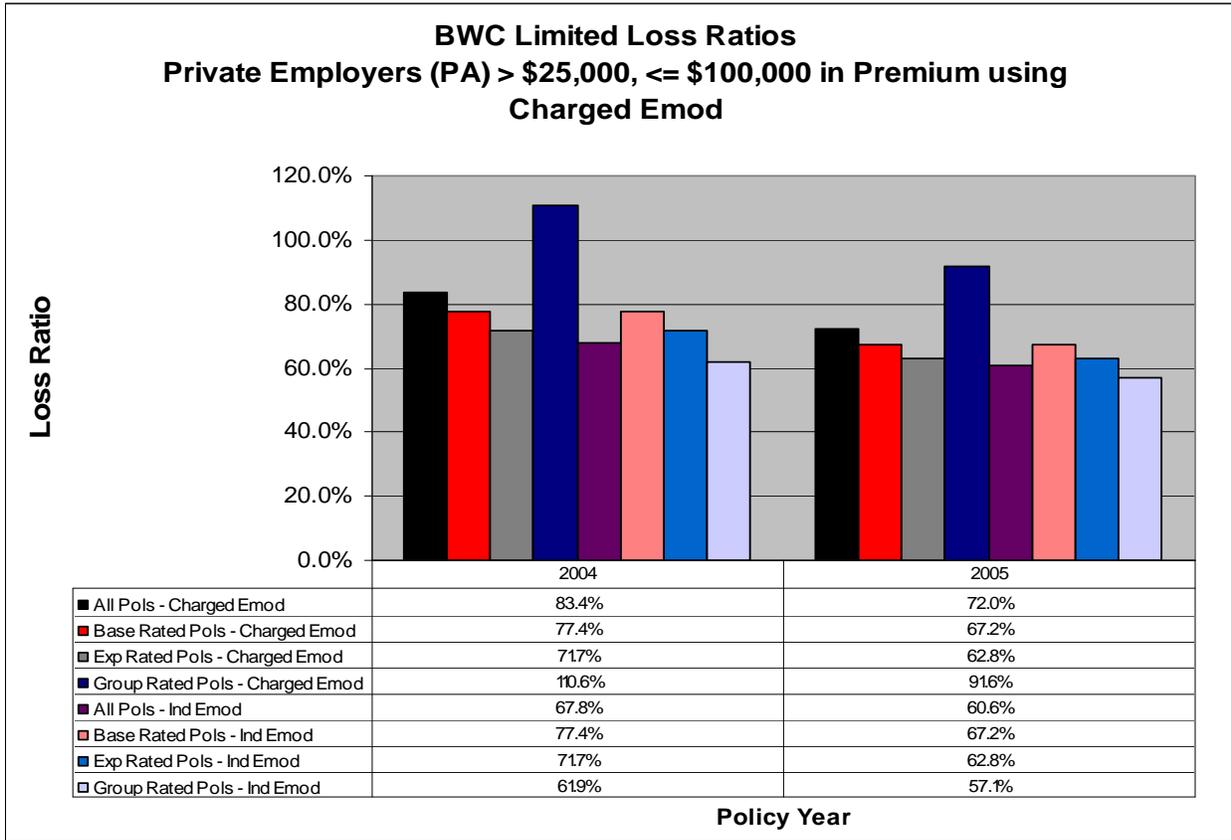
74% of the policies in this premium size band are base rated. However, these base rated policies represent only 26% of the total payroll associated with all the policies in the band. By comparison, approximately 24% of the policies are group rated, but account for over 70% of the payroll.

Similar results are observed when the premium size is between \$5,000 and \$25,000; there are smaller differences in loss ratios when premiums are calculated using the individual e-mod compared to the charged e-mod.



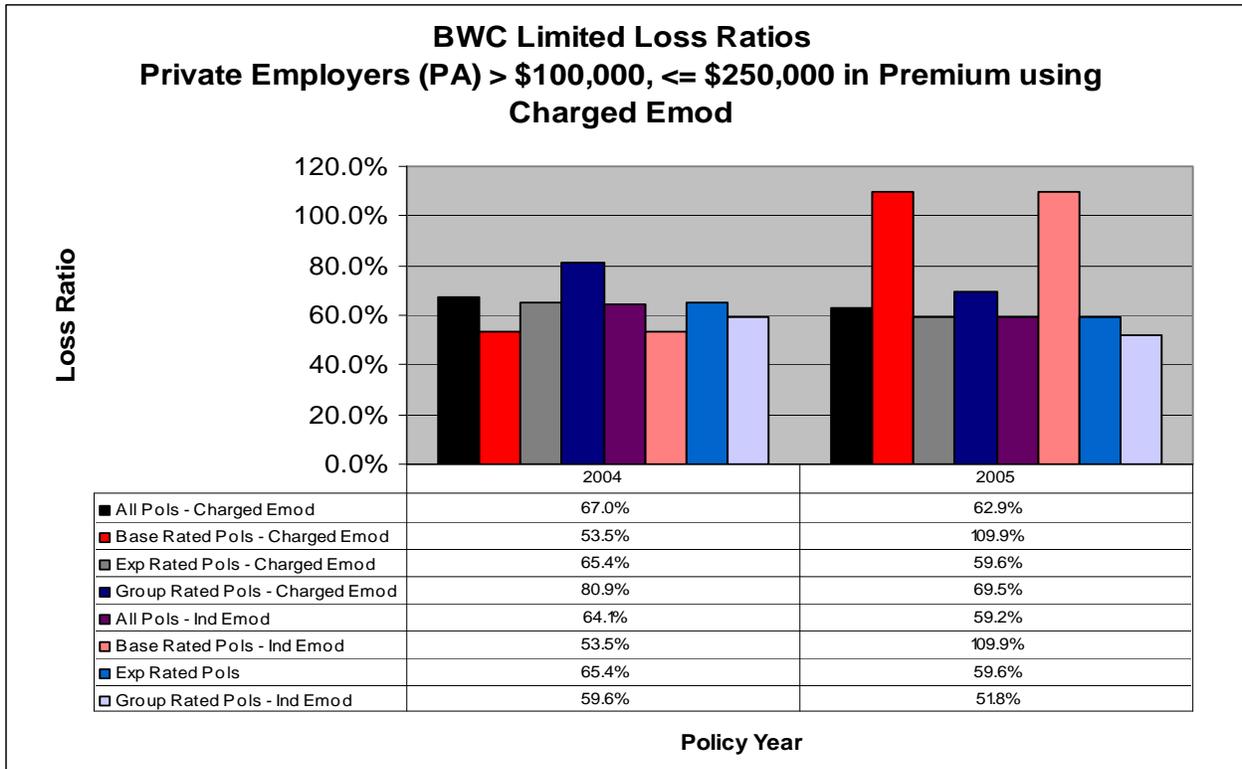
In this premium size band, the mix of policies begins to become more weighted toward those that are experience rated, as approximately 47% of the policies are experience rated, but still contribute only about 34% of the payroll. Group rated policies make up 35% of the policies in this premium size band, but contribute almost 57% of the payroll.

At the all policies level, policies with premium between \$25,000 and \$100,000 show a consistent pattern observed with the two smaller premium size bands.



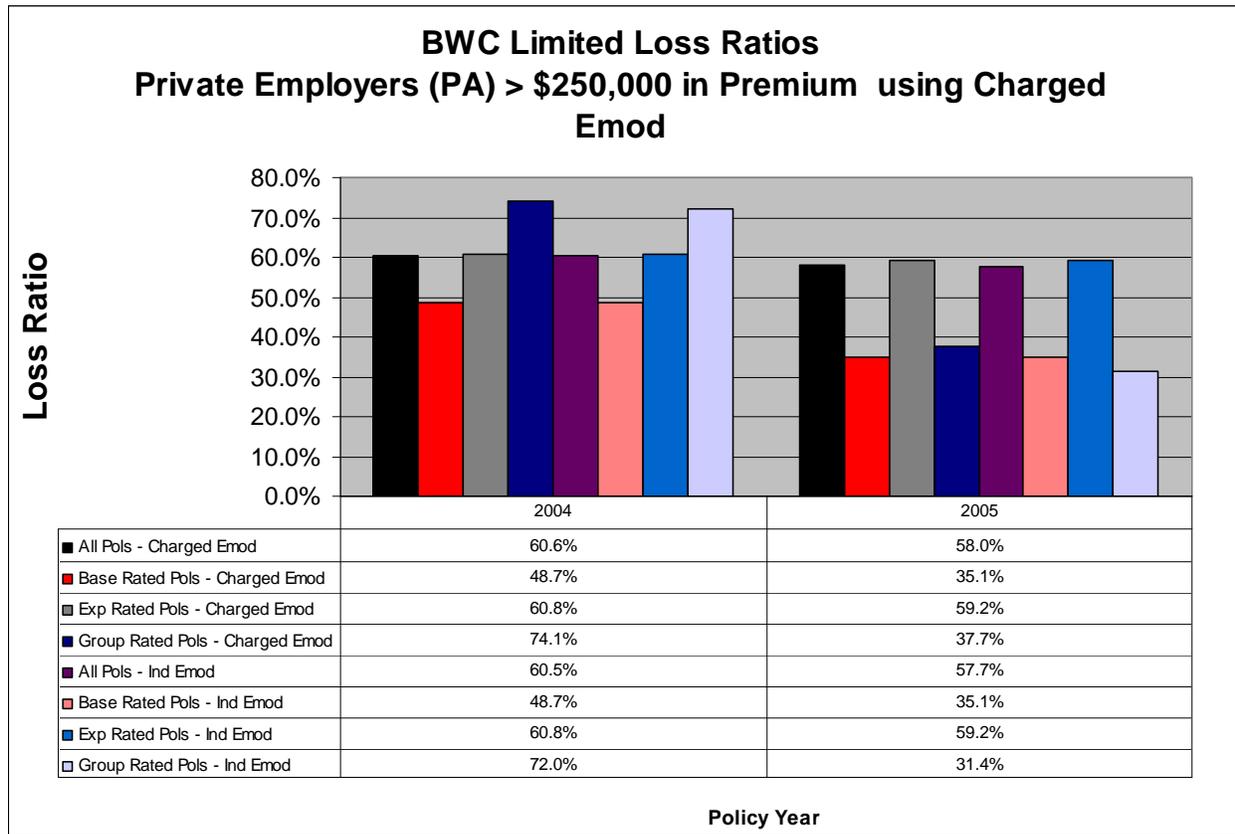
Loss ratios for group rated policies using the charged e-mod remain significantly greater than the loss ratios that result when premiums are calculated using the individual e-mod, indicating inequity between group rated policies and experience rated policies. As with the previous premium size band, the experience rated policies account for a much larger share, 63%, of the band, contributing just over 50% of the payroll. By contrast, group rated policies account for 31% of the policies, but account for 45% of the payroll.

Beginning with policies with premium size between \$100,000 and \$250,000, the pattern observed in policies with premium less than \$100,000 is not as pronounced. Inequity is still indicated as the difference in the overall loss ratios is higher when using the charged e-mod. But the difference in resulting loss ratios between group rated policies and experience rated policies is not as high as is indicated for the smaller size bands.



This is not unexpected, as there are significantly fewer group rated policies in this premium size band. Policies of this size would tend to significantly influence the composition of a group. Group rated policies in this size band account for only 14% of the policy count, and approximately 19% of the payroll. Experience rated policies account for 83% of the policy count and 77% of the payroll. Greater equity is still indicated in this size band by using each policy's individual e-mod.

For the premium size band greater than \$250,000, the indicated inequity is the lowest as the differences in the overall loss ratio is relatively low. This is not surprising, since group rated policies account for only 2% of the policy count and 5% of the payroll in this premium size band.



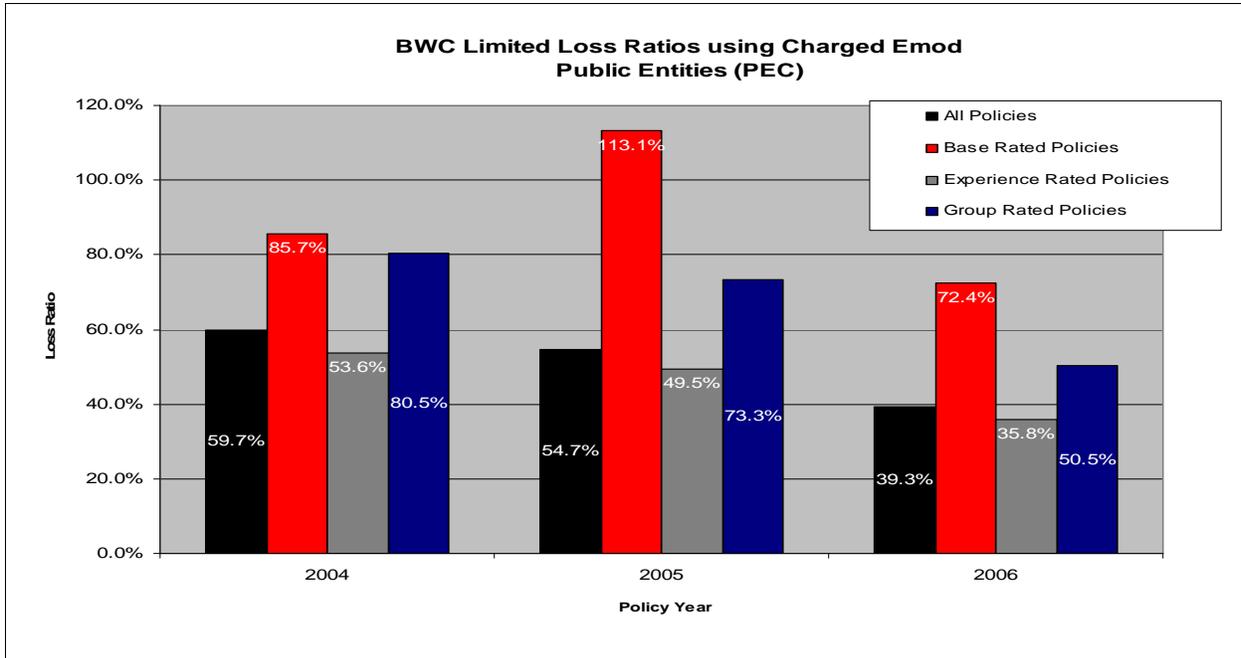
As the following chart indicates, application of individual e-mods largely removes the disparity in loss ratios by policy premium size within the group rated employers. Again, this is a strong indication that smaller employers receive more credit than is merited when such employers are group rated. In contrast, the largest employers have very similar loss ratios whether subject to group rating or individual experience rating.

Premium Size Band w/Charged Emod	2004 Loss Ratio for Group Rated Pools Using		2004 Overall Loss Ratios Using		2005 Loss Ratio for Group Rated Pools Using		2005 Overall Loss Ratios Using	
	Charged Emod	Individual Emod	Charged Emod	Individual Emod	Charged Emod	Individual Emod	Charged Emod	Individual Emod
<= 5K	459.6%	50.9%	219.0%	67.7%	311.4%	46.1%	179.7%	61.9%
5K < x <= 25K	154.4%	59.1%	106.1%	67.6%	130.3%	50.9%	95.3%	59.4%
25K < x <= 100K	110.6%	61.9%	83.4%	67.8%	91.6%	57.1%	72.0%	60.6%
100K < x <= 250K	80.9%	59.6%	67.0%	64.1%	69.5%	51.8%	62.9%	59.2%
> 250K	74.1%	72.0%	60.6%	60.5%	37.7%	31.4%	58.0%	57.7%
Overall	184.6%	55.7%	101.4%	66.4%	139.7%	50.0%	87.6%	60.2%

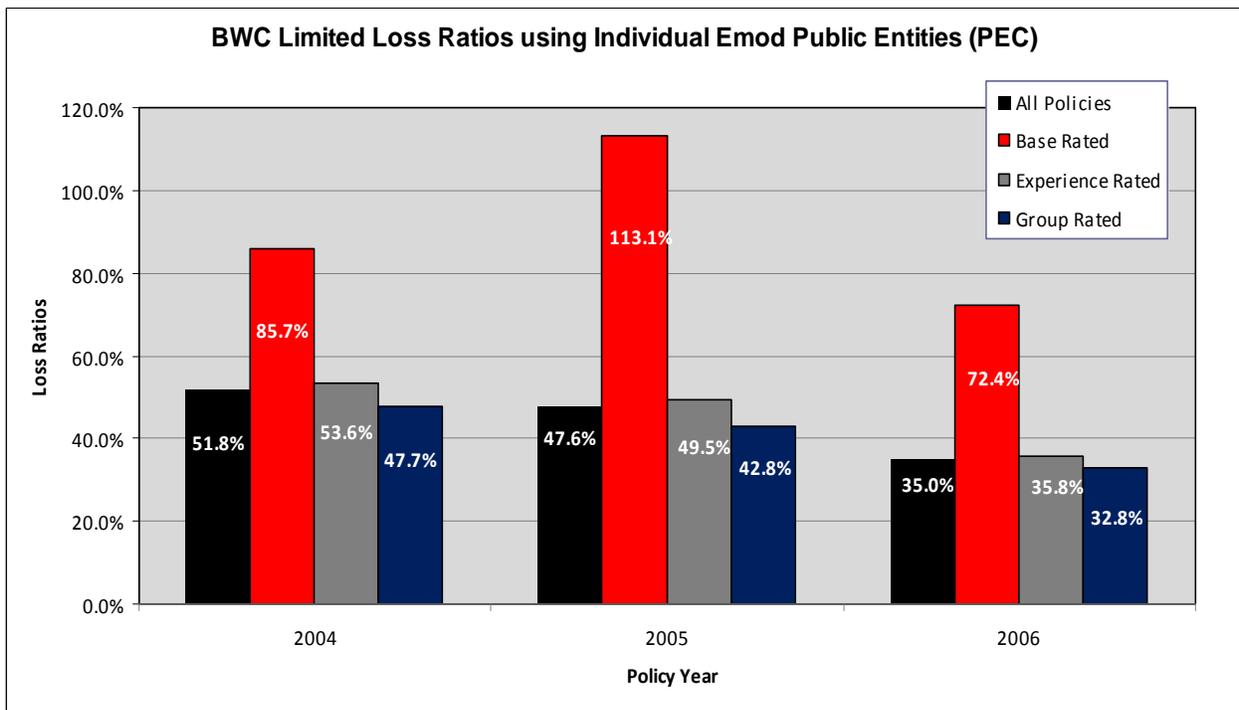
When the individual e-mod is utilized for each policy size group, the differences in the overall loss ratios in each year are very low in both policy years, and is indicative of a well functioning experience rating system from an equity standpoint when experience rating is done on individual policies.

Public Entities

In general, similar conclusions reached for PA hold for PEC policies. However, the results are not as strong as there is a significantly lower policy count in PEC. The PEC segment has only approximately 1% of the corresponding PA segment's policies in a given policy year.



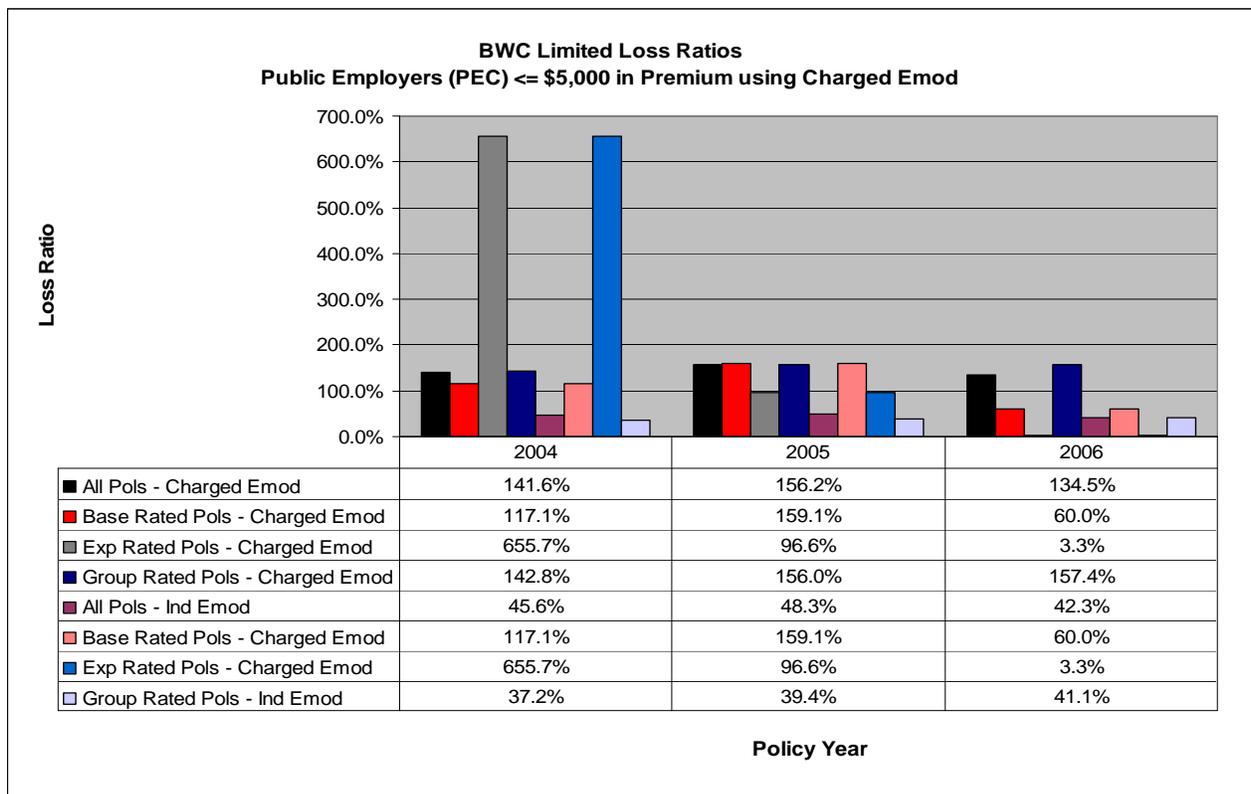
As the chart above suggests, inequity similar to PA policies is indicated due to the use of the charged e-mod for group rated policies.



As we observed similar inequity in PEC policies as we did with PA policies, we also tested PEC policies for inequity by policy premium size using the charged e-mod in the following bands:

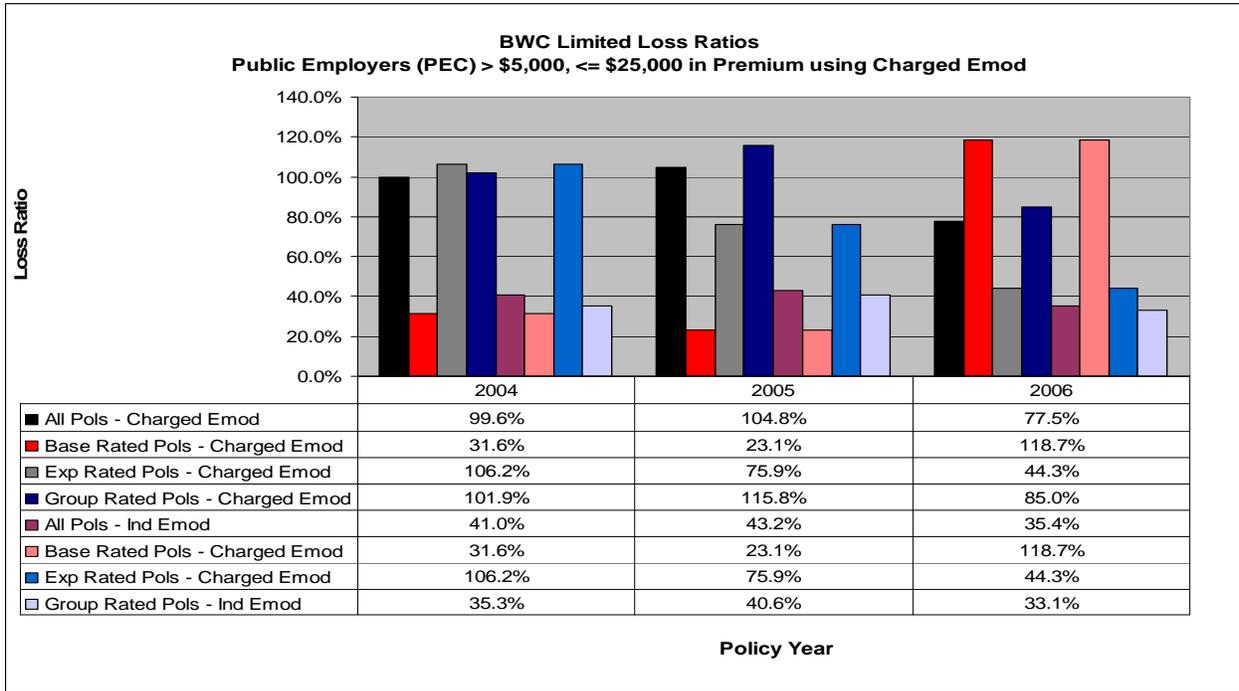
- Premium less than or equal to \$5,000
- Premium greater than \$5,000, but less than or equal to \$25,000
- Premium greater than \$25,000, but less than or equal to \$100,000
- Premium greater than \$100,000, but less than or equal to \$250,000
- Premium greater than \$250,000

As shown in the chart below, for policies in the size band of premium less than or equal to \$5,000 using the charged e-mod, there are substantive differences in the overall loss ratios between group rating and experience rated policies. However, this result is not significant due to the low number of policies that are experience rated in this size band. Of the approximately 2,400 policies that fall into this size band in each policy year, only 0.5% - 0.7% are experience rated. However, the large differences in the loss ratios for group rated policies using the charged e-mod versus using the individual e-mod, indicates a very significant degree of inequity.

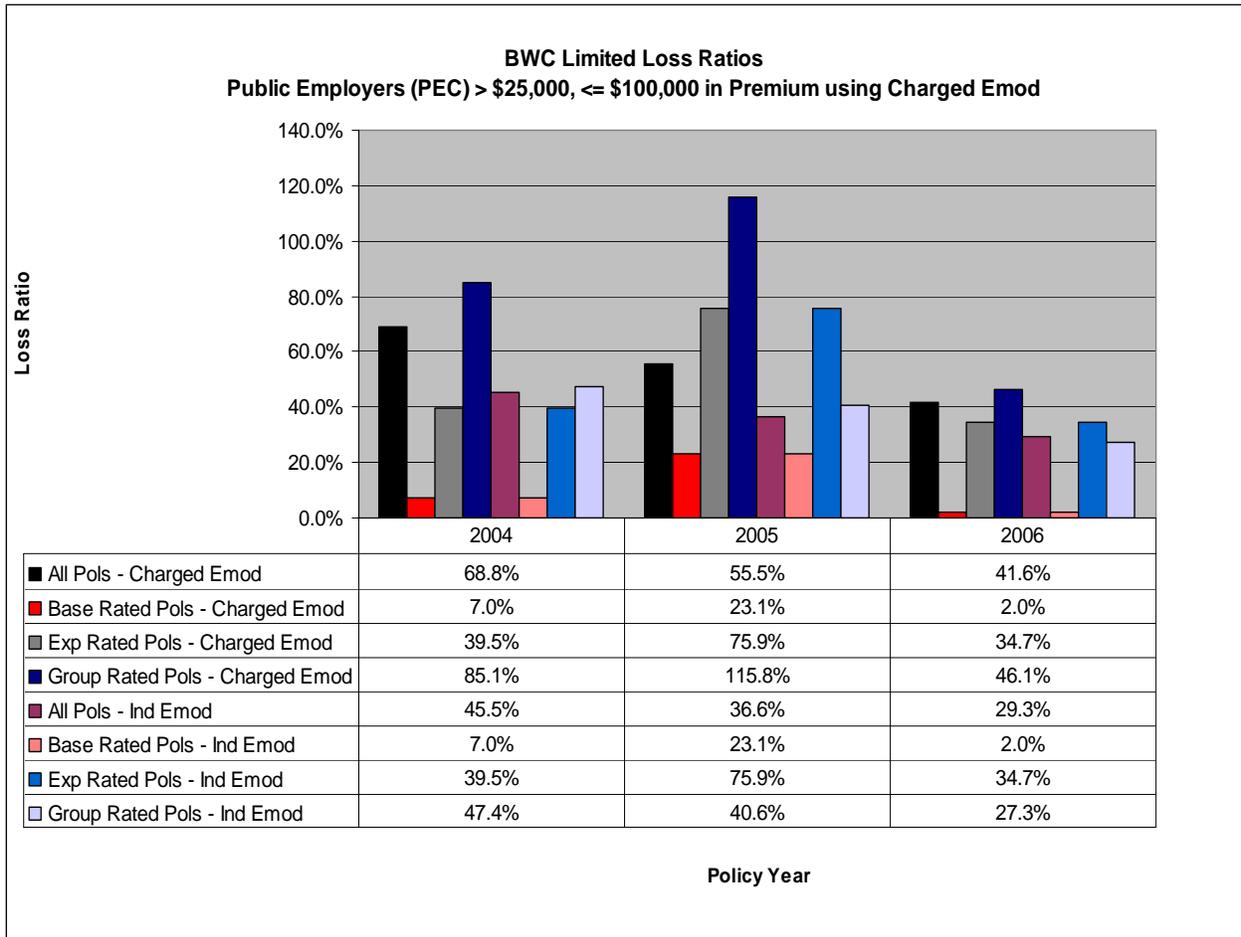


Unlike PA policies, this policy premium size band is driven by group rated policies, accounting for approximately 76% of the policies and about 95% of the payroll.

For the policy premium size band between \$5,000 and \$25,000, there is a higher proportion of experience rated policies (approximately 18% of the policies), although the payroll from experience rated policies is still low at only 5% of the payroll.

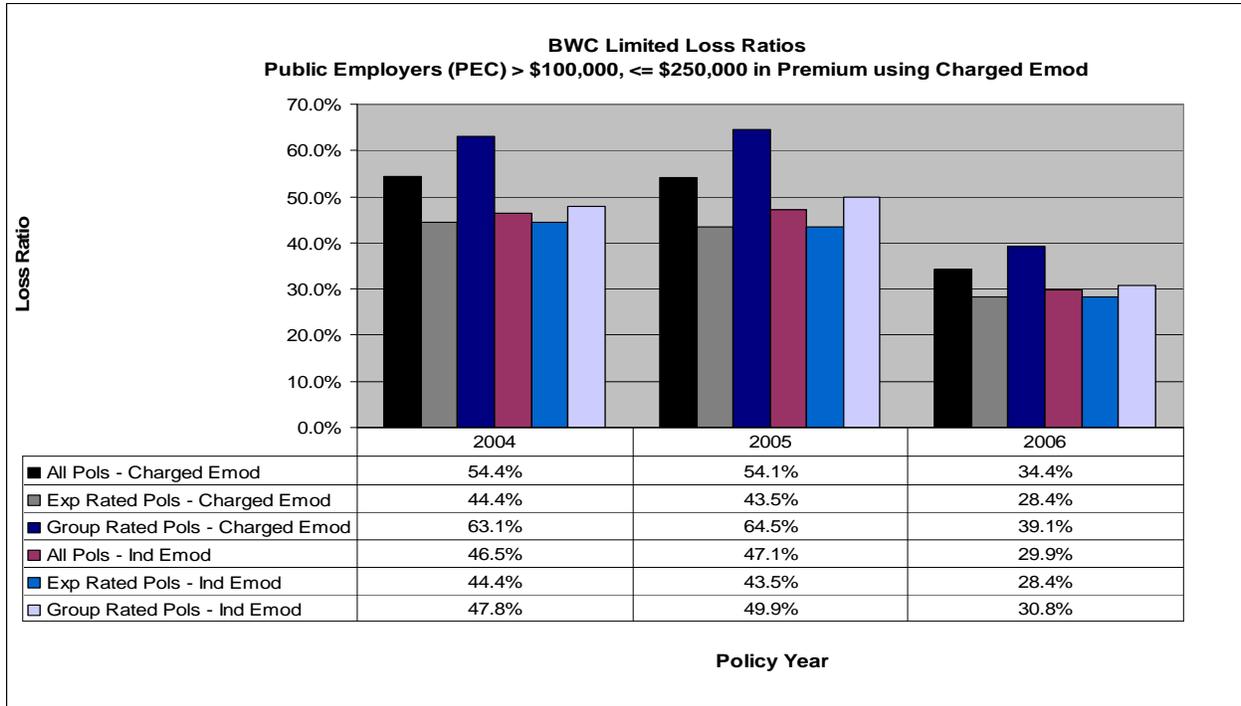


In the policy premium size band for policies greater than \$25,000 but less than \$100,000, group rated policies account for approximately 65% of the policy count and approximately 67% of the payroll.



The significant differences in the overall loss ratios for group rated policies when using the individual e-mod as opposed to the charged e-mod persist into this policy premium size band.

The policy premium size band corresponding to premium above \$100,000 but less than or equal to \$250,000 is the first band for PEC policies where there is almost an even split between experience rated and group rated policies. However, group rated policies account for twice the amount of payroll compared to experience rated policies.



The large policy size band contains policies with greater than \$250,000 in premium using the charged e-mod. Not surprisingly, this band is heavily weighted toward experience rated policies, consisting of about 80% of the policies and 88% of the payroll. Consequently, equity is not significantly impacted by a change to the individual e-mod from the charged e-mod and the loss ratio dispersion is not large.

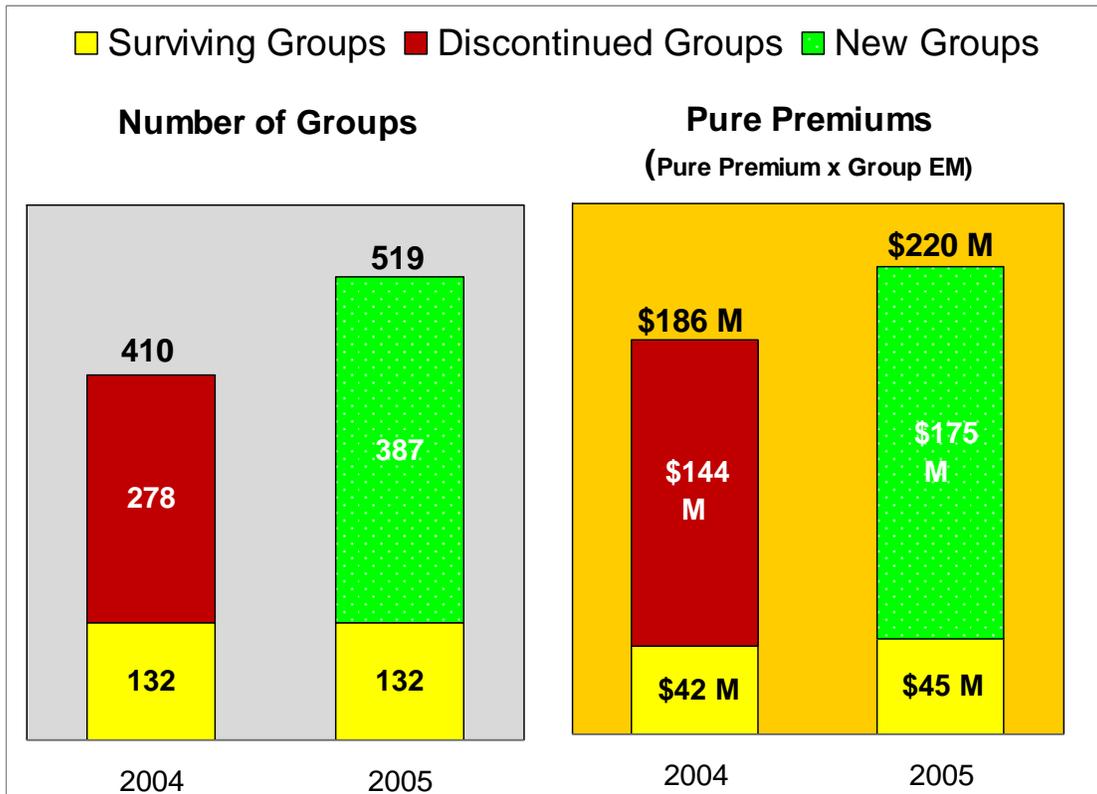
As with PA policies, overall inequity is evident to some degree in each policy premium size band, except for the largest policies, due to the inequity in group rated policies. The following chart indicates that inequity in group rating could be substantially eliminated by individual e-mods rather than group rated e-mods.

Premium Size Band w/Charged Emod	2004 Loss Ratio for Group Rated Pools Using		2005 Loss Ratio for Group Rated Pools Using		2006 Loss Ratio for Group Rated Pools Using	
	Charged Emod	Individual Emod	Charged Emod	Individual Emod	Charged Emod	Individual Emod
<= 5K	142.8%	37.2%	156.0%	39.4%	157.4%	41.1%
5K < x <= 25K	101.9%	35.3%	115.8%	40.6%	85.0%	33.1%
25K < x <= 100K	85.1%	47.4%	115.8%	40.6%	46.1%	27.3%
100K < x <= 250K	63.1%	47.8%	64.5%	49.9%	39.1%	30.8%
> 250K	79.3%	78.6%	49.8%	48.3%	42.6%	41.3%

Premium Size Band w/Charged Emod	2004 Overall Loss Ratios Using		2005 Overall Loss Ratios Using		2006 Overall Loss Ratios Using	
	Charged Emod	Individual Emod	Charged Emod	Individual Emod	Charged Emod	Individual Emod
<= 5K	141.6%	45.6%	156.2%	48.3%	134.5%	42.3%
5K < x <= 25K	99.6%	41.0%	104.8%	43.2%	77.5%	35.4%
25K < x <= 100K	68.8%	45.5%	55.5%	36.6%	41.6%	29.3%
100K < x <= 250K	54.4%	46.5%	54.1%	47.1%	34.4%	29.9%
> 250K	56.1%	56.1%	50.8%	50.7%	37.0%	36.9%

GROUP RATING - STABILITY

We tested the impact of group rating on stability by examining the turnover of groups from 2004 to 2005 for PA. We found that the turnover of groups is very high, as only 132 of the 410 groups in 2004 survived to 2005. Our analysis is based on matching group ID's in the data provided by BWC. Similar turnover is seen in the pure premiums, which is based on payroll, class, and e-mod. Such instability suggests that the groups are not functioning well.



In further examining stability in pricing due to the presence of group rating, we conducted several analyses for PA policies only, as the number of PEC groups is significantly less. The first analysis was to measure turnover in groups between policy year 2004 and policy year 2005. For group rated policies in policy year 2004, we tracked their respective rating type in policy year 2005 and classified their policy year 2005 rating type as one of the following:

- Group rated in 2005 – Same group as 2004
- Group rated in 2005 – Different group than 2004
- Base rated or Experience rated in 2005
- One Claim Program rated in 2005
- Untracked in 2005
- Group rated in 2005, but no group number populated in 2004
- Group rated in 2005, but no group number populated in 2005

For these same policies above, we also performed an analysis on the change in the charged e-mod from policy year 2004 to policy year 2005. In this analysis, we count the number of policies whose e-mods fall into the following categories:

- Under -50%
- -50% to -10%
- -10% to 10%
- 10% to 50%
- 50% to 100%
- Over 100%

We supplemented this analysis by performing a quintile analysis for these same policies. In this approach, we sorted both policy year 2004 and policy year 2005 from the highest to lowest charged e-mod, and created quintiles for each year equal to approximately 20% of the total payroll in order limit the distortions that may occur from any one significantly sized policy. To the extent possible, we compared the movement of policies from their 2004 quintile to their 2005 quintile.

We also examined the impacts on pricing for those policies that move from experience or base rating in policy year 2004 to group rating in policy year 2005, by comparing the premium for both years. The impacts on pricing for those policies that move from group rating in policy year 2004 to either experience or base rating in policy year 2005 were analyzed in a similar manner. Consistent with the equity analyses, the calculated premium for a policy is the product of the payroll for the class and the base rate adjusted for credibility for the class, summed over all of the classes of the policy, and adjusted by the charged e-mod.

We examined the impacts of group rating on private employers with regard to group turnover and difference in e-mods. First, for those policies identified as group rated and with a complete set of e-mods in policy year 2004 we examined how these policies were rated in policy year 2005.

	Policy Count	Percent of Total
Group Policies in PY 2004	86,466	100.0%
Group rated in PY 2005 - Same Group as PY 2004	39,330	45.5%
Group rated in PY 2005 - Different Group than PY 2004	37,059	42.9%
Base Rated or Experience Rated in PY 2005	7,188	8.3%
One Claim Program Rated in PY 2005	684	0.8%
Untracked in PY 2005	1,114	1.3%
Group rated in PY 2005 but No group number populated in PY 2004	3	0.0%
Group rated in PY 2005 but No group number populated in PY 2005	1,088	1.3%

We found that nearly 90% of policies remain in group rating from policy year 2004 to policy year 2005. However, 48.5% (37,059 / [39,330 + 37,059]) of policies migrate to a different group, indicating a lack of stability from one year to the next.

To determine the impact of the change in e-mods from one year to the next, we examined how many policies had significant changes in their e-mods between policy year 2004 and policy year 2005. The following chart shows the results of this analysis.

Change in Emod		
	Count of Policies	% of Policies
Under -50%	6,106	7.1%
-50% to -10%	9,215	10.7%
-10% to 10%	14,334	16.6%
10% to 50%	23,350	27.0%
50% to 100%	6,958	8.0%
Over 100%	26,503	30.7%
	86,466	

As shown above, over 83% of the policies experienced an increase or decrease of greater than 10% between the e-mod received in 2004 and the e-mod received one-year later in 2005. This equates to a difference in an individual policy's charged premium of over +/- 10%, simply due to a change in e-mod.

More significant is that almost 46% of the policies had an increase or decrease in their e-mod of over 50% year-over-year, and over 30% of the policies had an increase greater than 100% year-over-year. Consequently, group rating is producing significant instability in the premiums that many employers pay.

We also examined the relationship of individual policies and their e-mods in 2004 and 2005 in a quintile analysis. In this analysis, we sorted both the policy year 2004 group policies and 2005 group policies from highest charged e-mod to lowest charged e-mod and created quintiles equal to approximately 20% of the total payroll. To the extent possible, we compared the movement of policies from their 2004 quintile to their 2005 quintile, the results of which are summarized below.

Count of Policies

04 Quintile	05 Quintile									Grand Total
	1	2	3	4	5	BASE	EXP	OCP or Untracked		
1	1,577	2,511	674	411	368	370	1,196	103	7,210	
2	703	2,496	3,042	735	534	341	727	152	8,730	
3	551	966	3,810	8,374	3,385	972	493	387	18,938	
4	321	536	1,896	8,062	10,137	988	431	556	22,927	
5	445	520	1,066	10,334	14,026	1,209	461	600	28,661	
Grand Total	3,597	7,029	10,488	27,916	28,450	3,880	3,308	1,798	86,466	

Percentage of 2004 Quintile in 05 Quintile

04 Quintile	05 Quintile									Grand Total
	1	2	3	4	5	BASE	EXP	OCP or Untracked		
1	22%	35%	9%	6%	5%	5%	17%	1%	100%	
2	8%	29%	35%	8%	6%	4%	8%	2%	100%	
3	3%	5%	20%	44%	18%	5%	3%	2%	100%	
4	1%	2%	8%	35%	44%	4%	2%	2%	100%	
5	2%	2%	4%	36%	49%	4%	2%	2%	100%	
Grand Total	4%	8%	12%	32%	33%	4%	4%	2%	100%	

As shown above, approximately 35% (1,577 policies in quintile 1; 2,496 policies in quintile 2; 3,810 policies in quintile 3; 8,062 policies in quintile 4; and 14,026 policies in quintile 5) of the 86,466 policies remain in the same quintile in 2005 as in 2004. The remaining 65% of policies experience significant changes in their e-mod, and thus their premium. Included above, we also found that just over 10% of the policies leave group rating from policy year 2004 to policy year 2005.

For the almost 7,200 policies that left group rating for experience or base rating in 2005, pure premiums for these employers more than doubled, from approximately \$35.6 million in 2004 to almost \$85.6 million in 2005. Although the change in pure premiums is impacted by changes in base rates and payroll from 2004 and 2005, the change in e-mod is clearly the major driver of the change in pure premiums.

Policy Type	Count of Policies	Limited Loss		Pure Premium		Difference
		2004	2005	2004	2005	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Group in 04, Non-Group in 05						
Group Rated to Base Rated	3,880	3,528,701	2,672,992	742,460	2,891,559	2,149,099
Group Rated to Exp Rated	3,308	59,187,561	46,067,322	34,910,876	82,674,910	47,764,034
Total	7,188	62,716,262	48,740,314	35,653,336	85,566,469	49,913,133
Non-Group in 04, Group in 05						
Base Rated to Group Rated	5,875	8,584,191	9,820,457	15,460,433	2,676,446	(12,783,987)
Exp Rated to Group Rated	2,432	37,520,574	33,884,634	60,344,466	29,738,764	(30,605,702)
Total	8,307	46,104,765	43,705,091	75,804,900	32,415,210	(43,389,689)
Totals		108,821,026	92,445,405	111,458,236	117,981,679	6,523,443

Conversely, for policies that enter into group rating in policy year 2005, pure premiums decreased by more than half, from \$75.8 million in policy year 2004 to \$32.4 million in policy year 2005. The significant swings in these premiums indicate substantial instability in the premiums of many Ohio employers resulting from the current group rating program.

DISCOUNT PROGRAMS

In determining the effectiveness of the discount programs, we compared the loss ratio for policies participating in one or more discount programs against the loss ratio for policies not participating in any program before the application of experience rating. Additional review and recommendations are made Drug Free Workplace programs as part of Report 3.2, Cost Controls: Safety Grant Programs. This comparison was done by policy year, for group rated policies separate from non-group rated policies, as well as for all policies in total. The analysis was also done separately for PA policies and PEC policies.

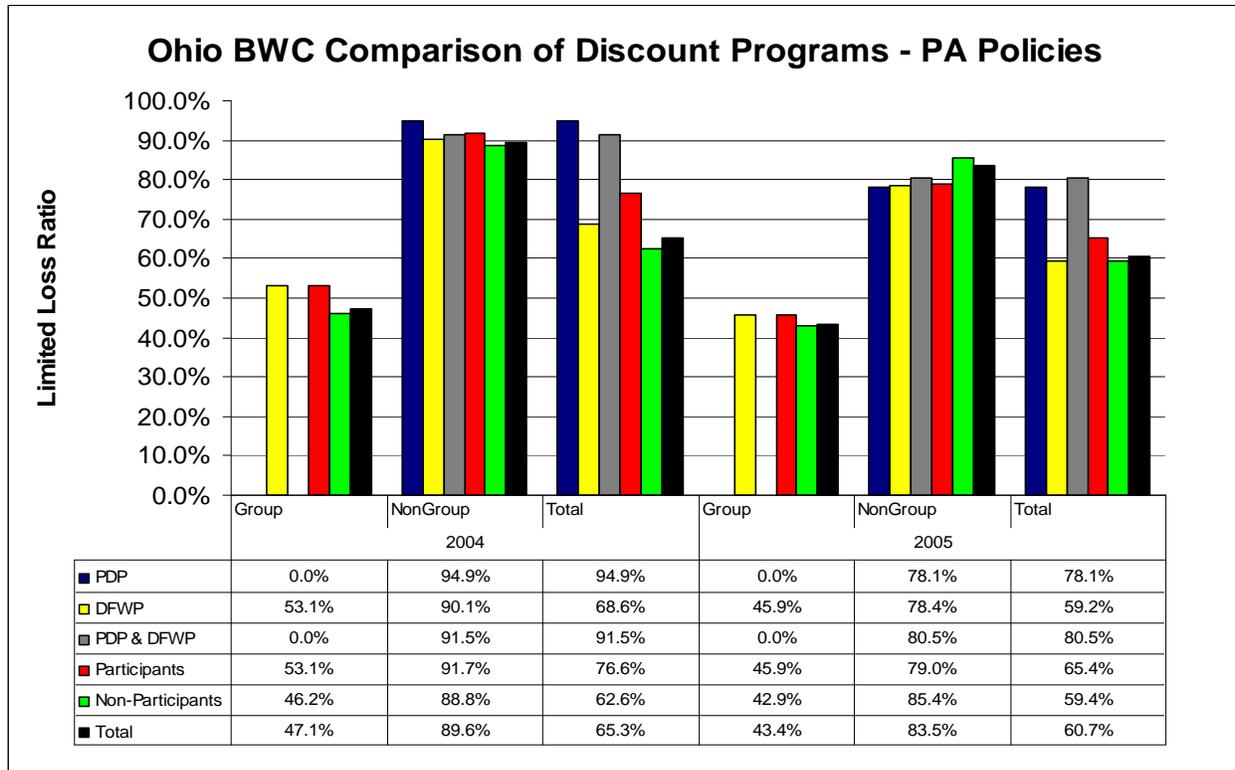
When calculating the loss ratio for this analysis, unlike the analyses for equity and stability described above, premiums calculated for use in the loss ratio are not adjusted by any e-mod. However, for participating policies, the premium is adjusted proportionally by the discount factor provided.

Private Employers

We examined loss ratios, adjusted by the discount factor provided, for those policies that participate in the PDP only, DFWP only, or both PDP and DFWP, against those policies that did not participate in either program. If loss ratios for participants are similar to the loss ratios of non-participants, such equality of loss ratios would indicate that the program(s) are functioning effectively.

We understand that for PDP, group rated policies are not eligible. For all other policies, up to 30% credit is given to employers who have successfully implemented the BWC's 10-Step Business Plan. The DFWP provides for up to 20% discount across three levels chosen by the employer. In addition, for employers with less than 25 employees, an annual bonus of up to 20% can be earned if their claim frequency and claim severity is reduced each year while in the five-year program.

For PA policies, the following charts show that in general, loss ratios for participants are significantly worse for participants, than for non-participants, by loss ratios six to fourteen points (6% - 14%) higher. This performance indicates that the program(s) are not functioning effectively. Consequently, BWC incorporates in the ratemaking process a rate change factor, a component of which is to adjust for "premium slippage". Premium slippage is charged to all policyholders to account for more rate discount being provided to program participants than is actuarially indicated from the resultant change in participants' loss ratios. When broken out into individual programs, only the DFWP program in 2006 has a better loss ratio for participants than non-participants. However, the participant loss ratio is only 0.2% better than the loss ratio for non-participants.



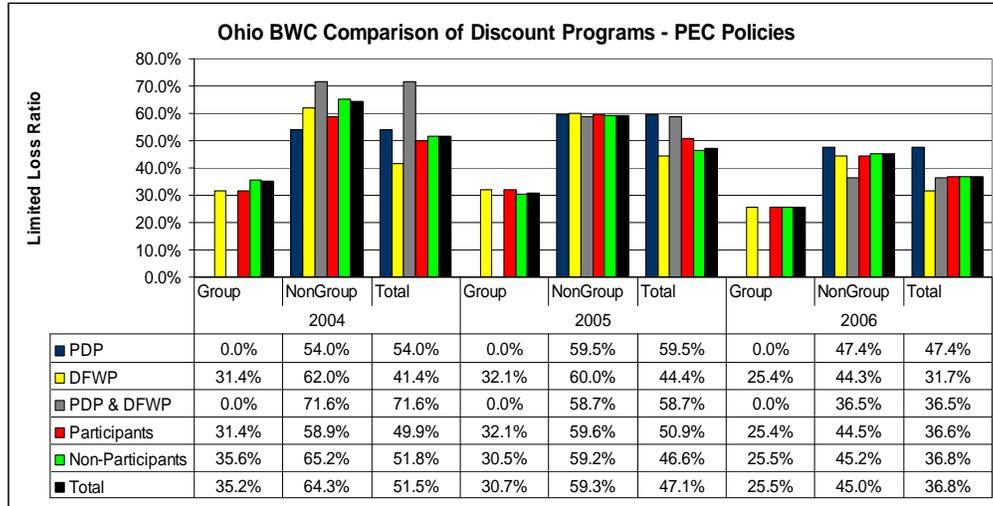
In addition, we looked at a breakout by group rated policies against non-group rated policies. Participants that were group rated performed worse than the group rated policies that did not participate by a margin of three to seven points (3% - 7%). For the non-group rated policies, in policy year 2004 the loss ratio of participants is approximately three points (3%) worse than non-participants, but in policy year 2005, the participant loss ratio was about six points (6%) better than the non-participant loss ratio.

We note that participation in these programs is low, as only 2% of policies participate in at least one discount program in either policy year. Participation was greater for group rated policies, 3.2% in policy year 2006 and 3.6% in policy year 2005, than for non-group rated policies, which was 1.4% and 1.5% for policy year 2005 and 2006 respectively.

Public Entities

For PEC policies, our analysis indicated similar results as for PA policies. However, the conclusion is not as strong. The overall loss ratio for policies participating in at least one discount program is better than the loss ratio for those policies that did not participate in any program in policy year 2004 and approximately equal in policy year 2006. However, in policy year 2005, the loss ratio for participants is currently over four points (4%) worse than the loss ratio for non-participants.

When examining the individual discount programs, it is clear that, similar to the PA policies, the PDP is not working effectively. Loss ratios for PEC policies participating in only PDP are two to thirteen points (2% - 13%) worse than policies that did not participate in any discount program in policy years 2004 through 2006. On a holistic view, this is somewhat mitigated by the DFWP whose participants have loss ratios that are two to ten points (2% - 10%) better than the loss ratio of non-participants. Unfortunately, for those policies participating in both PDP and DFWP, the PDP has the stronger impact on results, as the loss ratio in policy years 2004 and 2005 for participating policies is worse than the loss ratio of non-participants by twenty points (20%) and twelve points (12%) respectively.



Similar to PA policies, we looked at a breakout by group rated policies against non-group rated policies for PEC policies. Participants that were group rated performed better compared to the group rated policies that did not participate by a margin of four points (4%) in policy year 2004 and by one-tenth of one point (0.1%) in policy year 2006, but are outperformed in policy year 2005 by approximately 2% in policy year 2005. This differed from the non-group rated policies, where in policy year 2004, the loss ratio of participants is approximately six points (6%) better than non-participants and one point (1%) better in policy year 2006, but the participant loss ratio was about four-tenths of a point worse than the non-participant loss ratio in policy year 2005.

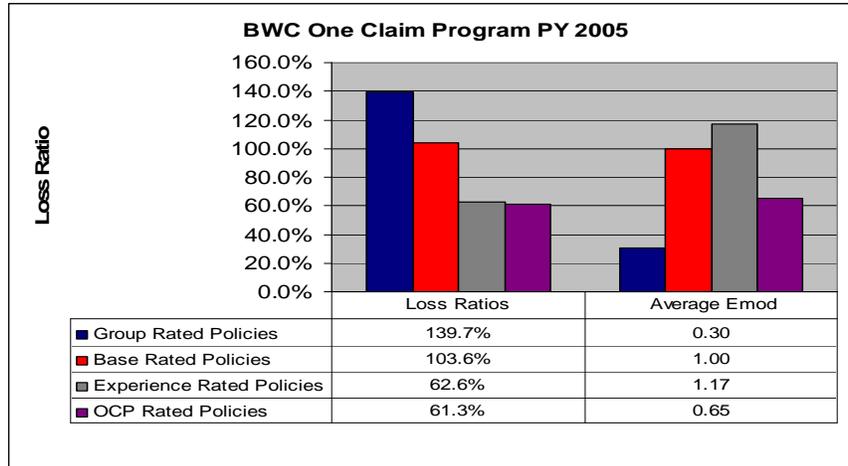
Participation for PEC policies was higher than PA policies, but overall was between 6% and 8% annually. However, unlike PA policies, the participation in PEC was larger for non-group rated policies than group rated policies.

One Claim Program (OCP)

The OCP is required by Ohio Revised Code and was begun in 2005 for PA policies that were participating in group rating but were not renewed due to the impacts of one significant claim in the experience period. For these policies, a set premium discount, currently 40%, is provided for up to four consecutive policy periods.

Given the immaturity of the losses from the more recent policy periods, we could only obtain reliable indications by examining the loss ratios of policy year 2005. The following table shows the results of our comparison of the loss ratios and average e-mods for OCP participants against the rest of the PA policies in policy year 2005.

As shown in the chart below, the loss ratio for OCP rated policies compares favorably to experience rated policies, and is significantly better than base rated and group rated policies. However, we feel there is insufficient data as yet to draw conclusions. We note that the 40% credit is much larger than those offered for comparable programs in other states.



Safety Council Program (SCP)

We understand that SCP operates in a manner different than the other discount programs in that it is a retrospective credit where participants receive a 2% reduction in their premium after fulfilling the various eligibility requirements. In addition, a 2% performance bonus is awarded to participants who reduce their frequency or severity by 10% or more the previous year. For policy years 2004 and 2005, the participation was very low, 0.5% for 2004 and 1.1% for 2005.

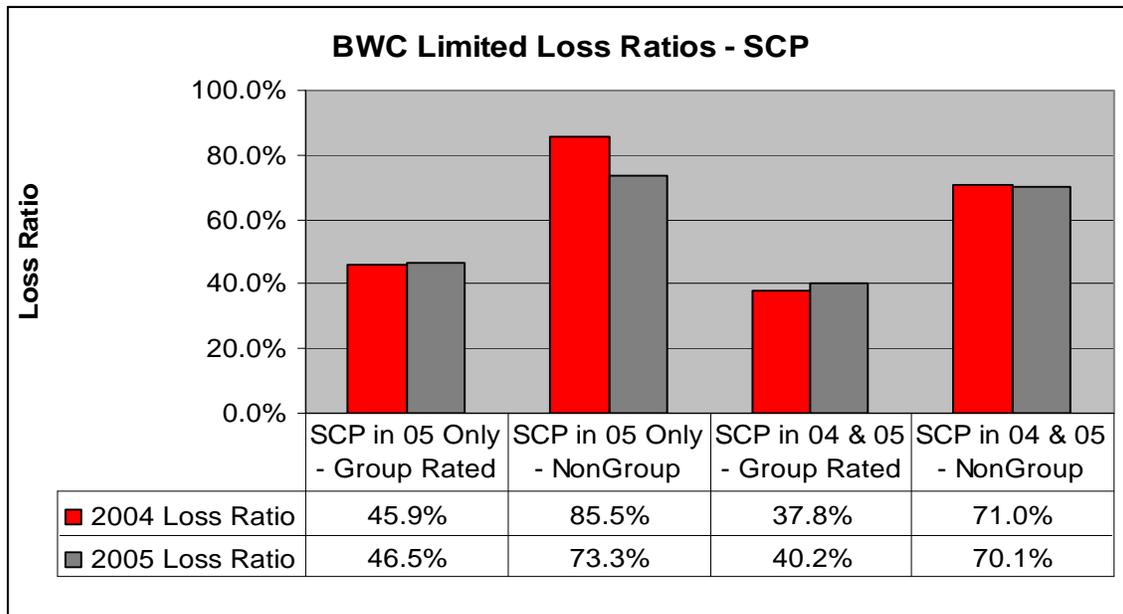
To determine if an additional 2% reduction in premium is warranted, frequency is calculated by the ratio of the product of the number of claims reported in the measurement year to the employer's total reported payroll (in millions) for that year. This definition is intuitive, but it does have potential flaws. The calculation amounts to a report year frequency, as it measures the number of claims that report in the current policy period, rather than the number of claims that occur in the policy year being measured. As the discount is based upon a comparison of consecutive years, both using the same methodology, the flaw is not likely to be significant for policies that have a long history. However, for policies with little to no history, claim frequency as calculated in this manner may be distorted by claims reported from incidents in prior policy periods.

Severity for this additional discount is calculated by the product of number of days absent from claims during the measurement year, divided by the payroll (in millions) for the year. Similar to the frequency component, this calculation is potentially flawed. First, the severity is analogous to a calendar year severity, not a policy year severity. Claims from the four years prior that persist to the current policy year are considered in this calculation and may distort the average. Second, the severity is not based on dollars; rather it is based upon days absent. The following table illustrates this point:

	Claims Prior Year	Claims Current Year	Change	% Change
# days absent	30	21	(9)	-30%
Claim Amounts	\$5,000	\$10,000	\$5,000	50%
Payroll	\$1 million	\$1 million	\$0	0%
# Claims	1	1	0	0%
Severity – SCP calculation	30	21	(9)	-30%
\$ Severity	\$5,000	\$10,000	\$5,000	100%

In this scenario, a discount would be given to the employer because the number of days absent has decreased. However, the dollar severity, which is the true cost to the BWC, has increased.

We examined the loss ratio, prior to the impacts of experience rating, for policies in 2005 that participated in the SCP in policy year 2005 only, as well as participated in policy year 2004 and policy year 2005 for PA policies only. We have also refined this analysis to separate group rated policies from non-group rated policies. The intent is to determine if the program has a decreasing impact on the loss ratio.



For policies that participated only in policy year 2005, the loss ratios show mixed results. Group rated policies did not see an improvement in loss ratio in 2005 as a result of participation in the SCP. In fact, the loss ratio worsened by 0.6%. Conversely, non-group rated policies experienced over a 12% better loss ratio. The observed 12% better non-group loss ratio is not likely to be attributable solely to participation in the SCP. There should be some observable lag in the loss ratio to account for the time needed to implement any “best practices” that may arise from SCP meetings.

To measure, in part, the potential impact of SCP, we also examined the loss ratios from policies in policy year 2005 that participated in both policy year 2004 and policy year 2005. The pattern observed for policies participating only during policy year 2005 holds for policies that participated in both policy years. Group rated policies exhibited a worse loss ratio by 2.4%, whereas non-group rated policies experienced a better loss ratio by 0.9%.

Participation for the SCP is also very low. In policy year 2004, only 1,793 policies participated in SCP. This amounts to 0.5% of the almost 359,000 policies in the year. During policy year 2005, the amount of participation more than doubled, to 3,841 policies, about 1.1% of the approximately 367,000 policies in the year.

Conclusions

Findings

Individual Experience Rating

Based on our analysis of the individual experience rating process, we have the following observations:

- Credibility assigned to individual risk experience is higher than is typically seen in other states.
- Application of off-balance to class rates is standard NCCI practice, but typical off-balance factors in other states are very close to 1.0 in contrast to Ohio where the off-balance factor is approximately 1.5 for private employers.
- Certain rules and programs specific to Ohio result in the exclusion of claims, or portions of claims, from the experience rating process. These exclusions include handicap relief, salary continuation, and the 15K medical-only program. These rules are not standard industry practice, potentially erode the effectiveness of experience rating, and contradict a key underlying premise of experience rating by ignoring the excluded claims.
- Despite inconsistencies with industry practice, our analysis indicates that the Ohio individual experience rating plan appears to meet the two basic tenets of experience rating when the experience rating formula is applied to individual employers only (removing the impact of group rating).

Group Rating

- The group experience rating process is inconsistent with the basic tenets of an experience rating plan, as it creates greater dispersion and instability.
- Given that the individual experience rating formula, when applied to groups, produces results that are inconsistent with the basic tenets of experience rating, a different approach to group rating is indicated.
- We are unaware of any other state that has a program which functions similarly to group rating as it exists in Ohio.
- The turnover of groups is very high.
- This lack of stability is indicative that groups are functioning poorly.
- Studies of BWC's group rating program have consistently demonstrated that applying the individual experience rating formula to group experience has resulted in significant under-prediction of losses for groups.
- A split experience rating plan, with lower credibility assigned to group experience compared to the current plan, will mitigate some of the inequity currently produced by group rating.
- However, a split plan shares the same basic flaw as the current plan in that it applies a formula designed for an individual employer to a group of employers.
- The opportunity to manipulate the composition of a group in order to maximize discount will still be present under a split rating plan structure, and inequity will persist.
- Differences in the loss experience of individual employers are largely driven by the differences in the behavior of the management and employees of each employer, in terms of employee selection and training, safety programs, operating procedures, accident prevention, risk controls, etc. Such behaviors directly affect the frequency and severity of work injuries. Experience rating is a good predictor of future losses for an employer, because prior loss experience reflects an employer's oversight of such behaviors.

- A group of employers will not have the same management influencing such behavior, and therefore an individual experience rating formula applied to a group is not generally predictive of future losses for that group, regardless of similarities in type of business and prior loss experience of the group members.
- Studies of BWC's group rating program have consistently demonstrated that applying the individual experience rating formula to group experience has resulted in significant under-prediction of losses for groups.
- The poor performance of the individual experience rating formula when applied to groups is evidence of the flaws in the current approach to group rating, and indicates a need for a different approach to group rating, if some type of group rating is to be retained.

Discount Programs

- The discount programs offered in the state of Ohio are generally similar to those offered in other states.
- The magnitude of the credits available under these programs in some cases is out of line with other states. As an example, in the state of Washington, an employer with no compensable claims during the three year experience period used for experience rating can potentially earn a discount from 10-40%.
- Programs that are effectively designed, maintained, and monitored can have a positive impact on safety and rehabilitation of injured workers. Other possible programs could be considered such as a merit rating program which are offered in several states and provide a rate credit, usually for smaller policyholders for loss free experience.
- Participation in the discount programs is relatively low, both for PA and, for the applicable programs, PEC.
- The loss ratios for participants in the discount programs are higher than for non-participants, indicating that the programs are not functioning effectively. Consequently, BWC incorporates in the ratemaking process a rate change factor, a component of which is to adjust for "premium slippage". Premium slippage is charged to all policyholders to account for more rate discount being provided to program participants than is actuarially indicated from the resultant change in participants' loss ratios.
- OCP participants in the 7/1/05-06 policy period are producing loss ratios that compare favorably to experience rated policies. However, there are only a small number of participants in this program, and as such, no strong conclusions can be drawn.
- The safety council program, which offers a relatively low discount, has low participation to date and has not demonstrated a clear positive or negative impact on loss experience for those employers who have participated.

Performance Assessment

The following scoring method was used to assess the performance of this area:

	Strongly supports system performance
	Supports system performance
	Some support for system performance
	Some opportunity for system performance change/enhancement
	Significant opportunity for system performance change/enhancement

Our performance assessment for experience rating is as follows:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Experience Rating				

Peers and Industry Standards Considered
NCCI, State of West Virginia, Other State Funds, Actuarial Standards of Practice.

Recommendations

Group Rating

A group rating program should have a primary focus on safety, preventing injuries, and mitigating severity of work injuries. However, the current group rating formula has led to:

- Behaviors focused on achieving the maximum group credit
- Retaining “Loss-free” employers in groups
- Excluding employers from groups if their losses impact the group credit
- Churning of employers to different groups, new groups, or out of groups, driven by group rating impact
- Programs such as \$15,000 Medical Only and Salary Continuation, to keep claims out of group rating
- The One Claim Program, driven by reducing the premium impact between group and non-group status
- Our recommendations related to group rating are:
- Change the structure of group rating to mitigate the present inequities.
- Provide appropriate incentives for groups to focus primarily on accident prevention and loss mitigation activities.
- Eliminate the use of the individual e-mod formula for group rating.
- Determine group rating through the use of a group discount factor.
- Establish a minimum number of years of experience for a group to qualify for a discount factor, e.g. 3 years.
- Develop a group discount formula based on the past performance of each group, with the goal of achieving equity between group rated and non-group rated employers, and equity between different groups.
- Apply a separate group rating off-balance adjustment to the group discount factors, rather than applying an overall off-balance adjustment to all employers through class rating.
- Develop the group discount factor based on the actual past performance of each specific group.
- In determining the group discount factor, include the experience of all group members only during the period when they were in the group, including members who leave the group.
- Apply the group discount factor to the individual e-mod adjusted premium of each member of the group.
- Develop a group discount formula simpler than an e-mod formula, based on a loss ratio or loss rating approach.
- Vary the maximum discount factor with the premium size of the group, reflecting the credibility of the group size, but without a credibility formula.
- Apply a phase-in period of at least two years to new group members prior to receiving the full group discount, e.g. 1st year 25%, 2nd year 50%.

- Evaluate possible alternatives for group rating:
 - **Group dividend plan**, in which dividends are credited to group members based on the actual profits generated by the group. Both new and established groups could be eligible for such a program.
 - **Group retro plan**, in which premiums are adjusted upward or downward within certain limits depending on the actual loss experience of the group.
 - **Per accident loss limitations (optional at different amounts)** for any group rating program, in which large losses are capped before being used in group rating.
 - **Tiering** within a single group, with varying discounts by tier, where the average discount over all tiers equals the total discount for the group.

Experience Rating

- Change the credibility associated with an individual employer's experience to be in line with industry practices; for example through a split rating plan.
- Change the rules to prohibit the exclusion of claims from the experience rating calculation, particularly salary continuation and the 15K medical only claims, which is in line with industry practice.

Impact

The impact (high, moderate, or low) of these recommendations as they relate to the overarching themes is shown in the following table:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Change the Structure of the Group Rating Program				
Change Credibility for Individual Experience to be In Line with Industry Practices				
Prohibit Exclusion of Claims from Experience Rating Calculation				

MIRA II

The Situation

Task Background

RFP Task Reference	RFP Task Description	Task Category
Section 5.1.2 #12, page 13	Review and make written recommendations on the reserving methodology used in the ratemaking process. This evaluation would include a review of the current MIRA reserving system, an evaluation of the new MIRA 2 system expected to be implemented in 2008, and alternative reserving methodologies that can be incorporated into the BWC experience rating system which will make the system more transparent. This evaluation would include the practice of reducing reserves due to certain compensation payments or the non-reserving of claims due to certain injury types.	Pricing and Programs

This section of the report includes our review of MIRA and MIRA II. Certain aspects of this task have been addressed in the experience rating section, and we will not revisit these items here. These include commentary on BWC’s practice of reducing or excluding the reserves related to certain claims in the experience rating process. The primary objectives of our review of MIRA and MIRA II include:

- Understand the potential impact of the transition from MIRA to MIRA II on the aggregate incurred value of claims
- Provide recommendations on potential alternatives to using MIRA II for the case reserve process
- We note that BWC has made a concerted effort to make the transition from MIRA to MIRA II as transparent as possible to its stakeholders. Much of the material provided to us is available to all interested parties on BWC’s website.

Methodology

Completion of our analysis of MIRA and MIRA II involved the following activities:

- Review of the material provided by BWC related to the transition from MIRA to MIRA II – this material is available on BWC’s website
- Discussions with BWC on the potential impact of the transition to MIRA II
- Discussions with representatives from Fair Isaac, who created the MIRA tool
- Consideration of claims practices in the industry

Primary Constituents

- **BWC Actuarial** – reviews MIRA reserves, implements rules on exclusion or reduction of reserves for certain claim types in the experience rating process
- **BWC Employers** – premium rates are impacted by MIRA reserves in experience rating and class rating process

Information and Data Gathered

Interviews

We met with several members of BWC's actuarial and underwriting functions to discuss MIRA and MIRA II. These members included:

- Chief Actuary – Actuarial Department
- Director - Actuarial Department
- Assistant Director - Actuarial Department
- Actuarial Supervisors - Actuarial Department
- Executive Director - Employer Management

In addition, we discussed the expected impact of transition from MIRA to MIRA II with representatives from Fair Isaac.

Information Provided

The primary sources of information used in our analysis included:

- Fact Sheet: Understanding MIRA II
- Differences between MIRA II and MIRA I
- Presentation from BWC to Employer Representative Workgroup

Review and Analysis

Analysis

MIRA II is a system that is designed to predict the cost of an individual claim based on the facts associated with a claim that are available at the time of the valuation. This prediction does not reflect any consideration of how claim values tend to develop in the aggregate as more facts emerge. The present MIRA system used by BWC is designed to assign a value to individual claims, where the values include consideration of the overall ultimate cost of all claims in the aggregate. The impact of MIRA II on class rating or experience rating is not known at this time.

MIRA II predicted case value accuracy at the claim level is expected to improve with greater use of BWC historical data. However, as with all system-generated predictive values, MIRA II is potentially weak in the determination of reasonable case reserve values in catastrophic cases due to limitations of BWC's historical claims database. For example, workers' compensation claims systems do not typically capture sufficient information about injured worker co-morbid health conditions that can significantly impact medical costs and life expectancies, both critical factors in estimating future costs.

Conclusions

Findings

Based on our analysis of MIRA and MIRA II, we have the following comments:

- The switch in emphasis from accuracy at the aggregate level (MIRA I) to accuracy at the individual claim level (MIRA II) is likely to result in transitional effects that are potentially problematic for BWC.
- Our expectation is that the total aggregate incurred value of claims under MIRA II is likely to be significantly lower than the total aggregate incurred value of the same set of claims under MIRA I, as individual claim reserving tends to lead to under-estimation of the total ultimate values of claims in the aggregate (this is true throughout the industry).
- Individual policyholders will experience changes in claim reserves for injured workers which will affect class, group and individual experience rating. These rating elements are likely to require adjustments to account for the change to MIRA II case values, in order to maintain the actuarial soundness of the Ohio workers compensation system.
- While the MIRA system predicts objectively, it lacks the value of the human element of informed and expert judgment for particular claim circumstances. The use of case reserves from a predictive model is not an industry standard practice for setting case reserves and making settlements.
- Standard industry practice is to utilize experienced claims adjusters to set case reserves, and use tools, such as MIRA II, as part of managing claims, particularly for large or unusual claims, and claims above some threshold, such as \$50,000 or \$75,000.

Performance Assessment

The following scoring method was used to assess the performance of this area:

	Strongly supports system performance
	Supports system performance
	Some support for system performance
	Some opportunity for system performance change/enhancement
	Significant opportunity for system performance change/enhancement

Based on this scoring method, our performance assessment for the use of MIRA II reserving is as follows:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
MIRA II Reserving				

*Given the recent introduction/implementation of MIRA II, we cannot assess its transparency at this time. Therefore, the Transparency category is not rated.

Peers and Industry Standards Considered
Other State Funds, Industry Practices.

Recommendations

The following recommendations address the opportunities identified above, listed in prioritized order:

- Develop a long term alternative which uses MIRA II, or other claim predictive model, in conjunction with other processes and/or products to manage claims, in addition to being a means to set case reserve values. MIRA II could be used as input for managing claims, negotiating settlements and setting benchmarks for case reserve values.
- Determine where MIRA II claim values are most predictive, e.g. certain smaller, high volume claims, and determine a process for input from professional adjusters to best manage claims and to adjust the claim values.
- Study the impact of new MIRA II claim reserves on class rates and on group and individual experience rating.

Impact

- The impact (high, moderate, or low) of these recommendations as they relate to the overarching themes is shown in the following table:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Develop an Alternative to the Exclusive Use of MIRA II				
Determine Where MIRA II Claim Values are Most Predictive				
Study the Impact of MIRA II Reserves on Class Rates and Experience Rating				

Salary Continuation and the \$15,000 Medical Only Program

The Situation

Task Background

RFP Task Reference	RFP Task Description	Task Category
<p>Section 5.1.2 #22, page 14</p>	<p>Conduct a study on the payment of salary continuation by employers in lieu of temporary total compensation. This study would include an evaluation of the reserve calculation to determine if the premium collected by the BWC is appropriate for the liability presented and an evaluation to determine if salary continuation is a cost effective for employers. Conduct a study on the \$15,000 medical only program. This study would include an evaluation of the reserve calculation for claims in this program and an evaluation to determine if the premium collected by the BWC is appropriate, and if the program is a cost effective program for employers.</p>	<p>Pricing and Programs</p>

This section of the report includes our review of the salary continuation and the \$15,000 medical only programs. Certain aspects of this task have been addressed in the experience rating section, and we will not revisit these items here. These include commentary on BWC’s practice of reducing or excluding the reserves related to certain claims in the experience rating process.

Methodology

Completion of our analysis of the salary continuation and \$15,000 medical only programs involved the following activities:

- Review of the material provided by BWC related to these programs.
- Discussions with BWC on the programs.

Primary Constituents

- **BWC** – reviews information submitted by employers who choose to participate in these programs
- **BWC Employers** – experience rating is affected by participation in these programs

Information and Data Gathered

Interviews

We met with several members of BWC's actuarial and underwriting functions to discuss salary continuation and the \$15,000 medical only program. These members included:

- Chief Actuary – Actuarial Department
- Director - Actuarial Department
- Assistant Director - Actuarial Department
- Actuarial Supervisors - Actuarial Department
- Executive Director - Employer Management

Information Provided

The primary sources of information used in our analysis included:

- BWC Policies for salary continuation and \$15,000 medical only program, available on the BWC website
- Database provided by BWC with information on incidence of salary continuation
- Internal Audit report for the Salary Continuation Program, February 2007

Review and Analysis

Analysis

The salary continuation program allows employers to pay an employee their full salary while on disability in lieu of temporary total benefits. While this program is potentially beneficial to an injured worker, it also results in a situation which could effectively preclude a monetary motivation for the employee to return to work. In addition, paying full salary benefits increases overall claim costs for an employer and does not contribute to the effectiveness of the Ohio workers' compensation system in terms of reducing injuries or controlling costs to the employer. Thus, this program has a potentially negative effect on productivity and the Ohio economy.

The \$15,000 medical only program is unique to the State of Ohio. Varying levels of claims handling efficiency may be seen at different employers; this creates variability in how medical management techniques are applied, if at all, to these claims. Since the \$15,000 medical only program allows employers to exclusively manage their medical only claims up to the value of \$15,000, it precludes any efficiencies and potential cost mitigation to be realized through the application of early intervention techniques by the BWC. By the time a claim reaches the \$15,000 threshold and is transferred to the BWC, any missed opportunities for cost reduction through the use of early intervention and effective claim management techniques may adversely impact the overall claim value.

We found that there was little information available to review the extent to which salary continuation or the \$15,000 medical only programs influences overall costs. As such, our findings and recommendations are based on a qualitative review of the programs.

These programs allow employers to avoid reporting the employer's actual costs for these programs. Additionally, employers with these programs can affect their group rating or experience rating because these costs are excluded from the rating calculations. This clearly impacts the effectiveness of the rating programs unless those rating programs are changed to offset the cost of claims that have been eliminated from the employer's experience used for rating.

Conclusions

Findings

Based on our analysis of these programs, we have the following comments:

- By paying full salary and providing a disincentive for employees to return to work, the salary continuation program appears to be detrimental to Ohio's economic system. As such we recommend terminating the program.
- Payment of full salary, instead of temporary total limited benefits, increases costs to the employers in the State overall.
- Use of the salary continuation program does not contribute to the financial stability of the Ohio workers' compensation program, since the salary continuation benefits are not considered in estimating the BWC's claims costs or reserve estimates; as such, the temporary total reserve estimates could be understated.
- The total cost of claims within this program is not directly known by BWC - any quantitative evaluation of the programs is very limited.
- There are inherent costs incurred by the BWC by offering this type of program. Loss of certain claim economies is highly likely
- For the \$15,000 medical only program, there are limited reporting requirements. Thus the dollars paid within this program is not known by BWC.
- Both programs can significantly impact the group or experience rating calculations for employers. While this may seem to be an advantage for employers who seek to eliminate claims from their rating calculations, in actuality removing such claims from the ratings simply weakens the basis for providing an appropriate e-mod for an employer and can result in rating inequities between employers.

Performance Assessment

The following scoring method was used to assess the performance of this area:

	Strongly supports system performance
	Supports system performance
	Some support for system performance
	Some opportunity for system performance change/enhancement
	Significant opportunity for system performance change/enhancement

Based on this scoring method, our performance assessment for the salary continuation and the \$15,000 medical only programs is as follows:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Salary Continuation and \$15,000 Medical Only Programs				

Peers and Industry Standards Considered
State Funds; Industry Practices.

Recommendations

The following recommendations address the opportunities identified above, listed in prioritized order:

- In the salary continuation program, by paying full salary and providing a disincentive for employees to return to work, this program appears to be detrimental to Ohio’s economic system. As such we recommend terminating the program.
- The \$15,000 medical only program does not appear to offer any appreciable benefits to employers or the BWC. As such we recommend terminating the program.
- An appropriately priced deductible program may serve as a reasonable alternative to employers who are interested in self-insuring a portion of their exposure to losses. A deductible program should include full reporting of claims information for all claims, including claims below the deductible amount. Also, the management of deductible claims should be comparable to all other claims.

Impact

The impact (high, moderate, or low) of these recommendations as they relate to the overarching themes is shown in the following table:

	Effectiveness & Efficiency	Financial Strength & Stability	Transparency	Ohio Economic Impact
Terminate the Salary Continuation Program	High Impact (Orange Arrow)	High Impact (Orange Arrow)	Low Impact (White Arrow)	High Impact (Orange Arrow)
Terminate the \$15,000 Medical Only Program	High Impact (Orange Arrow)	High Impact (Orange Arrow)	Low Impact (White Arrow)	High Impact (Orange Arrow)
Consider an Appropriately Priced Deductible Program as an Alternative	Low Impact (White Arrow)	Low Impact (White Arrow)	Low Impact (White Arrow)	High Impact (Orange Arrow)

The Deloitte Consulting team is available to clarify or amplify any issues raised in this report. We express our appreciation for BWC process constituents’ time, effort, and guidance in completing this integral task of our comprehensive study.

Appendix A – Deliverable Matrix

Group 1 Study Elements

Pricing Process
Statewide Rate Level
1) Data
a) Data quality and reliability
b) Experience period
c) Credibility
d) Payroll information
e) Paid versus incurred data
2) Methodology
3) Use of Reserves
4) ELR Comparison
5) Other
Class Ratemaking
1) Private Employer
2) Public Employer Taxing District
3) Rating Rules and Laws
Experience Rating
1) Grouping of employers for experience rating
2) Individual Experience Rating
3) Use of MIRA II
4) Possible Alternatives
Self-Insurance
1) Approval Process
2) SIEGF Assessments
3) Surplus Fund Assessments
4) Return to BWC
Programs
1) Premium Discount Program
2) Drug Free Workplace Program
3) Safety Council Program
4) One Claim Program
Alternative Pricing Methods

Cost Controls
Subrogation
\$15,000 Medical Only Program
Salary Continuation

Financial Provisions
SIEGF
1) Sufficiency Requirements
2) Contribution Calculation Methodology

Pricing Process Areas

Statewide Rate Level	Tasks Involved
1) Data a) Data quality and reliability b) Experience period c) Credibility d) Payroll information e) Paid versus incurred data	1. Review and make written recommendations with regard to the private employer premium and public employer taxing district rate calculations. This review would include a complete analysis of the rating program including but not limited to the experience period, the credibility tables used, loss information including quality and reliability of the data, payroll information, the off-balance calculation, the expected loss rates, the grouping of employers for experience rating, the use of reserves in the rate calculation, the payroll inflation factors, rating rules and laws, the transparency of the rate making process, and all rating calculations. This analysis should compare the BWC's rating calculation to industry standards, other state insurance funds and monopolistic state insurance funds, actuarial ratemaking principles as promulgated by the Casualty Actuarial Society, and the Actuarial Standards of Practice promulgated by the Actuarial Standards Board of the American Academy of Actuaries.
2) Methodology	
3) Use of Reserves	12. Review and make written recommendations on the reserving methodology used in the rate making process. This evaluation would include a review of the current MIRA reserving system, an evaluation of the new MIRA II Reserving system expected to be implemented in 2008 and alternative reserving methodologies that can be incorporated into the BWC experience rating system which will make the system more transparent. This evaluation would include the practice of reducing reserves due to certain compensation payments or the nonreserving of claims due to certain injury types.
4) ELR Comparison	24. Conduct a study of the loss rates and base rates of the Ohio BWC as compared to other states. This study would evaluate the trends in Ohio as compared to industry peers.
5) Other	1. See above.

Pricing Process Areas - continued

Class Ratemaking	Tasks Involved
1) Private Employer	1. Review and make written recommendations with regard to the private employer premium and public employer taxing district rate calculations. This review would include a complete analysis of the rating program including but not limited to the experience period, the credibility tables used, loss information including quality and reliability of the data, payroll information, the off-balance calculation, the expected loss rates, the grouping of employers for experience rating, the use of reserves in the rate calculation, the payroll inflation factors, rating rules and laws, the transparency of the rate making process, and all rating calculations. This analysis should compare the BWC's rating calculation to industry standards, other state insurance funds and monopolistic state insurance funds, actuarial ratemaking principles as promulgated by the Casualty Actuarial Society, and the Actuarial Standards of Practice promulgated by the Actuarial Standards Board of the American Academy of Actuaries.
2) Public Employer Taxing District	
3) Rating Rules and Laws	

Pricing Process Areas - continued

Experience Rating	Tasks Involved
1) Grouping of employers for experience rating	6. Review and make recommendations to enhance the equity of the experience-rating system and the resulting rates (public and private), including, but not limited to, discounts and dividends. This review would include analysis of the Drug Free Workplace program, the One Claim Program, the Premium Discount Program, the group rating program, and the safety council program. The analysis should include a study of the cost effectiveness of each program and an evaluation of each program with respect to industry standards.
2) Individual Experience Rating	
3) Use of MIRA II	
4) Possible alternatives	

Pricing Process Areas – continued

Self-Insurance	Tasks Involved
1) Approval Process	19. Evaluate the selection criteria used for self-insured employers. This evaluation would include the application of rules and laws in determining the employer's ability to manage and fund a self-insured program. The analysis will include suggestions for the financial evaluation performed upon application and the use of guarantees and securities to protect the Self-Insured Guaranty Fund (SIEGF).
2) SIEGF Assessments 3) Surplus Fund Assessments	11. Review and make written recommendations with regard to assessments for self-insured employers for the surplus fund and for the Self-Insuring Employers' Guaranty Fund. This review would include an analysis on the loss history used for the calculation, the paid compensation basis, the projected payout, and the methodology used to calculate the assessment rates.
4) Return to BWC	18. Evaluate the BWC rules, laws, policies and procedures for rating an employer who is self-insured and desires to return to the state insurance fund. This evaluation would include the experience modifier selected, the use of self insured experience, and the future liability for Ohio.

Pricing Process Areas – continued

Programs	Tasks Involved
1) Premium Discount Program	6. Review and make recommendations to enhance the equity of the experience-rating system and the resulting rates (public and private), including, but not limited to, discounts and dividends. This review would include analysis of the Drug Free Workplace program, the One Claim Program, the Premium Discount Program, the group rating program, and the safety council program. The analysis should include a study of the cost effectiveness of each program and an evaluation of each program with respect to industry standards.
2) Drug Free Workplace Program	
3) Safety Council Program	
4) One Claim Program	

Pricing Process Areas – continued

	Tasks Involved
Alternative Pricing Methods (Described throughout)	35. Identify methods of rate setting and reserving, in addition to those already contemplated otherwise in the RFP that the administrator could use to make the rate setting and reserving process more transparent for employers and employees.

Cost Controls Areas

	Tasks Involved
Subrogation	8. Review and make written recommendations on the subrogation standards applied by the BWC. This review would include a review of legislation, the BWC subrogation collection process, the application of subrogation receipts to individual employer's experience, and the assigning of subrogated claims to individual employers.

Cost Controls Areas – continued

	Tasks Involved
\$15,000 Medical Only Program	<p>22. Conduct a study on the payment of salary continuation by employers in lieu of temporary total compensation. This study would include an evaluation of the reserve calculation to determine if the premium collected by the BWC is appropriate for the liability presented and an evaluation to determine if salary continuation is a cost effective for employers. Conduct a study on the \$15,000 medical only program. This study would include an evaluation of the reserve calculation for claims in this program and an evaluation to determine if the premium collected by the BWC is appropriate, and if the program is a cost effective program for employers.</p>

Cost Controls Areas – continued

	Tasks Involved
Salary Continuation	<p>22. Conduct a study on the payment of salary continuation by employers in lieu of temporary total compensation. This study would include an evaluation of the reserve calculation to determine if the premium collected by the BWC is appropriate for the liability presented and an evaluation to determine if salary continuation is a cost effective for employers. Conduct a study on the \$15,000 medical only program. This study would include an evaluation of the reserve calculation for claims in this program and an evaluation to determine if the premium collected by the BWC is appropriate, and if the program is a cost effective program for employers.</p>

Financial Provisions Areas

SIEGF	Tasks Involved
1) Sufficiency Requirements	20. Evaluate the SIEGF sufficiency requirements and recommend criteria to be used for determining the methodology for the Administrator to establish self insured employers contributions to the SIEGF pursuant to Ohio Revised Code 4123.351. This analysis would include analysis of the BWC's historical funding of the SIEGF and recommendations for funding the SIEGF particularly whether the fund should be pre-assessment or post-assessment.
2) Contribution Calculation Methodology	

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