State of Missouri – Department of Insurance, Financial Institutions, and Professional Registration

Review of Workers' Compensation Loss Cost Filing by National Council on Compensation Insurance effective January 1, 2009

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Purpose & Scope

The State of Missouri Department of Insurance, Financial Institutions, and Professional Registration (the "Department" or "DIFP") engaged Expert Actuarial Services, LLC ("EAS") to perform an actuarial review of the Missouri workers' compensation loss costs filed by the National Council on Compensation Insurance ("NCCI") effective January 1, 2009.

The engagement called for:

- An examination of calculations and assumptions used by NCCI in the filing and in related or supplemental information provided by NCCI (or other parties) – listed in the Data section of this report,
- An independent assessment of certain components of the loss cost filing (determined during the analysis) that influence indicated loss cost levels,
- Quantification of the impact on loss costs where changes in NCCI's methods or assumptions were warranted,
- Compilation of such elements into an overall loss cost indication, and
- Production of a report indicating and supporting findings from the analysis.

Among the components of NCCI's loss cost filing that are ***included within the scope*** of my review are loss development, frequency and severity trend, impact of benefit level and relevant law changes, data segregation (e.g., medical versus indemnity, policy-year versus accident year, and number of years of experience), and the actuarial methods and parameter selections adopted by NCCI. Each of these components contributes to the overall indicated loss cost levels.

Other components of the loss cost filing were considered ***outside the scope*** of my review. Examples include: allocation of the overall loss cost change to various categories of risks (e.g. industry groups such as manufacturing, contracting, office & clerical); setting of loss costs for individual class codes; and identification of indicated loss costs for special groups such as F-classifications or coal mine workers.

Distribution and Use

This report and the opinions and conclusions contained herein were prepared for the use of the Department for the purpose of evaluating Missouri workers' compensation loss cost levels effective January 1, 2009 as derived by the National Council on Compensation Insurance and developing independently-derived loss costs and may not be suitable for any other purpose.

This document presents my findings and analysis. The exhibits and other documents attached in support of my analysis and findings are integral parts of this report. This report has been prepared so that my actuarial assumptions and judgments are documented. Judgments about the conclusions drawn in this report should be made only after considering the report in its entirety. I remain available to answer any questions that may arise, and I assume that the user of this report will seek such explanation on any matter in question.

Findings & Conclusions

Results

Based on my review of NCCI's loss cost filing and technical supplement and various other related documents, communications with NCCI personnel, and my review of NCCI's responses to my requests and inquiries, I believe that NCCI's loss costs effective January 1, 2009 meet the standards of Missouri law and are based on generally appropriate data, methods, and assumptions. However, as shown in Table 1 below, there are four areas where I believe alternative assumptions (and an alternative data-set selection) are more appropriate and which yield different indicated loss cost level results. These four areas are listed below in *"Key Findings"* and are discussed in detail within the Analysis section of this report.

In total, my findings combine to yield indicated loss costs that are 9.1% below NCCI's *proposed* January 1, 2009 advisory loss costs ("ALC"). Alternative trend rate selections are the largest single contributor to the different results derived herein, accounting for 6.8% of the 9.1% total difference. The following is extracted from **Exhibit 1**.

Table 1. Estimated Impact on Indicated Loss Cost Levels of Alternative Assumptions

Item	Estimated Impact
Indemnity and Medical Trend	-6.8%
Senate Bill 1 Impact	-0.1%
Use of Voluntary-Market Data	-1.7%
Missouri DCCE Relativity (Defense & Cost Containment Expense)	-0.5%
Total = Indicated Change to NCCI proposed January 1, 2009 ALC	**-9.1%**

The advisory loss costs derived by NCCI are just one of three sets of loss costs required by Missouri Statute to be distributed by NCCI. A second loss cost set is also produced by NCCI, but the calculations are required to exclude the impact of changing cost levels or "trend". A third set are loss costs resulting from a review performed by or on behalf of the Department. The results derived herein lead to the generation of this third set. Within this report, however, identified differences are expressed relative to NCCI's proposed January 1, 2009 loss costs including trend and to the elements of NCCI's analysis underlying those proposed loss costs.

Another perspective is to look at proposed costs relative to *current* NCCI advisory loss costs – those effective January 1, 2008. Since NCCI's January 1, 2009 ALC are reported by NCCI as being 7.7% below existing ALC, the proposed loss costs stemming from my review are 16.8% below the NCCI ALC that became effective January 1, 2008.

Table 2. Estimated Impact on Indicated Loss Cost Levels of Alternative Assumptions

Item	Estimated Impact
Total = Indicated Change to NCCI proposed January 1, 2009 ALC	**-9.1%**
NCCI proposed change	-7.7%
Total = Indicated Change to existing January 1, 2008 NCCI ALC	**-16.8%**

Key Findings

While I believe that most of the assumptions, methods, and segregations of data employed by NCCI in their derivation of advisory loss costs are reasonable, four areas where I believe alternative assumptions or approaches are more appropriate include the following:

- Trend Rates – Recent experience indicates more favorable trend than used by NCCI.
- Senate Bill 1 – NCCI uses a conservative estimate of the impact of this legislation.
- Statewide versus Voluntary Data – NCCI's use of data that includes assigned risk market experience drives higher results than that based on voluntary-only experience.
- Loss Adjustment Expense – NCCI overestimates Missouri defense and cost containment expense costs.

Each of the above findings involves elements where I believe NCCI's analysis generates advisory loss costs that are too high, and each is discussed below in Analysis Section D, "Key Findings"

Analysis

A. Background

Loss Costs. The following description is from prior years' Loss Cost Filing reviews[1].

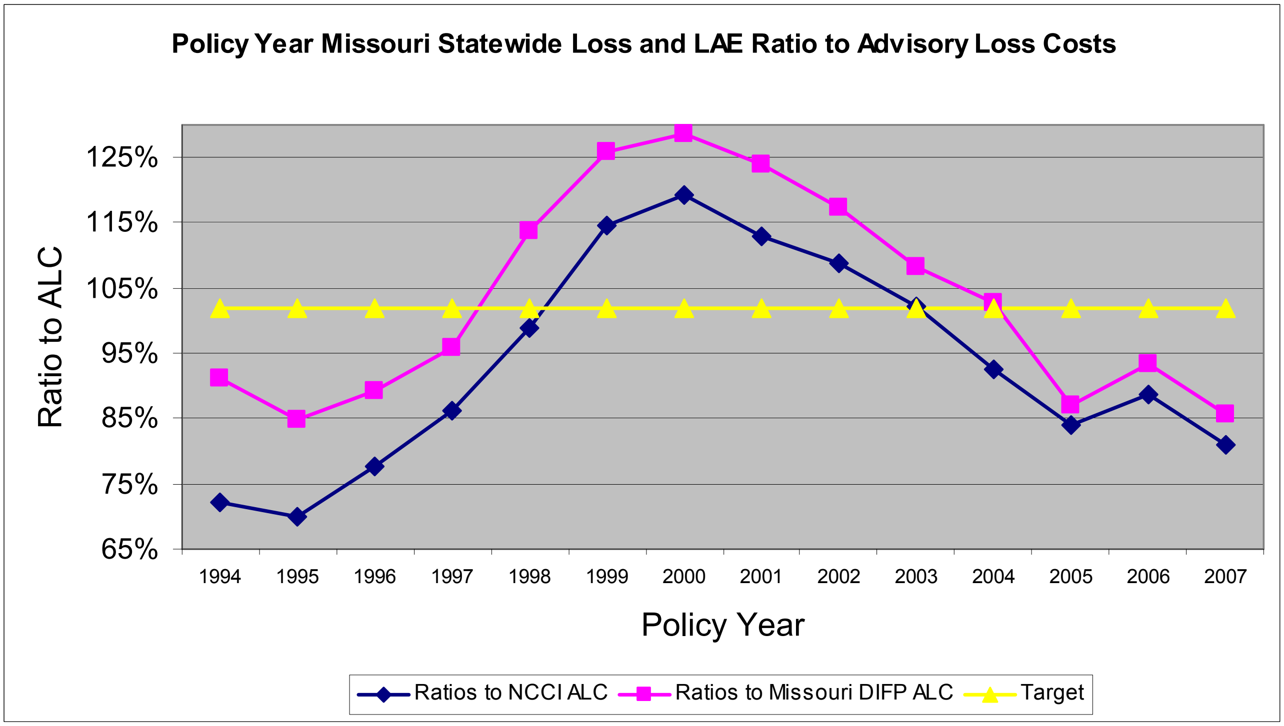
> "Loss costs are used by insurers and self-insurers to establish final workers' compensation insurance premium rates. 'Loss costs' represent the portion of final premiums that will pay the injured workers' expected medical benefits, indemnity (i.e., wage-loss) benefits and associated loss adjustment expenses.
>
> "When setting final premium rates, insurers consider these loss costs, as well as their own past experience, overhead expenses, investment income and a competitive profit provision. In Missouri loss costs are 'advisory' in nature, meaning there is no requirement that they be adopted by insurers. However, insurers typically use advisory loss costs in calculating their final premium rates, usually by applying a 'loss cost multiplier' to those advisory loss costs to achieve their final 'base' premium rates. Licensed insurers then file these final premium rates with the (Department), but these filed rates can be further modified by an insurer based on an individual policyholder's past experience and the policyholder's individual risk characteristics. Loss costs are determined for each of the 600+ business job classification codes recognized in Missouri"

Assignment Background. NCCI's January 1, 2009 Loss Cost filing includes the following language which describes well NCCI's and the Department's roles as regards loss costs and the Missouri filing.

> "The Missouri Insurance Department (MDOI) has designated the National Council on Compensation Insurance, Inc. (NCCI) to collect, validate, and analyze workers' compensation data from insurance companies.
>
> "NCCI collects an extensive amount of information regarding the workers' compensation system in Missouri. Using this information, NCCI develops prospective advisory voluntary loss costs to be effective on January 1st of each year. The NCCI proposal consists of two major components: 1) determination of the overall statewide premium change needed and 2) revision of the classification relativities and assurance that the proposed loss costs do in fact achieve the overall statewide change.
>
> "Based upon the NCCI proposal and supporting information, the MDOI also determines what it believes to be the appropriate loss cost level. Specifically the MDOI makes a recommendation as to the appropriate overall statewide premium change. The MDOI must rely on NCCI to develop the loss costs by classification since NCCI houses the data by classification..."

[1] Originally from the review of 1/1/2006 loss costs prepared by David B. Cox, FCAS, MAAA .

History of Results. NCCI and the Missouri DIFP each derive advisory loss cost levels on a prospective basis. It may be of interest to consider also how well these two sources of advisory loss costs have fared in the past. That is, how close have the historical advisory loss costs come to matching the actual loss and LAE experienced by the Missouri workers' compensation market? The chart below, extracted from attached **Exhibit 7**, Sheet 1, provides a rough scorecard based on data through December 31, 2007.[2]



The following observations may be gleaned from the above chart:

- Loss and LAE ratios relative to advisory loss costs have varied in apparent cyclical fashion, peaking in policy year 2000.
- Ratios to Missouri DIFP advisory loss costs are consistently higher than the ratios to NCCI ALC. This is logical since the Department's advisory loss costs have been consistently lower than NCCI's as revealed by the relativities appearing in **Exhibit 7**, Sheet 1, column (m).

[2] Ratios referenced in this analysis are of loss and LAE (in the numerator) to voluntary-market advisory loss costs (in the denominator). If overall loss costs were established exactly on target, then the target ratio would result which would typically be 100%. Due to the nature of the data referenced, the historical loss and LAE in the numerator is based on statewide rather than voluntary-only experience. As a result, the target ratio is slightly higher than 100%, judgmentally selected to be 102% as shown in the chart.

- Looking at the latest 4 policy years (2004 through 2007), Missouri DIFP advisory loss costs have yielded ratios that seem closer to the target 102%[3] than are the ratios stemming from NCCI's advisory loss costs.[4]
- During the prior 6 policy years (1998 through 2003), when loss and LAE ratios to both sets of loss costs were near to or above 100%, NCCI's advisory loss costs yielded results closer to the target. Before that, the situation was reversed.

Another way of evaluating the historical ALC is to compare the ALC changes indicated by NCCI and Missouri DIFP with an ALC change derived with the benefit of hindsight. Such an analysis appears in **Exhibit 7**, Sheet 2, results from which are summarized in the chart below. For example, NCCI developed advisory loss costs for 2004 that were 1% lower than in 2003, but it turns out that the 2004 ALC yielded a loss and LAE ratio of 93%[5]. Since this was below the 102% target (as per footnote 2 above), NCCI's indicated ALC turned out to have been too high. To achieve that target ratio, 2003 ALC should have been changed by -10 % rather than by NCCI's -1%. Similar information for DIFP and for other years is included in the table below.

Table 3. Actual and Hindsight Indicated Advisory Loss Cost Changes

Policy Year	NCCI	DIFP	Hindsight
1995	-4%	-21%	-34%
1996	-5%	-18%	-28%
1997	-10%	-19%	-24%
1998	-12%	-24%	-15%
1999	-5%	-13%	7%
2000	-2%	-9%	15%
2001	-1%	-9%	10%
2002	0%	-8%	6%
2003	14%	8%	14%
2004	-1%	-11%	-10%
2005	-1%	-5%	-19%
2006	0%	-5%	-13%
2007	-1%	-6%	-21%
2008	-10%	-20%	
2009	-8%	-17%	

[3] See footnote 2.
[4] Policy year 2007 results are based on incomplete partial-year data that has limited credibility at this point.
[5] Shown in Exhibit 7, sheet 2 as 92.6%.

B. Inquiry and Response

During my examination of NCCI's loss cost filing, technical supplement, and other materials provided for my review, I developed several questions and identified the need for additional information[6]. **Appendix 1** lists inquiries and requests and shows NCCI's responses to each. This question and answer dialog represents an important part of my review.

C. Analysis Overview

In performing my analysis, I concluded that, for the most part, NCCI's selected parameters, methods, etc., were reasonable. Examples include NCCI's selected loss development factors, the experience period used to derive indications[7], the segregation of the analysis into indemnity versus medical, the procedures used to derive trend factors and policy year on-level factors, and many other facets of NCCI's analysis. For all of these areas, I have adopted NCCI's methods and assumptions while deriving my own estimate of indicated loss costs.

In instances where I found NCCI's methods or assumptions to be unclear, I inquired further and/or requested additional information. Following from my review of responses to these inquiries, I either determined that NCCI's approach, as clarified, was reasonable, or I concluded that alternative assumptions were more appropriate than those employed by NCCI. Four areas of difference are described in detail in the next section. Quantification of the impact of adopting these alternative assumptions appears in the attached exhibits.

D. Key Findings

Finding 1. Trend Rates – Recent experience indicates a more favorable trend than used by NCCI. In NCCI's Technical Supplement submitted with their loss cost filing, Appendix A-III shows its selection of annual trend factors for indemnity and medical costs based on the latest 5 and latest 8 policy years' data. The historical frequency and severity trend factors shown by NCCI are combined into pure premium trend factors in attached **Exhibit 3** from which the numbers in the table below were extracted. NCCI's selected annual trend factors are 0.950 for indemnity and 1.010 for medical. Both amounts appear somewhat high relative to the historical experience.

[6] Items provided for my review are listed in the "Data" section of this report.
[7] Except for the experience period used in deriving Missouri's DCCE relativity – See Finding 4.

Table 4. Annual Trend Factors
(from Exhibit 3)

	Indemnity	Medical
Policy-year pure premium trend factors (see Exhibit 3 for details)	0.912 0.919 0.919 0.923	0.999 1.024 0.986 0.999
NCCI Selected	**0.950**	**1.010**

Prior to last year, NCCI's loss cost filing included additional historical trend data – information that was provided by NCCI this year upon request (See Appendix 1, page 3, Response 10). This supplemental data is accident-year (as opposed to policy-year) frequency and severity trend information. Combining these components into pure premium trend factors produces a more complete set of historical trend factors as shown in the table below:

Table 5. Annual Trend Factors
(from Exhibit 3)

	Indemnity	Medical
Policy-year pure premium trend factors (see Exhibit 3 for details)	0.912 0.919 0.919 0.923	0.999 1.024 0.986 0.999
Accident-year pure premium trend factors (see Exhibit 3 for details)	0.882 0.893 0.884 0.893	0.959 0.977 0.959 0.970
NCCI Selected	**0.950**	**1.010**
EAS Selected	**0.925**	**0.990**

Including the accident-year trend data provides clearer evidence of annual trend experience that is more favorable (i.e., lower), than implied by the factors selected by NCCI. EAS's selected factors appear to be only a little lower than NCCI's selected factors. However, the factors used in the indicated loss cost calculation are highly leveraged and thus very important. Using the lower selected factors corresponds to indicated loss costs that are 6.8% lower than those derived by NCCI. The note at the bottom of **Exhibit 3** shows and explains the derivation of this impact. For information purposes, and to demonstrate the sensitivity of trend factor selection, the impact of using other slightly different sets of trend factors is also shown in the **Exhibit 3** note.

Factors that are based directly on the selected trend factors are shown in **Exhibit 3** lines (d) and (e). These flow into **Exhibit 2** lines (j) (for indemnity) and (v) (for medical). **Exhibit 2** shows how the selected trend factors and other components of NCCI's analysis combine together to create a bottom line indication – i.e., the final indicated change in loss costs. The first two columns of numbers in the Exhibit shows NCCI's values and calculations which culminate in a result of 0.923 (corresponding to NCCI's –7.7% filed change) shown in **Exhibit 2** row (ae). EAS's calculations using alternative values for trend and other elements appear in the rightmost two columns. These calculations combine to create an indicated change of 0.848 or 0.075 lower than NCCI's indicated change.[8]

<u>Finding 2. Senate Bill 1 – NCCI uses a conservative estimate of the impact of this legislation.</u>

<u>2a. How a law change's impact on loss cost determination evolves over time.</u> After a law change is implemented, how can its impact (actual or expected) on claim costs be reflected in the development of new loss cost levels? *First*, during the time that a law change is still new, say less than one year old, the impact of that law change will typically be separately estimated and included as an explicit adjustment in the loss cost development process. *Second*, for a law change that occurred more than four years ago, its impact is implicitly reflected in the base of data examined during the development of loss cost levels. That is, no explicit adjustment is needed to recognize the impact of the law change in such a case since the claims included in the loss cost development already reflect the impact of the given change.

Senate Bill 1, which became effective in late 2005, is between those two ages, more than a year old but less than four years old. As such, its impact on 2009 loss costs is partially reflected as an explicit adjustment, and partially recognized via its actual impact on claims in the experience period whose amounts have been or will be influenced by SB1's provisions. In fact, the portion of the experience period (policy years 2005 and 2006) that precedes SB1's implementation is relatively small. So the impact on loss costs of SB1's *estimated* effect is also quite small.

[8] Finding 3, relates to NCCI's inclusion of Assigned Risk experience in their analysis. This element is separately calculated and not reflected in Exhibit 2 but is included in Exhibit 1.

For clarity, it is important to distinguish between the following concepts:

1. Estimated impact of SB1 on claim costs
2. Actual impact of SB1 on claim costs
3. Impact of SB1 on prospective period loss costs

Using the above numbered concepts to complete this explanation, previously #1 played an important role in #3. During that time, the difference between NCCI's #1 and my #1 had a meaningful effect on #3. Now that SB1 has been in effect for a few years, #2's influence on #3 is much larger. So the difference between NCCI's #1 and my #1 has a fairly insignificant impact on 2009 loss cost levels. In fact, NCCI's #1 (estimated at -1%) and my #1 (estimated at -2%) are each unchanged from prior years. But the effect of these different SB1 estimates on 2009 loss costs is now only 0.1%.

2b. SB1 Impact. The quantification of Missouri Senate Bill 1 was addressed at some length in each of the last three years' reviews of NCCI's loss cost filings and in correspondence between the Department and NCCI. No new analysis was performed regarding Senate Bill 1 as part of this year's loss cost filing and analysis, either by NCCI or by EAS. Rather, within NCCI's indicated loss cost calculations, they have maintained their previously estimated SB1 impact of -1.0%, and I have maintained the estimate I used last year of -2.0%.

As shown in **Exhibit 4**, the impact of my larger (i.e., more downward) estimated impact on indicated loss costs is quite small at only -0.1%. This is shown in the footnote at the bottom of **Exhibit 4**. The factors derived in **Exhibit 4** row (i) feed into **Exhibit 2**, rows (e) and (q).

2c. Prior Discussion Regarding Differing SB1 Impact Estimates. For completeness, the discussion from last year's report regarding Senate Bill 1 is repeated here. No new information is presented, so the rest of this text section (Finding 2) can be skipped by those familiar with last year's report.

The following summarizes the status leading up to the January 1, 2007 loss cost filing.

- As part of the January 1, 2006 filing, NCCI's estimated impact of SB1 was -1.0%.
- Little information was available to assess SB1's expected impact.
- The Department's review included additional analysis of certain provisions and concluded with an estimated impact of -3.6%.

- The Department's review indicated that the NCCI does not typically revisit or reconsider law change estimates. Rather the actual impact is captured later when the new law's provisions are reflected in the loss experience data included within NCCI's loss cost analysis (i.e., several years later).
- The Department recommended that NCCI revisit its SB1 analysis so that the expected impact could be more appropriately reflected in January 1, 2007 loss costs.
- The NCCI responded in a January 13, 2006 letter to the Department's request reiterating its position but saying that it would review its analysis of SB1. Excerpts from NCCI's letter follow.

> "NCCI maintains that additional future impact analysis can not be done in any reliable manner due to the nature of the changes in Missouri Senate Bill 1/130. The impacts associated with this legislation will be dependent on interpretations and decisions that result after disputes make their way through the system. As indicated in our analysis, more savings may be realized as cases work their way through the legal and benefits systems. However, the changes to the compensability language, statute interpretation language and the operations of the administrative system are not quantifiable from a data perspective. In other words, there is no actuarial method that could be expected to accurately predict the effect of these changes given the subjectivity involved in the statute interpretation process." ...
>
> "We realize that others may expect greater savings and may wish to use other methodologies to estimate those savings. At this time, NCCI maintains that the appropriate action for establishing NCCI Missouri loss costs is to allow any savings realized by this legislation to emerge in subsequent claims data and thereby be reflected in future loss costs. However, in light of your request, we will review our analysis to determine if any additional actions could be taken to further develop our impact estimation."

NCCI's January 1, 2007 filing did not include or reference any additional analysis and still reflected an estimated impact of –1.0%. I inquired about this, asking if NCCI had revisited the analysis and what is NCCI's opinion of the Department's –3.6% estimate. In NCCI's response, they:

- List again SB1's most notable provisions,
- Describe the timing of when data reflecting the impact of law changes will begin to affect NCCI's analyses,
- Present results of a survey of Missouri workers' compensation practitioners regarding SB1's influence seen so far, and
- Comment on the Department's analysis and –3.6% estimate.

NCCI's practitioner's survey directly addressed matters that were potentially affected by SB1 and that may affect workers' compensation costs. Extracted from Appendix 2, NCCI's summary of the survey results includes:

> "In general, the respondents indicated that SB1 brings increased fairness to the Missouri workers' compensation benefit system and is expected to produce cost savings. However, all respondents agree that it is too early to tell how much of an impact SB1 will have because there has not been enough time for disputed claims to move through the system. Respondents indicated that costs began dropping prior to the enactment of SB1 and it is difficult to attribute how much of any observed cost reductions post SB1 have resulted from the SB1 changes in the statutes. They also indicated that most of the changes in the statutes affect a very small percent of claims."
>
> The respondents observed that nearly all the judges are adhering to the provisions of SB1 and are operating more consistently and conservatively."

NCCI maintains that the actual cost impact resulting from SB1 will be reflected in future loss cost filings (by being reflected in the loss experience examined then). This is true. But, if the actual cost savings are meaningfully greater than 1.0%, then recognizing this in future filings will not offset the missed savings that could be included in the current and past loss costs (and ultimately the rates and premiums that are developed therefrom). That being said, I understand NCCI's contention that quantification of SB1's anticipated impact is difficult.

EAS's -2.0% selection is based on:

- NCCI's estimate (-1.0%),
- The belief that NCCI's 1.0% estimate is conservative (i.e., pessimistic and low) as is its position of waiting until the impact permeates the experience period data,
- The Department's prior estimate (-3.6%),
- NCCI's comments regarding the Department's prior analysis, and
- NCCI's Updated Analysis and Survey.

Finding 3. Statewide versus Voluntary Data – NCCI's use of data that includes assigned risk market experience drives higher results than that based on voluntary-only experience.

3a. Current Situation and Impact on Loss Costs. NCCI continues to develop its voluntary market indicated loss costs based on statewide data, which includes both voluntary and assigned risk business. Note that assigned risk rates are separately calculated (by a different entity) using assigned risk experience. So, the higher-cost assigned risk experience is being double counted within the Missouri workers' compensation marketplace, once in the derivation of rates for the assigned risk market, and again in the derivation of loss costs for the voluntary market. This seems obviously wrong to me, and so my derivation of indicated voluntary market loss costs excludes assigned risk experience.

The estimated impact of excluding assigned risk experience in the derivation of Missouri voluntary market loss costs is a decrease in loss costs of 1.7% as shown in **Exhibit 5**, Sheet 1. This estimated impact is derived in two ways: first, via a calculation whereby I back out the estimated impact of the assigned risk experience and second, via NCCI's recalculation of voluntary loss cost levels. Both approaches yielded the same 1.7% effect.

Exhibit 5, Sheet 1, Section A shows my calculation. There I show that since 3.6% (line g) of the statewide market is assigned risk (estimated in Sheet 3), and since the assigned risk market loss costs are about 38% (line f) higher than statewide costs, excluding that 3.6% of the market would eliminate its contribution of higher costs resulting in expected voluntary market costs that are 9.4% lower than existing (effective January 1, 2008) NCCI loss costs. That compares to a 7.7% decrease calculated by NCCI using data that includes the assigned risk experience, and the 1.7% impact is derived as the difference between the –7.7% indicated loss cost change filed by NCCI and the –9.4% adjusted calculated indication.

NCCI's -1.7% result was produced after they re-performed their loss cost level calculations using voluntary rather than statewide data. As stated in their response 8a (see Appendix 1, page 2), "The indicated loss cost change based on voluntary data only is -9.4%". As shown in Section B of Exhibit 5, Sheet 1, this amount is 1.7% lower than NCCI's actual filed loss cost change of -7.7%.

The –1.7% impact of removing the assigned risk market experience from the indicated loss cost calculation is carried forward from **Exhibit 5** to **Exhibit 1** where it is combined with the estimated impact of the other findings presented herein.

3b. Prior Discussion Regarding Statewide versus Voluntary Data. For completeness, the discussion from last year's report regarding NCCI's use of statewide data is repeated here. No new information is presented, so the rest of this text section (Finding 3) can be skipped by those familiar with last year's report.

As discussed within NCCI's loss cost filing:

> "Employers unable to secure coverage in the voluntary market can apply for such coverage in the assigned risk market. In Missouri, the Travelers Commercial Casualty Company serves as the Assigned Risk Plan Administrator and develops the assigned risk rates. Statewide experience, both voluntary and assigned risk, is included in this filing. The statewide premiums have been adjusted to the latest approved voluntary market loss cost level in order to produce loss costs that are appropriate for all employers in the state."

NCCI's decision to include assigned risk (or "involuntary market" or "residual market") experience within the data base it reviews to derive voluntary market loss costs is important because insureds within the assigned risk market are more costly to insure. In fact, that characteristic – anticipated high costs – is what causes voluntary market workers' compensation insurers to decline coverage for certain employers causing them to need to seek cover through the assigned risk market.

While individual employers may be covered in either the voluntary or involuntary market, perhaps varying between the two over the course of years, at any given time, the Missouri market can be segregated into those two distinct categories. Of course, Travelers Commercial Casualty Company, the insurer of the Missouri residual workers' compensation market, includes the assigned risk experience in their review when setting assigned risk workers' compensation rates. In developing voluntary loss costs, NCCI's election to review statewide (voluntary plus involuntary) experience rather than just the voluntary market data causes these higher-cost insureds to be included in the development of rates (or loss costs) for both portions of the Missouri market. This inclusion of the involuntary market experience in both the assigned risk and voluntary market ratemaking data seems inappropriate. It produces voluntary market loss costs that are too high.

NCCI's comments regarding this matter followed by my perspective follows.

> NCCI: *"The use of voluntary and AR data is consistent with prior filings in Missouri."*

Consistency is good, but not a compelling argument if such is incorrect.

> NCCI: *"This methodology determines voluntary loss costs that are adequate for the average risk, not just those risks that were written voluntarily at that time. This should promote competition and enhance depopulation of the assigned risk market, leading to lower costs."*

More competition is spurred not by the inclusion of assigned risk experience in the reviewed data, but by the higher loss costs and rates that such generates. Prices that are artificially high will cause more insurers to bid for the subject business since greater opportunity for profit exists. However, I see the role of the actuary in establishing the loss costs as not to develop such that will be attractive to insurers due to profit opportunity, but rather to establish loss costs that properly reflect anticipated costs of providing coverage. The competition should occur due to natural market forces, to the desire of certain insurers to grow market share, and by favoring those insurers who can deliver their product in a more cost effective manner, or at least who believe they can do so.

Depopulation of the assigned risk market and lower costs are laudable goals, however accomplishing such by artificially raising costs to the voluntary market is equivalent to a subsidization of assigned risks by the voluntary market.

> NCCI: *"This method also eliminates the fluctuations in voluntary loss cost levels due solely to risks shifting into and out of the assigned risk market. Thus, more stability is achieved in the marketplace in the long term."*

Market stability may also be a good objective. However, the contribution to market stability that is provided by using combined statewide data is not very evident. And, since the size of Missouri's assigned risk market has remained fairly small over the last several years[9], the market stability objective would seem to be less important than is the objective of establishing appropriate loss cost levels for voluntary market risks.

Finding 4. Loss Adjustment Expense – NCCI overestimates Missouri defense and cost containment expense costs.

There are two aspects of NCCI's LAE calculation that I contend should be handled differently: (1) NCCI's exclusion of one large insurer from their calculation and (2) NCCI's reference to an experience period that is too brief. Changes to each serve to lower indicated loss costs.

4a. NCCI's LAE Calculation Method. NCCI derives the loss adjustment expense component of loss costs by first examining countrywide LAE to loss ratios in two pieces: DCCE (defense and cost containment expense) and AOE (adjusting and other expense). Missouri experience is built into the equation by measuring and adjusting for how Missouri's DCCE to loss ratio compares to the countrywide ratio. The Missouri-adjusted DCCE ratio plus the countrywide AOE ratio produces the LAE ratio reflected in the proposed loss costs. NCCI's LAE calculations appear in their Technical Supplement Exhibit II.

[9] Over the last ten years, assigned risk market share, measured using standard premium at NCCI voluntary loss costs, has varied from a low of just over 1% in policy year 1999 to a high of approximately 6.5% in 2003.

4b. NCCI's Exclusion of MEM. NCCI's technical appendix Exhibit II note mentions that, in comparing Missouri and Countrywide DCCE-to-loss ratios, the Missouri DCCE experience referenced is based on private carrier data. During discussions with NCCI, I came to understand that their exclusion of state fund data from the Missouri experience really means that they have excluded the DCCE experience of Missouri Employers Mutual ("MEM"), a large private insurer of Missouri workers' compensation business.[10]

The exclusion of MEM's experience from NCCI's calculation of Missouri's DCCE-to-loss ratio is significant and, I believe, incorrect. It is significant because MEM is by far the largest single writer of workers' compensation in the state[11] and MEM has a much lower than average DCCE-to-loss ratio. For the five calendar-year period 2003 through 2007, MEM's DCCE-to-loss ratio is only 6.4% while other Missouri workers' compensation insurers had a 11.5% ratio.

NCCI's exclusion of MEM data is incorrect since MEM operates competitively within Missouri's voluntary workers' compensation market. Historically, state funds included only entities that were either the exclusive writers of workers' compensation in their states or they operated as the states' insurers of last resort. Those characteristics still define many state funds. Unlike those types of state funds, MEM competes for business with other carriers, selectively underwrites its business, and is not Missouri's carrier of last resort[12]. MEM's loss experience is otherwise included in NCCI's loss cost calculation, and due to the nature of the Company, it should be included fully in the derivation of loss costs including the derivation of Missouri's DCCE relativity.

4c. Missouri Historical DCCE Experience and Relativities. NCCI's calculation of Missouri's DCCE-to-loss ratio and comparison of such to a countrywide ratio is based on experience for calendar years 2005 through 2007. The Missouri DCCE-to-loss ratio during that time was 12.4% compared to a 10.9% countrywide ratio leading NCCI to use a DCCE relativity of 1.138. This relativity was multiplied by the separately derived countrywide accident-year DCCE ratio of 11.7% to produce the Missouri DCCE ratio of 13.3%. All this appears in NCCI's Exhibit II and in my attached **Exhibit 6**.

[10] Assigned risk business is also excluded from the LAE calculations.
[11] According to the Department's website (at http://insurance.mo.gov/reports/mktshr.htm), 2007 premium volume for individual companies shows MEM as the largest Missouri workers' compensation writer with 14.30% of the market, much higher than the number two writer that had only a 7.32% market share. If multiple companies from a single group are combined, then American International Group's companies have a 16.01% combined market share which is somewhat higher than that for MEM.
[12] Missouri's assigned risk business is written by Travelers Commercial Casualty Company.

The LAE data I present in **Exhibit 6** includes additional calendar years of experience (i.e., 2003 through 2007), shows information separately by year, and also shows Missouri information both including and excluding MEM. Key numbers extracted from **Exhibit 6** are shown in the table below.

Table 6. Missouri DCCE Relativity
(from Exhibit 6)

Calendar Year	Country-wide DCCE%	MO excluding MEM		MO including MEM	
		DCCE%	**Relativity to CWide**	**DCCE%**	**Relativity to CWide**
2003	9.8%	10.0%	1.021	9.0%	0.912
2004	10.0%	10.0%	1.003	9.2%	0.916
2005	10.4%	10.9%	1.039	10.3%	0.986
2006	11.0%	12.9%	1.174	12.3%	1.118
2007	11.2%	13.5%	1.208	12.8%	1.146
Subtotal 2005-2007	10.9%	12.4%	**1.138 (used by NCCI)**	11.8%	1.084
Total 2003-2007	**10.5%**			**10.7%**	**1.017**
EAS Selected					**1.080**

The table reveals that the 1.138 combined 3-year average Missouri DCCE relativity used by NCCI is significantly affected by the high Missouri DCCE-to-loss ratios for calendar years 2006 and 2007. In my loss cost filing review last year, when calendar-year 2006 data was the latest available, I noted that the Missouri relativity derived by NCCI (then 1.067) seemed to be unduly influenced by what appeared to be a single year's artificially high result. At the time, the 2006 Missouri relativity was noticeably higher than that for any other calendar year. I considered that when selecting my Missouri relativity last year of 0.985, much lower than NCCI's selected 1.067.

Since we now see that the 2007 calendar-year relativity is also high, higher even that that for calendar-year 2006, it seems less likely now that the relatively high Missouri DCCE-to-loss ratios are a temporary anomalistic result. Thus, I have significantly increased my selected Missouri relativity from last year's 0.995 to 1.080.

My selected 1.080 relativity is still lower than NCCI's newly selected 1.138 relativity. The main reason for my lower selected factor, as seen in the above table, is the impact of including MEM-experience in the referenced DCCE ratio data. Just that change produced a 3-year (2005 through

2007) relativity of 1.084 compared to 1.138 if MEM data is excluded. When making my selection, I considered not only the impact of including MEM data, but also the relativities for earlier calendar years (2003 and 2004). The table shows that the combined *five*-calendar-year relativity is 1.017 (vs. 1.084 if looking at only the latest *three* calendar years). However, since these two additional years of experience are relatively old, their lower relativities led me to select a relativity that is only slightly lower than the 1.084 for the three-year period, specifically 1.080.

It is possible that Missouri's 2006 and 2007 calendar-year DCCE results were each artificially and temporarily influenced by changes introduced by Senate Bill 1 in late 2005. On the other hand, it is possible that the recent high Missouri DCCE ratios are due to decreased losses in 2006 and 2007, which amounts serve as the denominator for the DCCE ratio. If so, then the 2006 and 2007 high DCCE ratios are real and not an anomaly. This remains an area to be watched in the near future.

Using my selected 1.080 relativity rather than NCCI's 1.138 factor corresponds to a lower total LAE provision (20.7% as compared to 21.4%) as shown in line (p) in **Exhibit 6**. The bottom line effect on indicated loss cost levels of selecting the lower DCCE relativity is -0.5%. **Exhibit 6** also shows the effect of other possible DCCE relativity selections. The -0.5% effect appears along with the impact of other assumption differences in **Exhibit 1** where also shown is the total -9.1% difference between the indicated loss costs derived herein and those derived by NCCI.

E. Minor Items & Notes

Nature of Calculations

Within this report and the attached exhibits, the estimated impacts of various changes are calculated in additive fashion in order to simplify the presentation of results. This approach is consistent with NCCI's own approach, lends itself to the most straightforward communication of results, and produces a bottom-line result that is not materially different than would be a more complex but technically correct application of the mathematics.

Abbreviations

Abbreviations used within this report and/or exhibits include:

ALC	Advisory Loss Costs
ALAE	Allocated Loss Adjustment Expense

AOE	Adjusting and Other Expense
AR	Assigned Risk (aka Alternative Residual Market)
DCCE	Defense and Cost Containment Expense
DIFP	(State of Missouri) Department of Insurance, Financial Institutions, and Professional Registration
LAE	Loss Adjustment Expense
NCCI	National Council on Compensation Insurance
Response	Information provided by NCCI in reply to EAS Data Requests
Statewide	Voluntary PLUS AR business
SB1	Senate Bill 1

Data

For my analysis, NCCI and the Department provided me with data and information including, but not necessarily limited to, the items listed below, not all of which were used directly in my review.

A) NCCI Missouri Loss Cost Filing presented as a bound report labeled "Missouri / Voluntary Loss Costs / Effective January 1, 2009" and starting with a August 29, 2008 letter from Roy Wood to Missouri's Acting Director of Insurance
B) Separately bound Technical Supplement to the January 1, 2009 loss cost filing
C) NCCI responses to my questions and requests (included here as Appendix 1)
D) Supplemental data provided together with the loss cost filing including countrywide workers' compensation insurance expense exhibit, private carrier accident year LAE loss development, and other items
E) Travelers March 28, 2008 workers' compensation rate filing for Missouri Alternative Residual Market effective July 1, 2008

Some information regarding Missouri's assigned risk market (insured by Travelers Commercial Casualty Company) was provided by Travelers. This includes:

F) Average loss cost multiplier for Missouri residual market rates that became effective on July 1, 2008
G) Residual market policy year premiums through August 31, 2008.

In addition to the above, all materials provided for last year's review and listed in last year's report were again available for reference.

Reliances & Limitations

For a few specific areas where I deemed appropriate assumptions or methods different than those employed by NCCI, my review of Missouri workers' compensation loss costs involved my independent analysis as described and presented herein. While my independent analysis drives the quantitative results and dominates the discussion above, most of my analysis involved, and was substantially limited to, an examination of the Missouri workers' compensation loss cost filing and technical supplement prepared by NCCI along with other information listed in the Data section. As such, my review is subject to the following:

Second Opinion Review. For the most part, my review included neither my performing extensive calculations nor my checking in detail all the calculations that underlie NCCI's analysis. While I have carefully examined the loss cost filing and supporting documents, evaluated the methodology, and assessed the assumptions, I have also relied extensively on the accuracy of NCCI's own calculations and the manner in which available data was incorporated into the analysis.

Accuracy of Data. In performing my analyses, I have relied upon data supplied by the Department and by NCCI as listed above. This information was relied upon without independent audit or verification. Since my results depend on the accuracy and completeness of the underlying data, any material discrepancies in the data should be reported to EAS, and, if warranted, this report should be amended.

Risk and Uncertainty. Since the ultimate value of claims and claim expense is subject to the outcome of events yet to occur, projections are subject to economic and statistical variation from expected values. Accordingly, these ultimate values will likely differ, perhaps significantly, from their corresponding estimates. However, I believe the methods used and assumptions employed are appropriate, and that the results are reasonable given the information currently available.

Indicated Change to NCCI Advisory Loss Costs of January 1, 2009
Assigned Risk Inclusion in Data used to derive Voluntary Loss Costs

Highlighted Differences between NCCI and EAS Analyses

Item	Item Location in NCCI Documents	NCCI Estimate or Approach	EAS Estimate or Approach	Estimated Impact	Where in EAS Analysis
Indemnity and Medical Trend	Tech. Supplement Appendix A-III	Indemnity: 0.950 Medical: 1.010	0.925 0.990	**-6.8%**	Exhibit 3
Senate Bill 1 Impact	Tech. Supplement Appendix A-I, Sections B, C, E, & F	0.990	0.980	**-0.1%**	Exhibit 4
Use of Statewide vs. Voluntary Data	Discussed in Loss Cost Filing Page 2	Use Statewide Data (including assigned risk)	Use Voluntary-only data	**-1.7%**	Exhibit 5
Missouri DCCE Relativity	Tech. Supplement Exhibit II-C	1.138	1.080	**-0.5%**	Exhibit 6

Total Change versus NCCI filed change (i.e. compared to NCCI 1/1/2009 advisory loss costs)	**-9.1%**
NCCI filed change to existing 1/1/2008 advisory loss costs	**-7.7%**
EAS Indicated Change to NCCI 1/1/2008 advisory loss costs	**-16.8%**

Compares to NCCI filed change of –7.7%

Missouri -- NCCI Loss Cost Filing Review **Exhibit 2**

Determination of Pure Premium Level Change (excludes consideration of using voluntary market versus statewide data)
Assigned Risk Inclusion in Data used to derive Voluntary Loss Costs

			NCCI Filing (from Exhibit 1)		EAS Values	
			Policy Yr 2005	Policy Yr 2006	Policy Yr 2005	Policy Yr 2006
Premium:						
(a)	Standard Earned Premium Developed to Ultimate		$631,902,482	$652,388,429	$631,902,482	$652,388,429
(b)	Premium On-level Factor		0.865	0.884	0.865	0.884
(c)	Premium Available for Benefits Costs	[a × b]	$546,595,647	$576,711,371	$546,595,647	$576,711,371
Indemnity Benefit Cost:						
(d)	Limited Indemnity Paid+Case/Paid Losses Developed to Ultimate		$181,114,373	$187,651,376	$181,114,373	$187,651,376
(e)	Indemnity Loss On-level Factor	**[Exhibit 4]**	1.025	1.014	**1.022**	**1.014**
(f)	Factor to Include Loss-based Expenses		1.203	1.203	1.203	1.203
(g)	Composite Adjustment Factor	[e × f]	1.233	1.220	1.229	1.220
(h)	Adjusted Limited Indemnity Losses	[d × g]	$223,314,022	$228,934,679	$222,589,564	$228,934,679
(i)	Adj. Ltd. Indemnity Cost Ratio excluding Trend and Benefits	[h / c]	0.409	0.397	0.407	0.397
(j)	Factor to Reflect Indemnity Trend	**[Exhibit 3]**	0.814	0.857	**0.732**	**0.791**
(k)	Projected Limited Indemnity Cost Ratio	[i × j]	0.333	0.340	0.298	0.314
(l)	Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis		1.018	1.018	1.018	1.018
(m)	Projected Indemnity Cost Ratio	[k × l]	0.339	0.346	0.303	0.320
(n)	Factor to Reflect Proposed Changes in Indemnity Benefits		1.016	1.016	1.016	1.016
(o)	Projected Indemnity Cost Ratio including Benefit Changes	[m × n]	0.344	0.352	0.308	0.325
Medical Benefit Cost:						
(p)	Limited Medical Paid+Case/Paid Losses Developed to Ultimate		$238,671,056	$264,845,571	$238,671,056	$264,845,571
(q)	Medical Loss On-level Factor	**[Exhibit 4]**	0.997	1.000	**0.994**	**1.000**
(r)	Factor to Include Loss-based Expenses		1.203	1.203	1.203	1.203
(s)	Composite Adjustment Factor	[q × r]	1.199	1.203	1.196	1.203
(t)	Adjusted Limited Medical Losses	[p × s]	$286,166,596	$318,609,222	$285,450,583	$318,609,222
(u)	Adj. Ltd. Medical Cost Ratio excluding Trend and Benefits	[t / c]	0.524	0.552	0.522	0.552
(v)	Factor to Reflect Medical Trend	**[Exhibit 3]**	1.041	1.030	**0.961**	**0.970**
(w)	Projected Limited Medical Cost Ratio	[u × v]	0.545	0.569	0.502	0.535
(x)	Factor to Adjust Medical Cost Ratio to an Unlimited Basis		1.018	1.018	1.018	1.018
(y)	Projected Medical Cost Ratio	[w × x]	0.555	0.579	0.511	0.545
(z)	Factor to Reflect Proposed Changes in Medical Benefits		1.000	1.000	1.000	1.000
(aa)	Projected Medical Cost Ratio including Benefit Changes	[y × z]	0.555	0.579	0.511	0.545
Total Benefit Cost:						
(ab)	Indicated Change Based on Experience, Trend and Benefits	[o + aa]	0.899	0.931	0.819	0.870
Reflecting Change in LAE to Derive Overall Indicated Pure Premium Level Change:						
(ac)	Average Indicated Change for 2 policy years	[2005(ab)/2 + 2006(ab)/ 2]	0.915		0.845	
(ad)	Change in Loss Adjustment Expense	**[Exhibit 6]**	1.009		1.003	
(ae)	Indicated Change Modified to Reflect Change in LAE	[ac × ad]	**0.923**		**0.848**	

Differences:

-6.8%	Indem. & Med. Trend (Exhibit 3)
-0.1%	SB1 Impact (Exhibit 4)
-0.5%	Missouri LAE Ratio (Exhibit 6)
-0.1%	Rounding
-7.5%	Total

NCCI Filing numbers are from their Technical Supplement Exhibit 1.

Missouri -- NCCI Loss Cost Filing Review **Exhibit 3**

Policy Year Trend Factors

Assigned Risk Inclusion in Data used to derive Voluntary Loss Costs

Section A – Annual Trend Factors

	Indemnity		Medical	
Countrywide Average Trend Factor		0.968		1.013
Missouri Policy Year Trend Data [from NCCI Filing Technical Supplement]				
Frequency based on 8 policy years	0.935		0.935	
	Severity	Pure Premium (Freq. x Sev.)	Severity	Pure Premium (Freq. x Sev.)
Severity based on 5 **PY** of paid losses	0.975	0.912	1.068	0.999
Severity based on 5 **PY** of paid + case losses	0.983	0.919	1.095	1.024
Severity based on 8 **PY** of paid losses	0.983	0.919	1.055	0.986
Severity based on 8 **PY** of paid + case losses	0.987	0.923	1.068	0.999

From NCCI Appendix A-III, Section A

	Indemnity		Medical	
Frequency based on 5 calendar years	0.909		0.909	
	Severity	Pure Premium (Freq. x Sev.)	Severity	Pure Premium (Freq. x Sev.)
Severity based on 5 **AY** of paid losses	0.970	0.882	1.055	0.959
Severity based on 5 **AY** of paid + case losses	0.982	0.893	1.075	0.977
Severity based on 8 **AY** of paid losses	0.973	0.884	1.055	0.959
Severity based on 8 **AY** of paid + case losses	0.982	0.893	1.067	0.970

	Indemnity	Medical
NCCI Selected Annual Trend Factor	0.950	1.010
EAS Selected Annual Trend Factor	**0.925**	**0.990**

Section B – Derivation of Trend Factors

		NCCI Filing, From NCCI Appendix A-III, Section B: Indemnity	NCCI Filing: Medical	EAS Values: Indemnity	EAS Values: Medical
(a)	Selected annual trend factor	0.950	1.010	**0.925**	**0.990**
(b)	Length of trend period from the midpoint of policy year 2006 to the midpoint of the effective period	3.001	3.001	3.001	3.001
(c)	Length of trend period from the midpoint of policy year 2005 to the midpoint of the effective period	4.001	4.001	4.001	4.001
(d)	Effect on Policy Year 2006 = (a) ^ (b)	0.857	1.030	0.791	0.970
(e)	Effect on Policy Year 2005 = (a) ^ (c)	0.814	1.041	0.732	0.961
		to Exh. 2, line (j)	to Exh. 2, line (v)	to Exh. 2, line (j)	to Exh. 2, line (v)

Section C - Impact of Alternative Trend Rate Selections

The use of EAS' selected trend factors in row (a) above (0.925 and 0.990) contribute to the bottom line result in Exhibit 2, line (ae), of 0.848. Had NCCI's row (a) selected factors (0.950 and 1.010) been kept (but other EAS-identified changes maintained), then the Exhibit 2, line (ae) result would have been 0.916. In other words, the revised selected trend rates correspond to indicated loss costs that are 6.8% lower than had NCCI's trend factors been maintained.*

EAS Selected

NCCI Selected

Alternative Selected Medical Trend Rates

Alternative Selected Indemnity Trend Rates	0.980	**0.990**	1.000	1.010	1.020
0.910	0.810	0.829	0.849	0.868	0.861
0.915	0.816	0.835	0.854	0.874	0.867
0.920	0.822	0.842	0.860	0.880	0.873
0.925	0.828	**0.848**	0.866	0.886	0.878
0.930	0.833	0.853	0.872	0.891	0.884
0.935	0.841	0.860	0.878	0.898	0.891
0.940	0.847	0.866	0.885	0.904	0.898
0.945	0.853	0.872	0.890	0.910	0.905
0.950	0.859	0.878	0.897	0.916	0.911
0.955	0.867	0.886	0.904	0.924	0.918

Alternative Selected Indemnity Trend Rates	0.980	**0.990**	1.000	1.010	1.020
0.910	-10.6%	-8.7%	-6.7%	-4.8%	-5.5%
0.915	-10.0%	-8.1%	-6.2%	-4.2%	-4.9%
0.920	-9.4%	-7.4%	-5.6%	-3.6%	-4.3%
0.925	-8.8%	**-6.8%**	-5.0%	-3.0%	-3.8%
0.930	-8.3%	-6.3%	-4.4%	-2.5%	-3.2%
0.935	-7.5%	-5.6%	-3.8%	-1.8%	-2.5%
0.940	-6.9%	-5.0%	-3.1%	-1.2%	-1.8%
0.945	-6.3%	-4.4%	-2.6%	-0.6%	-1.1%
0.950	-5.7%	-3.8%	-1.9%	0.0%	-0.5%
0.955	-4.9%	-3.0%	-1.2%	0.8%	0.2%

* Calculation of -6.8% as per above note and other similar calculations herein are simplified. For additional information, see text (Analysis Section E).

Senate Bill 1 Impact

			NCCI Appendix A-I		NCCI Appendix A-I	
			Section B	Section C	Section E	Section F
			2006 Indemnity	2006 Medical	2005 Indemnity	2005 Medical
(a)	Change 8/28/05 (Senate Bill 1) Impact per NCCI	[NCCI col. (1)]	0.9900	0.9900	0.9900	0.9900
(b)	Cumulative Index	[NCCI col. (2)]	1.0260	1.0000	1.0280	0.9900
(c)	Average Benefit Level During Policy Year	[NCCI col. (4)]	1.0120	1.0000	1.0030	0.9930
(d)	Adjustment Factor using NCCI SB1 estimate	[b / c = NCCI col. (5)]	1.014	1.000	1.025	0.997
			SB1 impact is included in 2006 data, so adjustment has no impact in these columns.		EAS uses -2.0% instead of NCCI's -1.0% as estimated impact of Senate Bill 1.	
(e)	Senate Bill 1 -- EAS Estimated Impact	[EAS judgment]	0.9800	0.9800	0.9800	0.9800
(f)	Cumulative Index using (e) vs. (a)	[b × e / a]	1.016	0.990	1.018	0.980
(g)	Weight applied to 8/28/05 and subsequent changes	[NCCI col. (3)]	1.000	1.000	0.713	0.713
(h)	Revised Average Benefit Level During Policy Year	[c + (g × (f – b))]	1.0020	0.9900	0.9959	0.9859
(i)	Adjustment Factor using EAS SB1 estimate	[f / h]	1.014	1.000	1.022	0.994
			to Exhibit 2 line (e)	to Exhibit 2 line (q)	to Exhibit 2 line (e)	to Exhibit 2 line (q)

Notes:

NCCI Filing numbers are from Technical Supplement Appendix A-I.

(e) The use of 0.980 as EAS' estimated impact of SB1 contributes to the bottom line result in Exhibit 2, line (ae), of 0.848. Had NCCI's estimate of 0.990 been maintained, the line (ae) result would have been 0.849. In other words, EAS's estimated SB1 impact of 0.980 corresponds to indicated loss costs that are 0.1% lower than had NCCI's estimate of the impact been maintained.

	Alternative SB1 Impact Estimates	Associated Change in Indicated Loss Costs
	0.950	-0.5%
	0.960	-0.4%
	0.970	-0.3%
EAS selected →	**0.980**	**-0.1%**
NCCI estimate →	0.990	0.0%
	1.000	0.1%
	1.010	0.2%
	1.020	0.3%
	1.030	0.4%

Assigned Risk Inclusion in Data used to derive Voluntary Loss Costs

A. EAS Estimate of Impact

			Source: Travelers 7/1/2008 AR rate filing	Source: NCCI 1/1/2009 tech. supplement
(a)	AR Trended On-Level Loss + ALAE Ratio to Premium before 7/1/08 rate change	70.0%	Sec. II, p.2, line 1	
(b)	AR Rate change implemented 7/1/08	3.8%	Sec. II, p.2, bottom	
(c)	AR Trended On-Level Loss + ALAE Ratio to Premium after 7/1/08 rate change	67.4%	[a / (1 + b)]	
(d)	Assigned Risk average loss cost multiplier underlying 7/1/08 AR rates relative to 1/1/08 NCCI advisory loss costs	2.050	per corres. with Travelers	
(e)	Trended On-Level AR Loss + ALAE Ratio to 1/1/08 NCCI ALC	138.2%	[c × d]	
(f)	1/1/09 NCCI Indicated Statewide ALC change from 1/1/08 NCCI ALC	92.3%		Exh. 1-D
(g)	Expected AR market share	3.6%	Estimated by EAS in Sheet 3	
(h)	Estimated Voluntary Loss + ALAE Ratio to 1/1/08 NCCI ALC	90.6%	[(f – e×g) / (1 – g)]	
(i)	Indicated change when data includes AR	-7.7%	[f – 1]	
(j)	Indicated change when data excludes AR	-9.4%	[h – 1]	
(k)	**Estimate of Impact of excluding AR data**	**-1.7%**	[j – i]	

B. NCCI Calculation of Impact

(l)	NCCI indication derived using voluntary-only data	-9.4%	NCCI – Response 8
(m)	**NCCI Calculated Impact**	**-1.7%**	[l – i]

C. Used Impact

(n)	**EAS Selected Impact**	**-1.7%**	[selected from k and m]

Notes:
(a) - (k) Another approach and the logic underlying these formulae appear on sheet 2

Missouri -- NCCI Loss Cost Filing Review

Logic Underlying Assigned Risk Impact Formula **Exhibit 5**

Sheet 2

Assigned Risk Inclusion in Data used to derive Voluntary Loss Costs

Sought is: $V = \dfrac{\text{Expected Voluntary Market Loss Cost}}{\text{Expected Statewide Loss Cost}} = \dfrac{\text{EVLC}}{\text{ESLC}}$

AR% = Percentage of statewide market that is Assigned Risk, using loss costs as measurement
Vol% = 1 - AR%
1/1/08 NALC = January 1, 2008 NCCI Advisory Loss Costs
ESLC = Expected Statewide Loss Costs
EVLC = Expected Voluntary Market Loss Costs
EARLC = Expected Assigned Risk Loss Costs

Explanation of Formula **(X)** used to help derive V
AR.ELR = Assigned Risk Expected Loss Ratio
AR.ALCM = Assigned Risk Average Loss Cost Multiplier underlying 7/1/08 Assigned Risk Rates
Since assigned risk rates were filed at actuarially indicated levels, AR.ALCM corresponds to Assigned Risk costs (including expenses) relative to 1/1/08 NALC.

AR.ALCM is a measure of how much higher is AR premium using 7/1/08 AR rates than if 1/1/08 NALC were what was charged as AR rates. And, if we take out AR expenses, then we would get how much higher than 1/1/08 NALC are AR loss costs. In formula terms, this equates to:

(X) $\text{AR.ALCM} \times \text{AR.ELR} = \dfrac{\text{EARLC}}{\text{1/1/08 NALC}}$

Expected statewide loss costs are comprised of expected assigned risk loss costs (times the assigned risk market share) and expected voluntary loss costs (times its market share).

$\boxed{[\text{ EVLC} \times (1\text{-AR\%})] + [\text{ EARLC} \times \text{AR\% }] = \text{ESLC} \times 100\%}$

$\boxed{\dfrac{[\text{ EVLC} \times (1\text{-AR\%})]}{\text{1/1/08 NALC}} + \dfrac{[\text{ EARLC} \times \text{AR\% }]}{\text{1/1/08 NALC}} = \dfrac{\text{ESLC} \times 100\%}{\text{1/1/08 NALC}}}$

but: rightmost term is NCCI filed change of: -7.7%
so rightmost term = 0.923

and: middle term calls for use of Formula **(X)**
The middle term equals AR.ALCM × AR.ELR × AR%

and we know each of those:

AR.ALCM = 2.050
AR.ELR = 67.4%
AR% = 3.6%

so: middle term = 0.050

so, we get:

$\boxed{\dfrac{[\text{ EVLC} \times 96.4\%]}{\text{1/1/08 NALC}} + 0.050 = 0.923}$

thus:

$\dfrac{\text{EVLC}}{\text{1/1/08 NALC}} = \dfrac{.923 - .05}{96.4\%} = 0.906$

$\mathbf{V=} \dfrac{\text{EVLC}}{\text{ESLC}} = \dfrac{\text{EVLC / (1/1/08 NALC)}}{\text{ESLC / (1/1/08 NALC)}} = \dfrac{0.906}{0.923} = \mathbf{0.981}$

Also: 0.906 minus 0.923 equals **(0.017)** matching the result from Sheet 1.

Assigned Risk Inclusion in Data used to derive Voluntary Loss Costs

	Standard Earned Premium Developed to Ultimate		
	(a)	(b)	(c)
Policy Year	Statewide	Voluntary	Assigned Risk Market Share
			1 - b/a
2005	631,902,482	603,467,769	4.5%
2006	652,388,429	634,387,284	2.8%

EAS selected Assigned Risk market share during experience period:	3.6%
	to Sheet 1, line (g)

Alternative Assigned Risk Market Share Estimates and their Impact on Exhibit 5, Sheet 1, Line (k) Result

	2.8%	-1.3%
	2.9%	-1.4%
	3.0%	-1.4%
	3.1%	-1.5%
	3.2%	-1.5%
	3.3%	-1.6%
	3.4%	-1.6%
	3.5%	-1.7%
Selected	**3.6%**	**-1.7%**
	3.7%	-1.8%
	3.8%	-1.8%
	3.9%	-1.9%
	4.0%	-1.9%
	4.1%	-2.0%
	4.2%	-2.0%
	4.3%	-2.1%
	4.4%	-2.1%
	4.5%	-2.2%
	4.6%	-2.2%
	4.7%	-2.3%
	4.8%	-2.3%

Notes:
(a) from 1/1/08 NCCI Filing Technical Supplement, Exhibits I-B (2005) and I-A (2006)
(b) information provided by NCCI analogous to that in technical supplement, but including only voluntary market data rather than statewide data.

Loss Adjustment Expense Provision

A. Missouri DCCE Relativity (Missouri DCCE Ratio compared to Countrywide DCCE Ratio)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
	Countrywide			Missouri **ex**cluding MEM				Missouri **in**cluding MEM			
Calendar Year	Paid DCCE [provided by NCCI]	Paid Loss	DCCE / Loss [a / b]	Paid DCCE [provided by NCCI]	Paid Loss	DCCE / Loss [d / e]	DCCE/Loss ratio for MO vs. CWide [f / c]	Paid DCCE [provided by NCCI]	Paid Loss	DCCE / Loss [h / i]	DCCE/Loss ratio for MO vs. CWide [j / c]
2003	$2,000,878	$20,366,848	9.8%	$37,764	$376,619	10.0%	1.021	$41,185	$459,826	9.0%	0.912
2004	2,004,488	20,041,361	10.0%	39,726	395,955	10.0%	1.003	43,828	478,230	9.2%	0.916
2005	2,069,520	19,804,881	10.4%	42,031	387,257	10.9%	1.039	47,217	458,257	10.3%	0.986
2006	2,129,495	19,361,083	11.0%	47,228	365,831	12.9%	1.174	52,144	424,212	12.3%	1.118
2007	2,243,205	20,028,724	11.2%	53,043	391,962	13.5%	**1.208**	58,227	453,771	12.8%	1.146
2003-2007	$10,447,586	$99,602,897	10.5%	$219,792	$1,917,624	11.5%	1.093	$242,601	$2,274,296	10.7%	1.017
2005-2007	$6,442,220	$59,194,688	10.9%	$142,302	$1,145,050	12.4%	1.142	$157,588	$1,336,240	11.8%	1.084
2005-2007 with rounding			10.9%			12.4%	**1.138** used by NCCI				**1.080** EAS Selected

B. LAE Provision Calculation

	NCCI used	EAS selected	
(l) Countrywide Accident Year DCCE Ratio [NCCI Filing]	11.7%	11.7%	
(m) Missouri Relativity used by NCCI [from above]	**1.138**	**1.080**	
(n) Missouri DCCE Ratio used by NCCI [l x m]	13.3%	12.6%	
(o) Countrywide Accident Year AOE Ratio [NCCI Filing]	8.1%	8.1%	
(p) Total LAE Provision [n + o]	21.4%	20.7%	
(q) LAE provision underlying current rates [NCCI Filing]	20.3%	20.3%	
(r) Effect of change in LAE provision [(1+p) / (1+q)]	1.009	1.003	to Exh. 2, line (ad)

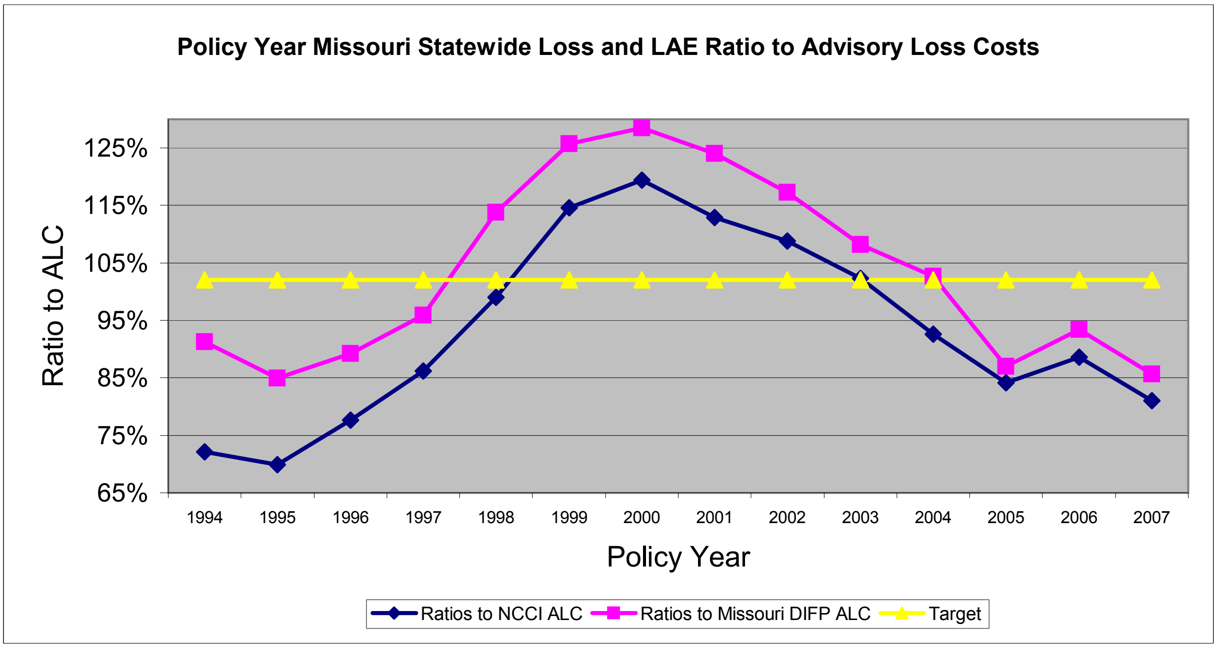
Impact of Alternative Relativity Selections

	Alternative Missouri to CWide Relativities	Associated Change in Indicated Loss Costs
	1.000	-1.1%
	1.020	-1.0%
	1.040	-0.8%
	1.060	-0.6%
EAS selected →	**1.080**	**-0.5%**
	1.100	-0.3%
	1.120	-0.2%
NCCI selected →	**1.138**	**0.0%**
	1.140	0.0%
	1.160	0.2%
	1.180	0.3%

Although selected Missouri relativity varies considerably from that used by NCCI, impact on loss costs is only -0.5%.

Policy Year	(a) Premium (ALC)	(b) Prem. Dev. Factor	(c) Indemnity Pd+Case Losses	(d) Indemnity LDF	(e) Medical Pd+Case Losses	(f) Medical LDF	(g) LAE Factor	(h) Excess Provision
	[From NCCI Missouri 1/1/2009 Filing -- Trend Analysis]							
1999	467,222,327	1.000	221,334,710	1.018	198,313,760	1.068	1.203	1.018
2000	479,104,962	1.000	233,645,584	1.018	214,240,344	1.070	1.203	1.018
2001	515,740,360	1.000	236,536,427	1.024	217,816,965	1.071	1.203	1.018
2002	517,299,957	1.000	220,867,169	1.035	213,378,820	1.083	1.203	1.018
2003	580,521,509	1.000	225,864,623	1.041	231,773,485	1.078	1.203	1.018
2004	609,730,571	1.000	198,732,393	1.064	230,699,394	1.082	1.203	1.018
2005	632,535,017	0.999	165,789,001	1.111	227,361,400	1.099	1.203	1.018
2006	649,142,715	1.005	156,324,931	1.228	243,151,834	1.151	1.203	1.018
½yr 2007	388,766,934	1.861	67,623,007	2.910	106,556,544	2.646	1.203	1.018

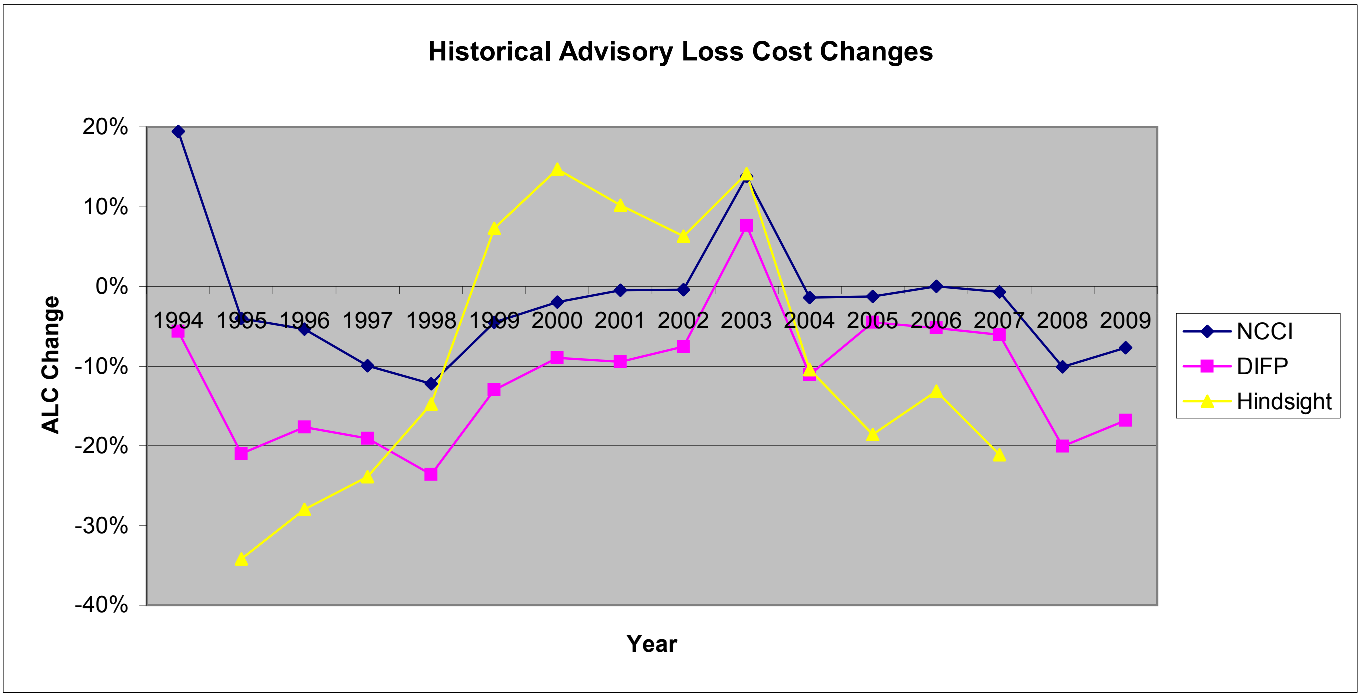
Policy Year	(i) Estimated Ultimate Premium (ALC) [a × b]	(j) Estimated Ultimate Losses and LAE: Indemnity [c×d×g×h]	(k) Estimated Ultimate Losses and LAE: Medical [e×f×g×h]	(l) Estimated Ultimate Losses and LAE: Total [j + k]	(m) Missouri DIFP relativity to NCCI ALC [see note]	(n) Missouri Statewide Loss & LAE Ratio to: NCCI ALC [l / i]	(o) Missouri Statewide Loss & LAE Ratio to: Missouri DIFP ALC [n / m]
1994					0.790	72.1%	91.2%
1995					0.823	69.9%	84.9%
1996					0.870	77.6%	89.2%
1997					0.899	86.2%	95.9%
1998					0.870	99.0%	113.8%
1999	467,222,327	275,937,490	259,380,610	535,318,100	0.911	114.6%	125.8%
2000	479,104,962	291,285,429	280,736,215	572,021,644	0.929	119.4%	128.5%
2001	515,740,360	296,627,488	285,689,697	582,317,185	0.910	112.9%	124.1%
2002	517,299,957	279,952,867	283,004,389	562,957,256	0.928	108.8%	117.3%
2003	580,521,509	287,946,861	305,982,027	593,928,887	0.946	102.3%	108.1%
2004	609,730,571	258,954,639	305,694,144	564,648,783	0.902	92.6%	102.7%
2005	631,902,482	225,570,955	306,004,514	531,575,469	0.967	84.1%	87.0%
2006	652,388,429	235,093,173	342,741,173	577,834,346	0.948	88.6%	93.4%
2007	723,495,264	240,991,027	345,289,500	586,280,527	0.946	81.0%	85.7%
2008					0.900		
2009					0.909		



Notes:
(m) 2009 relativity of 0.909 is 1.000 plus -9.1% from Exhibit 1. Earlier year relativities are from earlier years' analyses.
(n) 1994 through 1997 ratios to NCCI ALC are from last year's history analysis.
Graph Target loss ratio is slightly above 100% since the available loss data is from statewide rather than voluntary-only experience.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Policy Year	Voluntary Advisory Loss Cost Change NCCI [see note]	DIFP	Missouri Statewide L&LAE Ratio to NCCI ALC [Exh. 7.1, (n)]	Hindsight ALC Change = Change that Would Have Yielded Target L&LAE Ratio [a x c / 102%]	Rate Changes Expressed as Percentages NCCI [a - 1]	DIFP [b - 1]	Hindsight [d - 1]
1994	1.194	0.943	72.1%		19%	-6%	
1995	0.960	0.790	69.9%	0.658	-4%	-21%	-34%
1996	0.946	0.823	77.6%	0.720	-5%	-18%	-28%
1997	0.900	0.809	86.2%	0.761	-10%	-19%	-24%
1998	0.878	0.764	99.0%	0.852	-12%	-24%	-15%
1999	0.955	0.870	114.6%	1.073	-5%	-13%	7%
2000	0.980	0.910	119.4%	1.147	-2%	-9%	15%
2001	0.995	0.905	112.9%	1.101	-1%	-9%	10%
2002	0.996	0.924	108.8%	1.063	0%	-8%	6%
2003	1.138	1.077	102.3%	1.141	14%	8%	14%
2004	0.986	0.889	92.6%	0.895	-1%	-11%	-10%
2005	0.987	0.954	84.1%	0.814	-1%	-5%	-19%
2006	1.000	0.948	88.6%	0.868	0%	-5%	-13%
2007	0.993	0.939	81.0%	0.789	-1%	-6%	-21%
2008	0.899	0.799			-10%	-20%	
2009	0.923	0.832			-8%	-17%	

Notes:
(a) 1994-2006 NCCI ALC change obtained from 2006 DIFP review documents.
(b) based on NCCI change and DIFP relativity in Exhibit 7.1, column (m)
(d) Column (c) ratios are of loss and LAE (in the numerator) to advisory loss costs (in the denominator). Due to the nature of the data referenced, the historical loss and LAE is based on statewide rather than voluntary-only experience. As a result, the target ratio is slightly higher than 100%, judgmentally selected to be 102%.



Appendix 1 -- NCCI Responses to EAS Questions & Requests

Note: For brevity, not included here are attachments referenced within the response text; however, the Department has full copies of the responses including all attachments.

NCCI Missouri WC Loss Cost Filing
Proposed Effective January 1, 2009
Request for Information

Question 1
Identify and explain changes in data, assumptions and methodology. Identify the impact on the final NCCI pure premium level change of each.

Response 1
- In determining the estimated ultimate loss ratio in the 1/1/2008 filing, NCCI used 5year average paid + case development with the exception of the 1st to 2nd indemnity paid + case link ratio where a 4-year average was selected. In the 1/1/2009 filing, NCCI used a 5-year average for all indemnity paid + case link ratios. If a 4-year average had been used for the 1st to 2nd indemnity paid + case link ratio again this year, the overall indication would be the same as the filed -7.7%.

- In the 1/1/2009 filing, NCCI lowered the selected annual indemnity trend from -4.0% to -5.0% and lowered the selected annual medical trend from +2.0% to +1.0%. If the annual indemnity and medical trends remained unchanged, the overall indication would be -4.3% rather than the filed -7.7%.

Question 2
Please provide Statewide Policy Year and Accident Year limited loss development triangles.

Response 2
Please see attached exhibits, labeled as Response 2.

Question 3
Please provide Statewide Policy Year and Accident Year claim count development triangles.

Response 3
Please see attached development exhibits, labeled as Response 3.

Question 4
For each Policy Year, show the number of claims subject to limitation and the amount of loss limited.

Response 4
Please see attached exhibit, labeled as Response 4.

Question 5
For each Accident Year as of 19th report, show the number of claims subject to limitation and the amount of loss limited.

Response 5
Please see attached exhibit, labeled as Response 5.

Question 6
Missouri's Exhibit 1 shows the indicated change for experience, trend, and benefits for policy years 2005 and 2006. Please provide analogous numbers for other states in Missouri's region.

Response 6
Please see attached exhibit, labeled as Response 6. Note that since filings have not yet been made in Arkansas and Nebraska, we are unable to provide the indicated changes for Policy Years 2005 and 2006. However, we did provide the indicated changes for Policy Years 2004 and 2005, which are from the most recent available filings in those states.

Question 7
Provide an exhibit showing trends in average deviation, average schedule rating modification, and average experience modification. Provide for each of the last five policy years.

Response 7
Please see attached exhibit, labeled as Response 7.

Question 8
Please quantify the impact of excluding Assigned Risk data from the indication.

(a) What would be the indicated loss cost change if Assigned Risk data were excluded from the calculation?
(b) What is the Assigned Risk average loss cost multiplier?

Response 8

(a) The indicated loss cost change based on voluntary data only is -9.4%. This indication utilizes the same development, trend, benefit changes and LAE selections proposed by NCCI in the 1/1/2009 Missouri loss cost filing. Please see the attached Exhibit I for details (labeled as Response 8).
(b) From NCCI's financial call data, an average assigned risk multiplier can be estimated. The ratio of Column 2 Company Level Premium to Column 1 NCCI DSR Level Premium is shown below for the most recent five policy years:

Policy Year 2006	2.032
Policy Year 2005	1.910
Policy Year 2004	1.831
Policy Year 2003	2.032
Policy Year 2002	2.160

Since Travelers files its own residual market rates, the deviation could vary by class code, which would cause the implied multiplier to change over time if the mix of business changes.

Question 9
Please provide Missouri assigned risk data.

Response 9
Please see attached exhibit, labeled as Response 9.

Question 10
Please provide accident-year frequency and severity trend factors based on 5 and 8 years of experience (like that shown in Appendix A-III based on policy-year data).

Response 10
The five Calendar-Accident year frequency and severity trends are shown below. Note that carriers are only required to report premium for the most recent 5 Calendar years on the financial calls. Because of this, we do not produce an 8 Calendar year frequency trend. However, the 8 year severities are included below.

	Indemnity	Medical
Frequency based on 5 calendar years	0.909	
Severity based on 5 accident years of paid losses	0.970	1.055
Severity based on 5 accident years of paid+case losses	0.982	1.075
Severity based on 8 accident years of paid losses	0.973	1.055
Severity based on 8 accident years of paid+case losses	0.982	1.067

Question 11
Please provide statewide trend data.

Response 11
Please see attached exhibits, labeled as Response 11.

Question 12
Provide a copy of the countrywide workers' compensation insurance expense exhibit for the latest year.

Response 12
Please see attached exhibit, labeled as Response 12.

Question 13
Provide loss development data underlying the Private Carrier Accident Year LAE data.

Response 13
Please see attached exhibit, labeled as Response 13.

Question 14
Please provide the Missouri LAE calculation including data for both private carriers and Missouri Employers Mutual (MEM).

Response 14
Based on information from page 4 of NCCI financial call data, the 3-year average CAY DCCE ratio is 6.9% for MEM. The filed DCCE ratio based on private carrier data only is 13.3%. A loss-weighted average of these two ratios results in an average DCCE ratio of 12.4%. Combining that with the filed AOE ratio of 8.1% yields an LAE provision of 20.5%.

Question 15
Please provide the last 5 individual calendar-year paid losses and paid DCCE for (a) Missouri excluding MEM (as used in Exhibit II), (b) Missouri Including MEM, and (c) Countrywide.

Response 15
Please see attached exhibit, labeled as Response 15.

Question 16
Provide the Missouri and countrywide pages of the current Annual Statistical Bulletin.

Response 16
The Annual Statistical Bulletin 2008 Edition is available on ncci.com.

Note: For brevity, not included here are attachments referenced within the response text; however, the Department has full copies of the responses including all attachments.