

CS20: Workers' Compensation Experience Rating California's 2017 Variable Split Plan

Dave Bellusci, FCAS, MAAA
EVP & Chief Actuary
WCIRB

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Overview

- **Background**
- Summary of Analysis
- Summary of Changes
- Impact
- Potential Future Changes



Experience Rating in California - Background

- Experience rating benchmarks an employer against others in its industry based on that employer's historical claim experience
- Plan formula approved by the California Insurance Commissioner
- Mandatory for all eligible employers
- Statutory goal to provide a direct financial incentive for employers to reduce accidents
- Approximately 20% of California policies are experience rated, representing almost 90% of statewide premium
- Pure premium neutral as does not significantly increase or decrease overall premium (average X-Mod is close to 1.0)
- Since 2010 first \$7,000 of each claim is considered "primary" and counted fully in experience rating formula

Basis of 2017 Change to Experience Rating Plan

- \$7,000 split point not adjusted in California since 2010
- Other states increasing primary split point from \$7,000 to \$15,000
- Plan can be volatile for smaller employers
- One size fits all approach may not be appropriate in California
 - Average optimal single split point close to \$15,000
 - Optimal split point for small rated employers less than \$7,000
 - Optimal split point for very large employers greater than \$15,000

Development of the Variable Split Plan - Process

2007 - Early WCIRB research showed the optimal split point varied with the size of the employer

2013 - WCIRB research based on policy year 2010 found that variable split plan would enhance experience rating accuracy

2014 - Research based on policy year 2011 confirmed potential to enhance experience rating by varying primary/excess split point by size of employer

2014 - Feedback solicited from representatives of employers, workers, insurers and producers

2015 - Variable split plan reviewed and recommended by WCIRB committees

September 2015 - Approved by Insurance Commissioner to be effective January 1, 2017

October 2016 - Actual 2017 plan values adopted by Insurance Commissioner and January 2017 X-Mods Issued

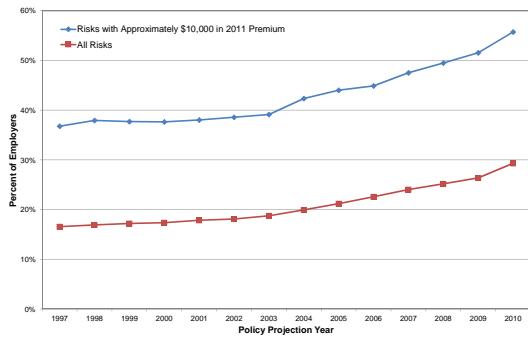
Overview

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- Summary of Analysis

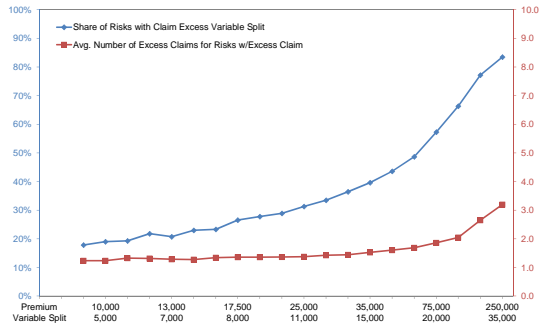
WCIRB Actuarial Analysis – Process & Results

- Calculated optimal split point and credibilities (minimizing squared-error) for 28 expected loss size groups for policy years 2011 & 2012
- Optimization done independently for each cohort and results smoothed across cohort (using log-logistic fit)
- Significant increase in plan "efficiency" at virtually all expected loss groups
- Indication of full primary credibility at each variable split point
- Indication of no excess credibility except at largest policy sizes (0.4% of risks)
- Results validated using subsequent policy years

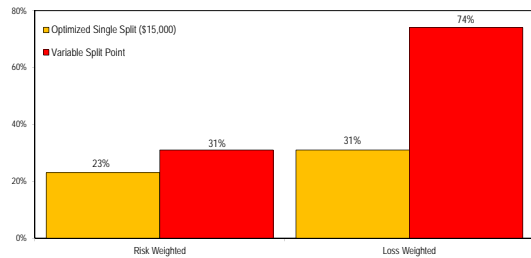
Percent of Risks Claim-Free During Experience Period



Share of Employers with at Least One Claim Excess the Variable Split in Experience Period



Estimated Improvement in Predictive Accuracy Relative to Maximum Improvement* - Policy Year 2011



*Based on reduction of squared error for saturated model.

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Summary of 2017 Change to X-Mod Formula

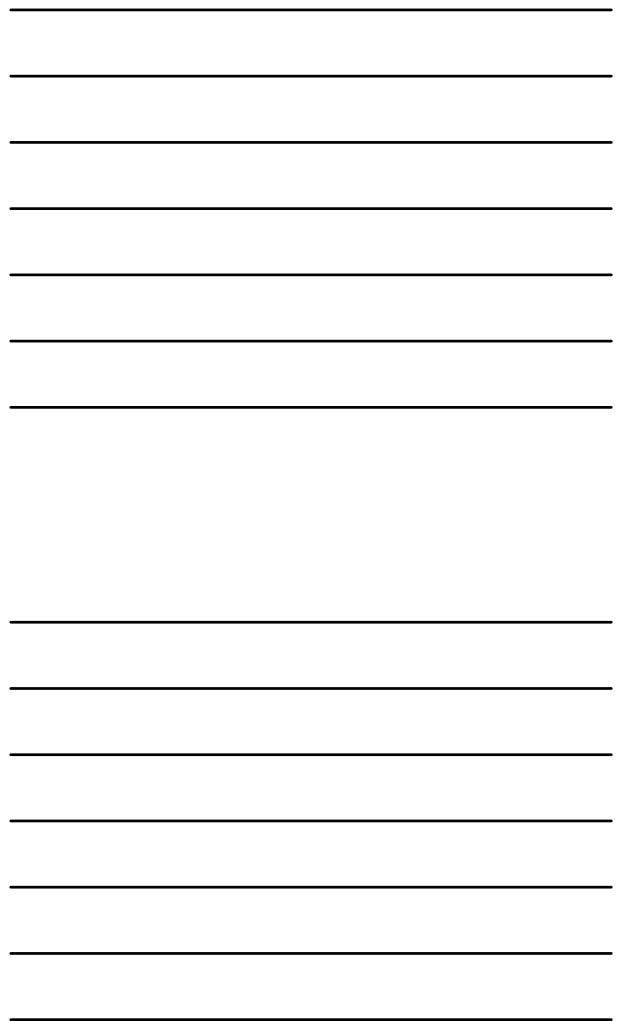
- Split point varies from \$4,500 to \$75,000 based on size of employer as measured by three year expected losses
- Claim amounts up to split point are used fully in X-Mod calculation
- Claim amounts above split point are not used in X-Mod calculation
- D-Ratios that split expected losses into primary and excess components vary by classification and threshold
- Potential to simplify changes in the future



Primary Split Points

- More than 90 primary threshold split points
- Large number of split points to smooth size-based transitions
- Values range from \$4,500 to \$75,000
- Ranges based on the total expected losses in the experience period

Expected Losses	Primary Threshold	Expected Losses	Primary Threshold
8,911	4,500	204,877	224,328
8,911	10,140	224,329	244,230
10,141	11,432	244,231	268,869
11,433	12,789	268,700	288,884
12,790	14,212	288,885	313,968
14,213	15,704	313,989	340,983
15,705	17,265	340,984	370,003
17,267	18,900	370,021	401,524
18,901	20,610	401,525	435,518
20,611	22,395	435,579	472,407
22,397	24,263	472,408	512,257
24,264	26,211	512,258	555,368
26,212	28,345	555,369	602,132
28,346	30,565	602,133	652,788
30,567	32,978	652,789	707,732
32,980	34,888	707,733	767,375
34,888	37,288	767,371	832,161
37,289	39,791	832,152	902,976
39,792	42,399	902,976	979,198
42,399	45,112	979,199	1,062,838
45,113	47,937	1,062,838	1,153,588
47,938	50,878	1,153,588	1,252,000
50,877	53,935	1,252,021	1,358,208
53,936	57,115	1,358,201	1,471,760
57,117	60,425	1,471,761	1,593,413
60,426	63,865	1,603,414	1,723,470
63,866	67,442	1,751,571	1,867,561
67,443	71,158	1,907,942	2,026,980
71,159	75,023	2,078,961	2,202,450
75,024	79,039	2,267,561	2,415,358



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Benefits of the 2017 Variable Split Plan

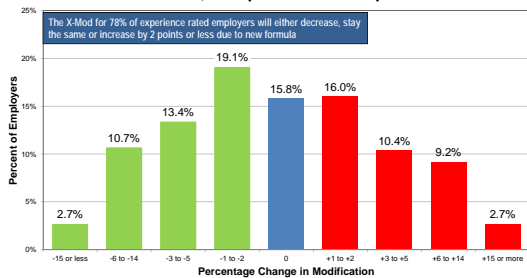
- Furthers the legislative intent of experience rating to provide employers a direct financial incentive to improve workplace safety (i.e. reduce frequency of losses)
- Reduces volatility arising from each large claim
- Mitigates the impact of variability in reserving practices
- Focuses on claim frequency (more controllable by employer)
- Significantly increases actuarial accuracy of the plan
- Allows for future formula simplification

Impact of the 2017 Variable Split Plan on Employers X-Mod

- Actuarial experience indicates that more weight should be given to frequency, and less to large claim severity
- Impact on most employer's experience modifications will be modest
 - Some employers will see a significant decrease (5.2% of employers will see a decrease of more than 10 points)
 - Employers with significantly higher frequency than the average expected for their classification will generally see an increase (5.5% of employers will see an increase of more than 10 points)
- Many factors affect the change in experience modification not just the change the formula
- Slightly more downward adjustments in experience modifications (46%) expected than upward adjustments (38%)
- Overall no impact on statewide pure premium

Distribution of Expected X-Mod Changes in Transitioning from Current Plan to Variable Split Plan All Experience Rated Employers

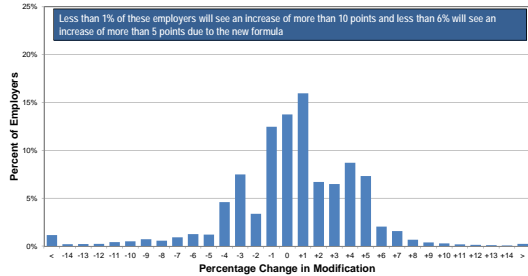
Fixed \$7,000 Split to Variable Split



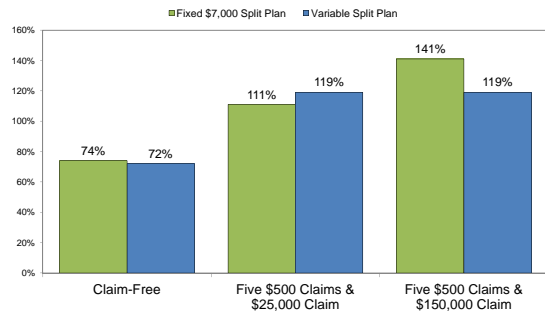
Distribution of Expected X-Mod Changes from Transitioning from Current Plan to Variable Split Plan

Experience Rated Employers with Less Than \$25,000 Annual Premium

Fixed \$7,000 Split to Variable Split



Example X-Mods for Employer with Annual Premium of Approximately \$25,000 - Variable Split: \$11,000

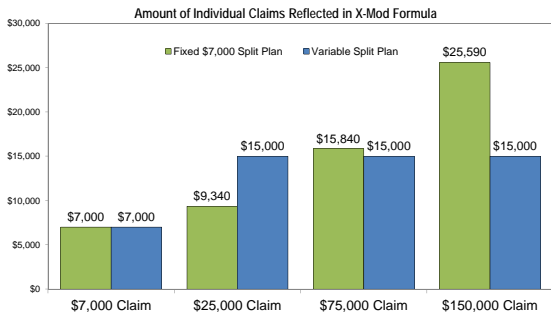


Variable Split Formula – Impact of Claim Severity

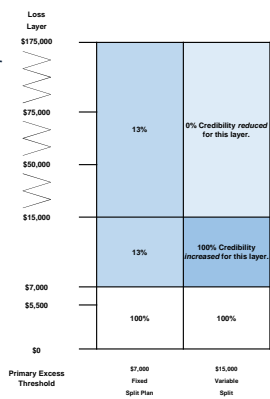
Under the 2017 variable split plan:

- More weight is generally given to claim frequency
 - Historical data indicates that frequency is more predictive
 - Focuses on statutory purpose of experience rating of preventing workplace injuries
- Claim severity is still a factor in experience modification
 - Historical data indicates that claim severity differences at high values are not highly predictive of future claims
 - No weight given to claim severity differences above the variable threshold
- Claim severity remains a consideration in individual insurer pricing and underwriting plans and risk evaluation

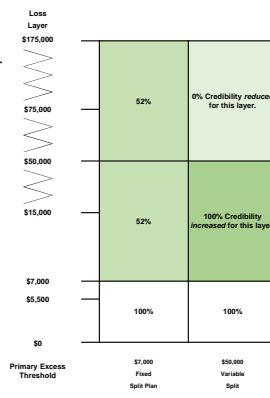
Impact of Claim Severity on Mid-Size Employers Approximately \$50,000 in Annual Premium Variable Split Primary Threshold: \$15,000



Comparison of Variable Split Credibility to Fixed \$7,000 Split Credibility by Loss Layer Employer with \$50,000 Annual Written Premium



Comparison of Variable Split Credibility to Fixed \$7,000 Split Credibility by Loss Layer Employer with \$1,000,000 Annual Written Premium



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Potential Future Changes to Experience Rating Plan Simplifying the Experience Modification Formula

Current Formula:

$$\frac{[(Ap \times Cp) + (Ep \times (1 - Cp))] + [(Ae \times Ce) + (Ee \times (1 - Ce))]}{E}$$

Ap = Actual Primary Losses	Ae = Actual Excess Losses
Cp = Credibility Primary Value	Ce = Credibility Excess Value
Ep = Expected Primary losses	Ee = Expected Excess Losses
E = Expected losses	

Potential Future Changes to Experience Rating Plan Simplifying the Experience Modification Formula

Current Formula:

$$\frac{[(\overset{1}{Ap} \times Cp) + (Ep \times (1 - \overset{1}{Cp}))] + [(Ae \times \overset{0}{Ce}) + (\overset{0}{Ee} \times (1 - \overset{0}{Ce}))]}{E}$$

Ap = Actual Primary Losses	Ae = Actual Excess Losses
Cp = Credibility Primary Value	Ce = Credibility Excess Value
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Potential Future Changes to Experience Rating Plan Simplifying the Experience Modification Formula

Current Formula:

$$\frac{[(\overset{1}{A_p} \times \overset{0}{C_p}) + (\overset{0}{E_p} \times (1 - C_p))] + [(\overset{0}{A_e} \times C_e) + (\overset{1}{E_e} \times (1 - C_e))]}{E}$$

A_p = Actual Primary Losses	A_e = Actual Excess Losses
C_p = Credibility Primary Value	C_e = Credibility Excess Value
E_p = Expected Primary losses	E_e = Expected Excess Losses
E = Expected losses	

Potential Future Changes to Experience Rating Plan Simplifying the Experience Modification Formula

With C_p = 1 and C_e = 0, the experience rating formula simplifies to:

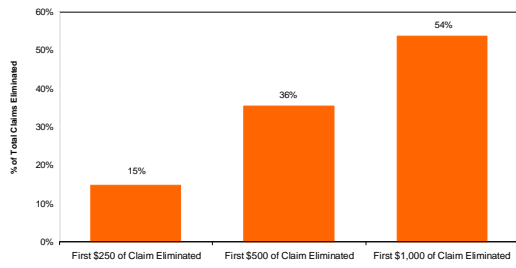
$$\frac{[A_p + E_e]}{E}$$

A_p = Actual Primary Losses	E_e = Expected Excess Losses
E = Expected losses	

Potential Future Changes to Experience Rating Plan Eliminating the Cost of Small Claims from Formula

- WCIRB reviewed alternative loss elimination thresholds - \$250, \$500 and \$1,000
 - Larger thresholds eliminated too many claims, significantly reduced plan accuracy and significantly increased loss free X-Mods
 - \$250 threshold will reduce incentive to not report first aid claims without significant loss of plan accuracy or decrease in the claim free credit
- The first \$250 of all claims would be eliminated from computation
- Potential plan change being reviewed by WCIRB committees – if accepted will be proposed to CDI in June 2017 to be effective January 1, 2019

Potential Future Changes to Experience Rating Plan Eliminating the Cost of Small Claims from Formula % of All Claims Eliminated by Alternative Threshold Amounts



Overview

Questions?

Contact Information: dbellusci@wcirb.com
