

Considerations When Rolling Out Predictive Modeling at the Small Group Level

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When I Say Rating Factors...

- Focus on the various increases or decreases that might be applied to a manual rate based on what “bucket” or “level” a particular group falls in based on its prediction.

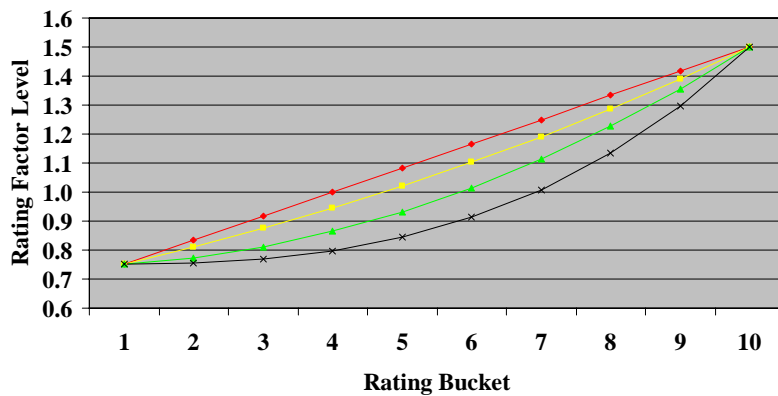
Example: best group gets $.75 \times$ manual
worst group gets $1.5 \times$ manual



First Thoughts on Rating Factors

- How many rating buckets on renewal?
- How does this number compare to levels for prospect rating?...doesn't have to equal.
- What percentage of business in each rating bucket?
- Any small group legislation dictating highest and lowest level for factors?
- Will likely need to be revenue-neutral in aggregate

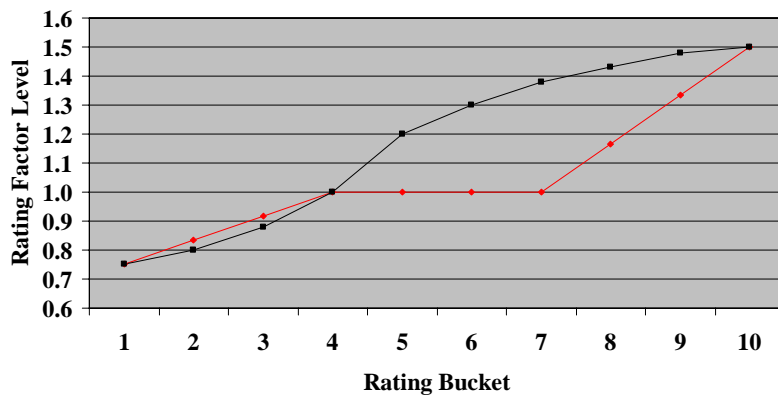
Considering Rating Factors



Rating Factor Reality

- Although it seems simple in hindsight, equal portions in each bucket probably won't achieve desired results
- Must skew membership distribution "to the left" to keep the overall revenue impact neutral
- Important business decision: How much in our best bucket...how much in the worst? This would certainly help define the rest of the curve
- Additionally, it is likely of benefit to have at least 5% of the business in each rating bucket. This minimum would ensure that each point carries some significance and 'weight'

Other variations to consider



Rating Factors are Linked

- This can and will cause unintended consequences when considering adjusting them. If one were to move the lowest or highest bucket's factor, the rest of the scale is likely to shift in tandem.

Prospect versus Renewal Factors

- Legislation around maximum and minimum rates will help shape the range of prospect factors as well as renewal factors
- Most likely the maximum and minimum factors will be the same for both renewal and prospect to avoid any unintended rating problems
- Understand the distribution of prospect business as well as for renewal business

How to work renewal factors into rating appropriately

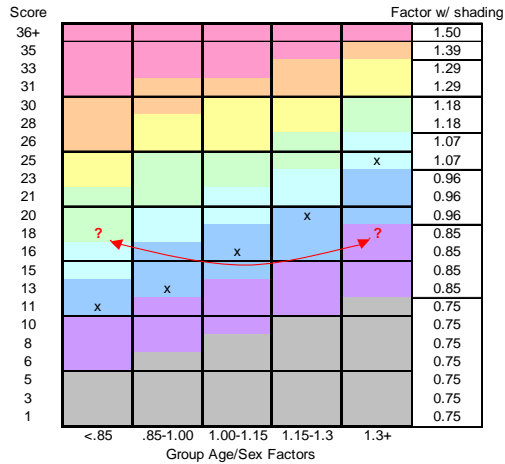
- Quite likely not going to use the renewal rating factors at face value.
 - What was the load/factor on a prospect basis?
 - Limitations in place for maximum increases and, for business reasons, decreases
 - Certainly a blend would be appropriate
 - Defining maximum credibility for renewal factor versus initial one would be an appropriate study and understanding if there is any 'bias' in the prospect rating as it plays out in predictive modeling upon renewal.
 - Could also vary credibility or factor level associated with renewal based on many other characteristics: group size, duration, age/sex factor level

Age/Sex factor consideration

Score	Factor w/ shading					
36+						1.50
35						1.39
33						1.39
31						1.39
30						1.29
28						1.29
26						1.29
25				x		1.18
23						1.18
21						1.18
20				x		1.07
18	?			x	?	1.07
16			x			1.07
15						0.96
13		x				0.96
11	x					0.96
10						0.85
8						0.85
6						0.85
5						0.75
3						0.75
1						0.75
	<.85	.85-1.00	1.00-1.15	1.15-1.3	1.3+	

Group Age/Sex Factors

Age/Sex factor consideration



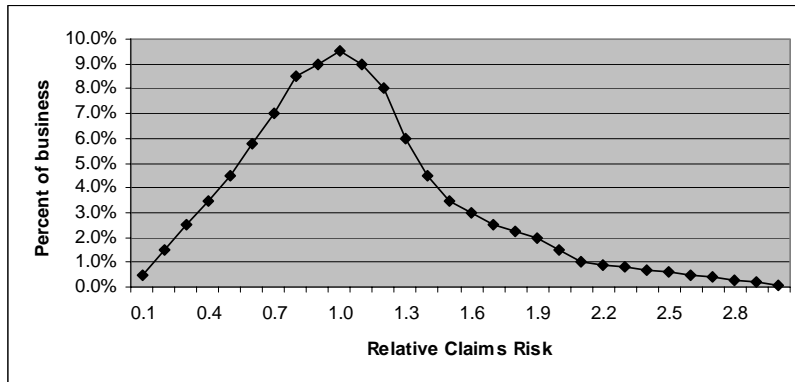
Thoughts on how to incorporate renewal rating factors

- Use a rolling, ‘existing’ factor to combine with new factor in same proportion each year
- Established ‘durational’ factors that permit aging off of old factors.
 - Examples of both on next slide

Comparison of Blending Methods

Rolling "Existing" Factor		Durational Factors	
• Initial U/W factor	1.00	Initial U/W factor	1.00
• Year 1 renewal factor	0.80	Year 1 renewal factor	0.80
• Year 2 renewal factor	0.80	Year 2 renewal factor	0.80
• Year 3 renewal factor	0.80	Year 3 renewal factor	0.80
• Use 75%/25% blending for old/new		1st renewal is $.75(t-1)+.25(t)$	
		2nd and later renewals is $.33(t-2)+.33(t-1)+.33(t)$	
• Year 1 rate	$0.75*1+0.25*0.8=.95$	Year 1 rate	$0.75*1+0.25*0.8=.95$
• Year 2 rate	$0.75*0.95+0.25*0.8=.913$	Year 2 rate	$0.33*1+0.33*0.8+0.33*0.8=.858$
• Year 3 rate	$0.75*0.913+0.25*0.8=.884$	Year 3 rate	$0.33*0.8+0.33*0.8+0.33*0.8=.800$

If your model uses 'relative risk',
bucketing steps are still the same



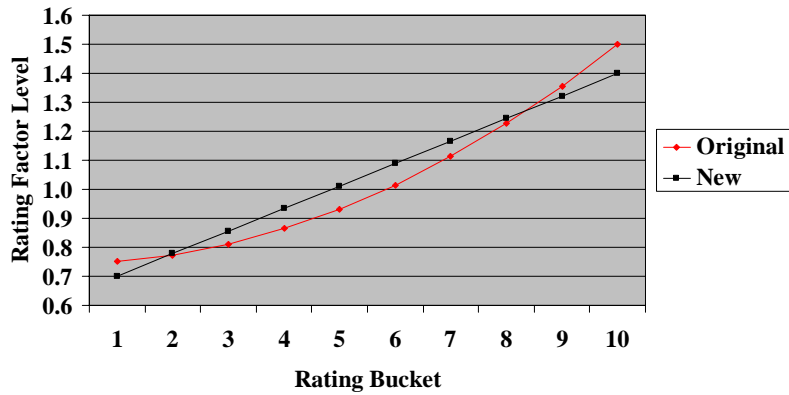
My Model Already Gives Us Cost Projections

- You still need to translate those values into a workable format. Quite likely some predicted estimates will be \$350 PMPM for a small group while some will be \$80. Because of the variation, there needs to be a way to still use the estimates, but within the confines of acceptable practices
- “Continuum” rating – Crucial in order to validate a model initially, but using each group’s projection for rating versus a bucketing methodology would definitely force variation from month to month. Even a simple requote the following month would result in inconsistency.

Determining the Impact Due to a Change in Rating Factors

- To do it with as much certainty as possible is very involved:
- Things to consider
 - Sensitivity to rate changes...complex concept
 - What portion of the business is subject to this change (and by how much)
 - Is this change revenue neutral? Or is it revenue neutral “in a vacuum”
 - Don’t do it alone...multiple department collaboration

Making a Change to Existing Rating Factors



Questions/Comments?