CFA actuaries and analysts have reviewed several recent auto insurance rate filings from major insurance companies and believe it would be extremely difficult for a regulator to determine the consumer impact of undisclosed price optimization. There are many factors that make the regulator’s ability to fully understand the impact of price optimization so difficult, if not impossible:

1. Where, when and how is price optimization applied? Some insurers show the current, indicated and selected rating factors for some factors but not all. Some show those for no factors, some only show the selected. Which of the rating factors have been impacted by optimization? One, several, all? In the case of a filing with 40 factors (some filings have more, most less), what is the overall impact on a specific consumer of “reasonably consistent” factors? Could not a specific consumer with a one-point “reasonably consistent” adjustment to all 40 factors suffer an impact on final price of 49%?
2. Is the “indicated” factor truly risk-based or has price optimization and/or other non-risk-based adjustments been made in developing the “indication”? At least one insurer appears to develop “indications” with non-risk-based factors included, which means that even the starting point is not risk-based.
3. How is the regulator to determine the compounding effect of many rating factors being optimized? In order to make sure final prices (after application of all factors, discounts and so on) are reasonable, it seems that the regulator might need to review information for all insureds showing the indicated premium, the risk-based indicated premium and the selected premium? This presents an impossible task for the regulator because the interaction of 40 factors each with several relativities could lead to a huge number of final premiums.

CFA has spent considerable time looking at rate filings in several states and our research confirms that finding price optimization is akin to searching for a small needle in one of several haystacks.

It is a “small needle” because, as Earnix and others have maintained, the impact on the bottom line of an insurer is an increase in profit of 1 to 4 percent. Since rate and class plan filings may be comprised of 40 or more rating classes each with rating factors used to determine an individual’s rate, the price optimization derived selections of rating factors can be difficult to determine. Which factor selections might have been price optimized? If, say, 5 factors were optimized by a half a percent each upward on average, that 2 ½ percent impact on the bottom line is hard to weed out of a complex rate filing. This is made even more complex by the possibility that the indicated rating factor may include the effects of price optimization.

Which haystack is this small needle in is another issue. Once price optimization is in place, it can be maintained for more than one filing by the filer simply selecting no change in the affected rating factors. If, that is, you've missed it once, you may not see evidence of it again for several filings even if you knew what to look for.

A comment on the Allstate and the Earnix method:

On behalf of Earnix, Mr. Miller’s responses to questions contains this statement:

*It would be counterproductive for a POM user to allow a model to determine a rate variation for individual insureds, because rate variation by individual insureds would require a rate filing that introduces a price‐elasticity rate factor into the premium calculation algorithm. A model user would accomplish nothing by introducing into the model a factor for individual rate variation, unless that factor could possibly be filed and approved by the regulator. In my opinion, rate factors that are not risk‐based are inconsistent with the rate laws in every state and unlikely to be approved.*

This describes the Allstate CRG filing, suggesting that Earnix believes Allstate’s filing produces illegal rates. CFA agrees.

But Earnix’s method also produces unfairly discriminatory as well as excessive or inadequate rates. Here is what Mr. Miller acknowledges about the Earnix method:

*Typically, a POM identifies the classes where the actuarially indicated rates and rate factors will likely lead to below‐target conversion and/or retention ratios. To the extent permitted by the user, the below‐target problems are resolved by rate factor tempering. The tempering of some rate factors creates an off‐balance (i.e., shortfall in the overall average rate level), or the need for an offsetting increase in the rates for the non‐tempered classes. If the model user does not permit any rate factors to go above the actuarial indications, the off‐balance will be built into the base rates, and all insureds will uniformly pay an amount above the actuarial indications. If the model user allows for some increase above the actuarially indicated rate factors, then the model will allocate the off‐balance only to those classes that will most likely tolerate the off‐ balance increase in rates, without also causing a decrease in the retention ratios. In the past, some regulators may not have recognized that rate tempering/rate capping was being offset by requiring all insureds in the non‐tempered classes to pay rates a little higher than the actuarially indicated rates. The offsetting rate increase was embedded in the base rates and applied uniformly across all classes. With POM’s, the off‐balance could be made to vary by class. The variable off‐balance factor will manifest itself in the rate filing by some proposed rate factors being above the indicated rate factors. Some regulators may not find the variable off‐ balance approach to be acceptable, which will result in the off‐balance being built into all base rates as has been done in the past.  (Emphasis added)*

A hypothetical will show how unfair discrimination will occur under the Earnix approach. Assume only two classes, each of equal impact on the final rate. Also assume that both have risk-based indications for rating factors of 1.00 if the insured does not have the characteristic and 1.10 if the insured does. If the increased factor for one of the characteristics is lowered or raised away from its indicated cost-based factor by price optimization, the other will have to be moved in the opposite direction to correct for the off-balance according to Mr. Miller. Assume the change is 5 points in the factor. The resulting rating factors for each characteristic will be 1.15 and 1.05 rather than 1.10 each. Two identical insureds without either of the factors will pay the exact same rate (1.00 \* 1.00). Two insureds with characteristics that produce the higher price will also pay the same rate (1.15 \* 1.05 = 1.207, close to what the risk-based indication would have produced 1.10 \* 1.10 = 1.210) But two insureds who would have paid the same rate had the indications been followed who have one adverse characteristic factor but not the other will pay quite different rates (1.00 \* 1.05 = 1.05; 1.15 \* 1.00 = 1.15, a difference of 1.15/1.05 = 9.5%) For this subset of insureds, the rates will clearly be unfairly discriminatory.

Earnix leaves it to the regulators to find these hidden examples of unfair discrimination and disapprove the filing. Here are several examples of how the regulators will be burdened to find and disapprove the currently hidden price optimization impacts, quoting Earnix:

*Some model users may permit the model to produce rates that exceed the indicated rate factor for a specific class. Such a departure would be evident in the rate filing, because the proposed rate for the class would exceed the indicated rate. Regulators will deal with that situation...*

*Presumably, rate changes not reasonably consistent with projected costs would be disapproved by the regulator, with or without the use of a POM.*

*A POM could be used to make competitive adjustments to rate factors between risk classes (referred to in this question as “Ratebook Optimization”). The adjusted rate factors would not necessarily be unfairly discriminatory, as long as the rate factors are risk‐based factors and reasonably consistent with projected losses and expenses.*

*Monitoring retention ratios, production ratios, and conversion ratios may be the more direct way to monitor how a specific rate schedule is actually performing in the market. Given the increased confidentiality afforded some information included in rate filings, it may become difficult to compare rates and monitoring these important ratios may soon become the primary source of competitive information for competing insurers.*

*The greater the swing in the permitted adjustments, the greater is the likelihood the rates will be disapproved by the regulator. This is because the greater the swing in the permitted adjustments, the greater will be the differences between the actuarially indicated rate factors and the proposed rate factors presented in the rate filing.*

Regulators cannot allow themselves to be placed in the untenable position such as Earnix proposes in this complex list of new requirements for the state regulators to sholder.

Allstate's letter and presentation on May 11 to CASTF admits to using price optimization.  They say, "we do not engage in price optimization that seeks to charge the highest price the market will bear."  So they engage in some other sort of price optimization. They claim that they do it in a way that minimizes judgment and defines the outcome.  They claim it is all legal, but it is not, as several states has already declared.  They apply price optimization as a rating factor to groups of people put into Complementary Rating Groups by "marketplace considerations" that are not risk-based.  This method absolutely results in unfair discrimination among persons of the same risk, as even Earnix points out.

The Allstate presentation is misleading, but the truth is between the lines.   Note that Allstate, at slide 9, admits that the CGR factor is applied as a rating factor, impacting people's final price, individually.  Tellingly, this new factor, Allstate admits on the slide, is "An additional rating calculation step (which) is added for the Complementary Group Rating Factor."  Thus, this is in addition to the historic risk-based factors and is added to them.  This is a critical admission since we know that this includes non-risk based elements such as competitive analysis and also "marketplace considerations" (read: price optimization).  Thus the resulting price is not wholly risk based.  Also, the resulting price becomes the "indicated" price so when Allstate promises to keep a price between current and indicated, it does not promise to keep it below a risk-based "indicated" rate.  So, if a person has a current rate of $100 and a risk-based indicated rate of $100 but the person is a poor shopper so has a CRG factor of 1.10, the new "indicated rate becomes $110.  Allstate then might "generously" only raise the person's price by $8, being $2 less than the new "indicated" rate but $8 above the risk-based indicated rate. Slides 10 and 11 of Allstate’s CASTF presentation show how people are put into individual slots ("micro-segments")..."hundreds of millions" of these slots.  These hundreds of millions of individuals are then grouped, based on something Allstate does not disclose but includes "marketplace considerations" as we see in the filings, into 1,000 Complementary Rating Groups.  Each of these CGRs has a "rating factor...applied as a new rate step" (see slide 12).  The calculation of this factor is not disclosed but we know it is not just risk based since the risk is determined in the earlier rating steps in the Premium Calculation section of the Allstate filings