

Ratemaking With Dynamic Data

Joe Griffin, Senior Consulting Actuary with Pinnacle Actuarial Resources, said that dynamic data is changing the game for territorial ratemaking. Following are excerpts from an interview.



What is changing about territorial ratemaking as insurers gain access to dynamic datasets?

Dynamic datasets have been a breakthrough for insurers. They allow deeper and more accurate analysis, which can be applied directly to more refined and effective territorial ratemaking. Historically, inputs to most territorial analyses have been derived from data up to 15 years old, and the analyses were performed after other traditional modeling exercises. With more dynamic datasets, it's possible to incorporate territorial analyses earlier in the modeling process. And because inputs essentially change in "real time," the models are more accurate and the inputs update automatically, eliminating the need for teams to manually input new data.

Joe Griffin

Senior Consulting Actuary,
Pinnacle Actuarial Resources

"Combining traffic-based contextual data with telematics-based scoring could be step-change improvement in personal auto ratemaking."



Scan or click to watch an interview with Joe Griffin.

How can data on changing traffic patterns help actuaries develop more accurate views of risk?

As automobile traffic in communities develops or changes, traffic pattern data can reflect the risk profile of a specific geographic location more quickly and accurately than demographic data, which has historically been used to determine geographic risk. Traffic pattern data in a specific territory reflects common demographic shifts like population density, of course, but also changes in road design and speed data that add context to driving risk and reflect changes in driving patterns more quickly. If a four-way stop is changed to a roundabout intersection, for example, demographic data would not likely provide appropriate context for the new risk landscape. The traffic pattern dataset detailing the roundabout's effects on vehicle speed and crash frequency, however, will provide better insight into the intersection's new risk profile.

What are some of the most promising applications you're seeing for dynamic data in personal auto ratemaking?

Telematics-based scoring is at the forefront of how dynamic data is being used in personal auto ratemaking. As vehicles become increasingly connected, insurers have access to data beyond traditional telematics. Information such as the utilization of advanced driver assistance systems features, such as emergency braking, and in-cabin context such as seat belt usage provide a more complete picture of the driving experience. By placing greater emphasis on driver behavior, insurers can obtain a more accurate representation of individual risk while reducing potential for unintended bias associated with traditional variables like age and gender.

How do you determine which data points are truly predictive of loss?

As with any analytics project, there are several variables to consider. Some data elements may primarily reflect crash frequency, while others may be more predictive of severity. One of the key challenges in evaluating these new datasets is determining whether they provide meaningful lift beyond what is already captured in traditional modeling approaches. A fundamental question is whether the new datasets are intended to simply supplement existing models, replace them entirely or fall somewhere in between. Robust validation exercises are critical to understanding whether existing models already capture the effects of the new data elements and, ultimately, whether incorporating them provides meaningful predictive value.

Looking ahead, could dynamic data fundamentally change how insurers define territories?

Yes, traffic-based dynamic data is captured at the individual road segment level, providing a level of geographic granularity that is far more precise than traditional territory definitions in the market. While this offers an opportunity to better understand the driving environment associated with defined territories, we also have an opportunity as an industry to reflect this information much more frequently. Dynamic datasets can be leveraged to update an individual's territory rating more frequently, reflecting the new risk profile of the defined territory. These changes could be incorporated at every policy renewal, if desired.