American Academy of Actuaries

Issue Brief

Considerations for Handling Auto Insurance Data in the Era of COVID-19

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Key Points

- Many insurance companies have issued refunds, premium credits, dividends, or rate reductions to reflect the lower-than-previously-expected loss levels in the current policy terms.
- Data for 2020 will look quite a bit different than in prior, and possibly future, years and will make the interpretation of the 2020 diagonal in the loss triangles difficult.
- While the duration, size of the data impact, and state variations due to COVID-19 are unknown at this point, this issue brief is intended to provide considerations that might be made by actuaries and regulators overseeing automobile insurance in this interim period.

During the current COVID-19 pandemic, because many states implemented various orders such as "shelter in place," companies instituted work-from-home policies, nonessential businesses temporarily closed, and many gatherings and events were canceled, the amount of miles that people are driving for personal use has decreased. By some estimates, miles driven in some months of 2020 declined by 30% or more.[1] This decline in miles driven has also reduced personal lines automobile accident frequencies over this period. However, some companies have expanded coverage for delivery drivers who use their personal vehicles for this service (typically a commercial coverage), which could temper the effect on the frequency decline. On the severity side, claim costs may be impacted adversely due to changes in the mix of claims, with a higher percentage of more serious incidents given that some drivers are speeding excessively with the less-congested roadways. Additionally, disruption in the supply chain may also contribute to increases in the cost of needed vehicle repairs. For commercial automobiles, while some commerce has been impacted, certain commercial vehicles may not see a large mileage decrease because they are continuing to be needed to supply grocery stores, at-home deliveries, home contractor work, etc. However, it stands to reason that in the same shorter-term period their accident frequencies may still decline as roads are less traveled.

In response to these possibly short-term impacts, many insurance companies have issued refunds, premium credits, dividends, or rate reductions to reflect the lower-than-previously-expected loss levels in the current policy terms. Suffice it to say, data for 2020 will look quite a bit different than in prior, and possibly future, years and will make the

1 "Daily Vehicle Travel During the COVID-19 Public Health Emergency"; Bureau of Transportation Statistics website. Accessed February 19, 2021.

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interpretation of the 2020 diagonal in the loss triangles difficult. The actuary has many aspects to consider when performing future ratemaking and reserving activities. In addition, state insurance regulators will consider many of these same aspects as well when reviewing rate filings, for example. While excluding this very unique 2020 data may be a valid option, this issue brief looks at other considerations that the actuary might make during this time period.

While the duration, size of the data impact, and state variations due to COVID-19 are unknown at this point, this issue brief is intended to provide considerations that might be made by actuaries and regulators overseeing automobile insurance in this interim period. This is not meant to be prescriptive or exhaustive in nature because individual company situations will vary for numerous reasons. Also, where applicable, relevant actuarial standards of practice (ASOPs) are noted that the company/consulting actuary or regulatory actuary should refer to for guidance.

Ratemaking Basics:

Ratemaking for auto insurance takes a prospective view based on estimates of future losses and expenses. Ratemaking is prospective because the property and casualty insurance rate must be developed prior to the transfer of risk. Actuaries consider a number of factors when projecting these future costs, such as expected frequency of accidents, amount of miles driven, inflation related to repair costs, inflation related to medical care, age of the insured / driver, type and cost of vehicle being insured, etc.

Typically, this prospective view looks 12 to 24 months into the future. This is based upon the length of time it takes to finalize these projections once new data is obtained, to assemble and to get approval for rate filings, and to perform the internal company work that it takes to implement a rate change for customers. This also considers the period of time the rates will be in effect. Importantly, short-term changes that are not expected to continue for the time the rates will be in effect are not to be included in future cost projections. COVID-19 is an extraordinary event that is having a significant impact on data resulting from a precipitous drop in frequency followed by a slow movement

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toward prior levels in some segments. It also can possibly mean further analysis is needed regarding current assumptions used for ratemaking and reserving. Actuaries would typically consider what kind of adjustments or normalization are needed to account for the data impacts from this extraordinary event.

Rate Indications:

When considering auto insurance rate indications, actuaries look at all aspects of the rate indication process for potential impacts or adjustments that need to be made to the data and the current assumptions. While these aspects will vary depending on the ratemaking methodology used by a company, some considerations include the following.

- Frequency trends—impacts due to reduced miles driven and traffic congestion
- Severity trends—impacts from medical or repair cost inflation, increased driving speeds due to less traveled roadways, or impacts on litigation and settlements due to closed or backlogged courts
- Loss development—changes to development and/or claims settlement patterns
- Premium/exposure trends—have these been or will they be impacted by customer behavior changes such as increased take-up of usage-based insurance, coverage changes being made by customers, delay of cancellations that insurers have implemented for customer nonpayment of premium, changes related to fewer miles driven if mileage is part of the rating plan, or model year trend changes resulting from the disruption in the production of new vehicles?
- Loss adjustment expenses (LAE)—changes to these expenses from developments such as slowdown in court activity, digital settlements or changing percentage of some fixed claim adjustment costs when claim volume is decreasing
- Underwriting expense data—has other 2020 expense data for the insurance company been impacted by less travel, work from home, changes to commissions if more business is purchased online, etc.? ASOP No. 29, *Expense Provisions in Property/Casualty Insurance Ratemaking*, is also consulted by actuaries for additional guidance.
- Profit/contingency provisions—do these need to be reassessed due to increased uncertainty in the rate projections or any long-term impact on investment income and surplus? ASOP No. 30, *Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*, provides applicable guidance.

Both the base data being utilized and the trends may be impacted, and so the actuary would typically consider possible adjustments to either. For example, giving too much weight to the experience period with lower frequency/losses may understate an indication compared to what may be experienced in future time periods. Or, if the impacted 2020 period is part of the loss trend calculation, it may give the false impression of a frequency decrease that is actually due to other factors not expected to continue over the period for which the new rates are being developed. ASOP No. 13, *Trending Procedures in Property/Casualty Insurance*, discusses several considerations an actuary should take into account, such as selecting the data for trending or the methodologies to use.

As noted previously, many companies have issued premium credits, refunds, or dividends to reflect the better–than-expected claims costs. Actuaries would typically have full awareness of how such adjustments were made for their companies and properly reflect or adjust the base data or trends to account for this. For example, have such adjustments been coded in a way that they can be identified either in aggregate or on an individual policy level? Because these adjustments may be retrospective, and ratemaking is prospective, proper handling of these is essential. The National Association of Insurance Commissioners' (NAIC's) Statutory Accounting Principles (E) Working Group (SAPWG) has developed some additional guidance for this situation[2]. Even with this guidance, it is important for the actuary to know how his or her company is handling the adjustments. ASOP No. 23, *Data Quality*, also provides guidance as the actuary is selecting, preparing, or reviewing the data.

It is highly likely that the data impacts from COVID-19 will vary by coverage. For example, while fewer miles driven will reduce frequency in certain coverages, others—such as comprehensive coverage—are likely impacted to a lesser degree by that phenomenon. As an additional example, history has shown that in difficult economic times, car thefts increase. It is likely that frequency and severity trends will differ by coverage. Therefore, impacts on trend or base data adjustments are to be reviewed by individual coverage where possible.

ASOP No. 53, *Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention*, also provides guidance to the actuary when performing tasks related to developing future cost estimates for risk transfer. For example, this ASOP discusses how the actuary should consider whether historical data is appropriate for use and ways to adjust such data if necessary.

2 See https://content.naic.org/sites/default/files/inline-files/INT%2020-08%20-%20Premium%20refunds.pdf.

Reserving Impacts:

Similar to ratemaking, there are impacts of COVID-19 that may affect the loss reserving process. Many of the considerations discussed in the Ratemaking section will apply to reserving, such as the expectation of different impacts on trends by coverage.

However, there are some unique impacts for reserving actuaries to be aware of and for consideration. For example, traditional loss development methods within the reserving process implicitly assume a "steady state" in the data when using past development patterns to project future developments. (Note that this will also apply to the loss development portion of the ratemaking process.) This includes, but is not limited to, a consistent average accident date across accident periods, consistent reporting patterns of claims, and consistent time to settlement. All of these are likely to be impacted by COVID-19, and there will likely be other potential changes. For example, if accident-year data is used in the reserve analysis, the average accident date during 2020 will likely be different than prior accident years. With a different average accident date, this suggests a different "age" of the underlying loss and claims data for accident-year 2020. This 2020 data will likely develop differently than other accident years which have a more consistent average accident date (around July 1 if it is assumed accidents occur evenly throughout the year). Using accident-month or accident-quarter data if available could prove helpful to mitigate the impact in these circumstances, but awareness that differences in the average accident date for these shorter segments may exist is still important.

In addition, reserving actuaries likely may consider adjusting their approach in selecting an expected loss ratio or pure premium used in the Bornhuetter-Ferguson and Cape Cod methods. Generally, the approach to selecting an expected loss ratio or pure premium relies on historical data adjusted for changes in loss trends and/or rate level changes. Due to the notable change in the expected loss costs for the time periods impacted by COVID-19 (and potential impacts of premium refunds), a traditional expected loss ratio or pure premium approach will likely not be reflective of the actual loss costs during this time.

Due to the increased uncertainty caused by COVID-19 and its impact on future costs, the actuary may want to consider having a wider range of estimates than he/she typically would. This is similar in concept to the discussion about profit and contingency provision that was noted in the Ratemaking section.

ASOP No. 43, *Property/Casualty Unpaid Claim Estimates*, is available to provide guidance when developing reserves. Also, the Academy's Committee on Property and Liability Financial Reporting has recently issued a set of FAQs (*P&C Financial Reporting Considerations With Respect to COVID-19*) that provide excellent information in this situation.

Rating Plan Considerations:

Depending on the specifics of a company's rating plan, there are many considerations made, such as taking into account whether the rating plan explicitly includes a mileage component. Similarly, if the rating plan includes a usage-based insurance/telematics aspect, then the adjustments potentially needed for that data will likely look very different than they would for rating plans that do not include such features. For example, such plans may explicitly adjust for changes to driving exposure from decreased mileage and not require any further data adjustments due to this phenomenon. Actuaries pricing rating plans that include these components would typically want to understand whether the actual mileage and driving patterns captured reflect the future expected patterns or whether adjustments may be considered.

Commercial and Other Types of Vehicles:

Both company/consulting actuaries and regulators also review potential impacts due to COVID-19 on other types of vehicles beyond private passenger automobiles because the impacts could vary considerably.

Earlier in this issue brief, commercial vehicles were referred to briefly in terms of potential impact on driving behavior and claims costs. It also is important to recognize that within the broad categorization of commercial vehicles, different types can also be experiencing different frequency, severity, or cost trends—so a deeper review within the commercial type is likely appropriate. Also, commercial auto policies may incorporate other unique rating aspects such as schedule rating, experience rating, or auditing for exposure base changes. Familiarity with any unique aspects of such policies by actuaries would facilitate appropriate adjustments.

There are also many other types of vehicles that may or may not have similar impacts due to COVID-19. Some that may need to be considered include review of:

- Motorcycles—are they used as a primary mode of transportation, and therefore may have seen similar driving mileage decreases, or are they used primarily as recreational vehicles?
- Off-road vehicles
- Motorhomes
- Antique vehicles
- Classic vehicles

Other Considerations:

Other aspects that actuaries may consider when performing ratemaking and reserving activities given the COVID-19 situation include, but are not limited to:

- Some state insurance departments have issued bulletins requiring companies to reduce rates due to changes in driving behavior or delay policy cancellations due to nonpayment of premium. It is important to know which states have issued what guidance and what types of vehicles (just personal, or other types) such orders apply to. The ASOPs also typically discuss standard disclosures if any material method or assumption was prescribed by law.
- Similarly, some states have issued or are considering laws or regulations impacting usage of various rating factors such as credit-based insurance scores. Actuaries can stay up to speed on any such laws, regulations, or bulletins that can impact the rating plans for the states they are responsible for by either referencing the NAIC Coronavirus Resource Center,[3] or, if an Academy member, by accessing StateScan.[4]
- Due in part to the tremendous interest in data impacts from COVID-19, there are many third-party data providers that can be helpful references and resources. This third-party data can be considered to help understand the impacts on driving and claiming behavior with 2020 data on a broader, industry basis by state, which may be essential especially for smaller companies to utilize if they do not have enough data themselves to work with. Also, data from past years can provide useful comparison for companies as they are reviewing 2020 experience. Finally, data from these third-party providers can be useful for regulators to consider as they are reviewing adjustments and trends provided by companies in rate filings and reserve opinions.
- From an actuarial communication perspective, documenting the uncertainty or other adjustments made due to data impacted by COVID-19 should also be considered. ASOP No. 41, *Actuarial Communications*, provides important guidance.
- Finally, the actuary or regulator may want to consider monitoring results frequently given the rapidly changing environment and data related to COVID-19. Along with monitoring of results, consideration of how to nimbly react to actual costs that differ from projected costs is recommended.

3 https://content.naic.org/naic_coronavirus_info.htm.
4 https://www.actuary.org/content/state-legislative-portal.

Conclusion:

Of course, the impacts of COVID-19 have been significant and numerous thus far, and the automobile insurance coverage is but one example of an area that has been uniquely affected. As actuaries develop future rates and reserve estimates, many considerations are going to be included, as have been outlined in this issue brief. The ASOPs provide useful guidance for the practicing actuary and state insurance regulator. Actuaries will make efforts to understand the data that they have as well as the environment from which it came. They will use their expertise and professional judgment to project that information into the future in what has become an increasingly uncertain and variable environment. Given this high degree of uncertainty in terms of both duration and impact on future costs due to COVID-19, consideration may be given to not react too strongly to data as unintended consequences could result. As always, both company/consulting actuaries and regulators balance many considerations as they determine future cost projections.