

ANNUAL REVIEW OF INDUSTRY EXPERIENCE – PRELIMINARY REPORT AS OF DECEMBER 31, 2021

PRIVATE PASSENGER VEHICLES

ALBERTA AUTOMOBILE INSURANCE RATE BOARD

June 28, 2022

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1. Executive Summary

1.1. Purpose and Scope

Oliver, Wyman Limited (Oliver Wyman), actuarial consultants to the Alberta Automobile Insurance Rate Board (AIRB or the Board), prepared this report as part of the Board’s “2022 Annual Review” of insurance industry loss experience. The purpose of this report is to support the determination of Benchmarks for rate filings submitted between October 1, 2022 and March 31, 2023.

This report presents the results of our analysis of insurance industry private passenger vehicles loss and expense experience in Alberta reported as of December 31, 2021 for the 2022 Annual Review.

The scope of our analysis includes all coverages:

- Basic Coverage: Third Party Liability (TPL) and Accident Benefits (AB)
- Additional Coverage: Collision, Comprehensive, All Perils, Specified Perils, and Underinsured Motorist

1.2. Summary of Key Findings

In Table 1, we present a summary of our selected benchmarks¹ for the current and prior reviews:

Table 1: Estimated Annual Past/Future Loss Cost Trend Rates

	2022 Semi-Annual Review: Data as of June 30, 2021	2022 Annual Review: Data as of December 31, 2021
Trend Benchmarks		
TPL-Bodily Injury	+6.5%/5.0% ²	+7.0%/5.0% ³
TPL-Property Damage	+1.5%	+1.5% / ‡
DCPD ⁴	+1.5%	+1.5% / ‡
AB – Total	+1.0%/+12.0% ⁵	+1.0%/+12.0% ⁶
Collision	+2.5%	+2.5% / ‡
Comprehensive	+5.0%/3.5% ⁷	+5.0%/3.5% ⁸ ‡

¹ We refer to these as “selections” in this report.

² Future trend rate begins November 1, 2020, consistent with the recent reform.

³ Future trend rate begins November 1, 2020, consistent with the recent reform.

⁴ The DCPD and TPL-PD trend selections are based on the combined experience, as DCPD was introduced January 2022.

⁵ Future trend rate of +12.0% begins January 1, 2015; most rate applications consider data after 2015.

⁶ Future trend rate of +12.0% begins January 1, 2015; most rate applications will only consider data from 2015 and onward.

⁷ Future trend rate begins October 1, 2020.

⁸ Future trend rate begins October 1, 2020.

	2022 Semi-Annual Review: Data as of June 30, 2021	2022 Annual Review: Data as of December 31, 2021
All Perils	+2.5%	+2.5% / ‡
Specified Perils	+3.0%	+3.0% / ‡
Underinsured Motorist	+2.0%	+2.0%
‡ For the 2022 c Review the <i>future</i> trend rates for property damage, collision, comprehensive, specified perils and all perils, to be modified to account for changes in economic conditions. (See Section 7)		
Other Benchmarks		
Health Cost Recovery	3.55% of TPL Premiums	3.55% of TPL Premiums
Operating Expenses	26.0% of Premiums	27.1% of Premiums ⁹
Profit Provision	7% of Premiums	7% of Premiums

1.3. Relevant Comments

Data

The data utilized in this study and presented in this report is based on information published by the General Insurance Statistical Agency (GISA) that has been compiled by GISA’s service provider, the Insurance Bureau of Canada (IBC) through to December 31, 2021.

Our analysis reflects the aggregated experience of the insurance industry including the Facility Association (FA)¹⁰ and the two Risk Sharing Pools (RSPs), and may not be appropriate for an individual insurance company whose portfolio of risks, rates, expenses, and operating characteristics may differ from the insurance industry averages that underlie our findings.

We refer to the insurance companies operating in Alberta, including the Facility Association and the two Risk Sharing Pools, as the “Industry”; and we refer to the aggregate claim or expense experience as “Industry experience.”

As part of our review process, we consider the individual data of the largest ten insurers/groups in the province for any anomalies in the data that we find may inadvertently lead to an erroneous selected loss trend rate. Only in those situations that we consider the data to be both highly unusual and impactful do we remove the individual insurer/group data from our analysis. In the case of the physical damage coverages,¹¹ we identified a major insurer/group whose average severity has a very steep rise in 2021, with a severity amount that is materially higher than all other insurers. For this reason, the physical damage data of this one insurer/group was excluded from our analysis.

⁹ We were provided by the AIRB with an advance copy of the data underlying the 2021 Expense Report (currently in draft form).

¹⁰ Due to the low volume of FA risks, we find the inclusion or exclusion of the FA data does not materially affect our calculated loss trend rates, although the FA experience does have a higher average loss cost per vehicle than the industry.

¹¹ In this instance, we define physical damage coverages to include property damage, collision, comprehensive, all perils, and specified perils.

Heightened Uncertainty – COVID 19, Bill 41 Reforms, and Rising Inflation

There is greater uncertainty in the estimates we present in this report due to several factors.

- The COVID-19 pandemic affected loss costs for 2020 and 2021, mainly driven by a decline in the claims frequency rate. As return to a “new” normal in 2022 unfolds, there is uncertainty as to the lasting impacts of the pandemic with respect to future claim frequency rates. Will the increase of remote and hybrid work result in a sustained lower frequency level? Or will increased use of private vehicle with reduced use of public transit offset effects of remote and hybrid work?

Current projections of mileage and mobility (cell phone data) indicate a return to pre-pandemic levels in 2022. Consistent with those projections, our analysis and loss trend selections assume a return to pre-pandemic frequency levels for rate applications subject to the proposed benchmarks.

- Bill 41, effective November 2020, expanded accident benefits limits and those claimants subject to the bodily injury minor injury cap. The timing of the reform introduction occurring during the pandemic creates additional challenges to isolating early estimates of the actual claims cost impact of the reforms. Therefore, we continue to assume the *a priori* claims cost savings of the reforms will be realized.
- The rise in inflation associated with vehicle parts, maintenance and repair costs that began late in 2021, and began to surge into 2022 is not fully embedded in the claims cost data (through to December 31, 2021) we analyze in this review. As a result, particularly for physical damage coverages, our measure of the past loss trend rates may not be an accurate indication of future trend rates. For this reason, we present an approach to consider the changes in the consumer price index for vehicle parts, maintenance and repair costs since 2021 that will apply to the future trend rate.
- In contrast to rising costs for vehicle parts, a surge in gas prices may lead drivers to reduce their vehicle usage. This possible vehicle usage reduction would likely be correlated with a reduction in the claims frequency rate. Reaction by consumers to surging gas prices can be considered as part of the future trend rate selection.

Profit Levels

The COVID-19 pandemic impact on driver behaviour, and resulting reduction in claims costs produced windfall profit in 2020 and 2021. Any reasonable expectation of vehicle usage in the post-pandemic era anticipates profit levels to reduce from the high 2020 and 2021 levels. While the industry experienced unusually high profit levels in 2020 and 2021, well beyond the Board’s 7% of premium profit provision, the industry experienced profit levels well below the 7% of premium level since 2013.

Rate setting is a prospective analysis of future costs without carry-forward of past profits (or losses). The recent unprecedented profit levels during 2020 and 2021 is not a consideration in setting loss trend rate benchmarks for this report.

Loss Trend Benchmarks

Loss trend rates are factors that are used in the determination of rate change need. They are applied to the historical experience period ultimate incurred losses to adjust those losses to the cost levels that are anticipated during the policy period covered under the proposed rate program.

The application of trend rates is a two-step process. The data in the experience period under consideration is adjusted to reflect observed changes in cost conditions that have taken place (i.e., “past trend”), and then the data is further adjusted to reflect future changes in cost conditions that are expected to occur between the end of the experience period and the period the new premiums will be in effect (i.e., “future trend”).

Therefore, past trend rates should reflect the cost level changes that occurred during the experience period. Future trend rates should consider those changes as well as the likelihood that those patterns may change.

Our analyses of past trend rates consider the impact of the various reforms and government actions occurring during the experience period. We note the 2020 and 2021 claim experience is exceptional due to the COVID-19 pandemic and the introduction of reforms in the last quarter of 2020.

The recent rise in inflation, and uncertainty surrounding future inflation, adds uncertainty around selecting an appropriate future trend rate.

Applicability of Benchmarks

In this report we present our findings as respect to the assumptions, factors, and provisions for the Board’s consideration in its review of individual rate filings. The projection of future rate needs is subject to considerable uncertainty. For this reason, we provide rationale for the assumptions, factors, and provisions we present, as well as information to help the Board evaluate their reasonableness.

We note that our recommended assumptions, factors, and provisions presented in this report are preliminary. It is our understanding that our preliminary report will be posted on the Board’s website, and we will consider comments from interested parties before issuing a final report.

This Preliminary Report of Industry Experience is an opportunity for parties to express views for consideration by the Board. We suggest the Board consider the reasonableness of additional information provided by interested parties as it may be more current or may provide more insight into the Industry private passenger vehicle claim experience (particularly as respects the bodily injury coverage) that has emerged or is expected to emerge. However, in so doing we suggest the Board also consider that the experience of one insurer may not be representative of the experience of the Industry.

We also suggest the Board recognize that while it may be that, alone, an alternate assumption, factor, or provision may be reasonable, it may not be reasonable to combine alternate assumptions, factors, or provisions.

1.4. Report Organization

- In Section 2, we present the most recent 10-years of industry private passenger vehicle (PPV) premium and loss experience in Alberta.
- In Section 3, we estimate the historical profit realized by the industry for each accident year based on our estimates of ultimate loss and expense amounts as of December 31, 2021.
- In Section 4, we compare our estimates of industry accident year profit to the calendar year profit reported by GISA in their 2021 Financial Information Industry Profit and Loss (FIIP&L) report.

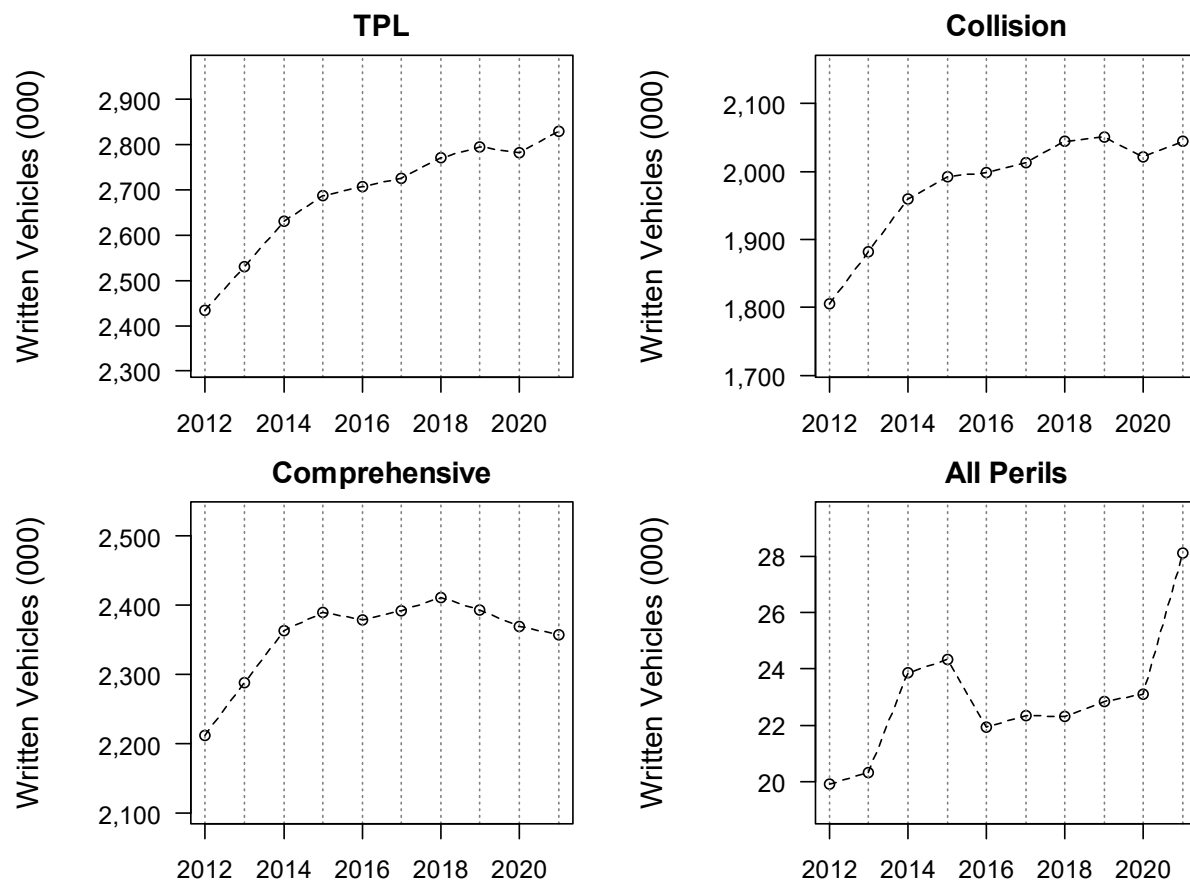
- In Section 5, we present the background of automobile insurance regulation in Alberta, including the historical legislative reforms and government actions taken since the creation of the AIRB.
- In Section 6, we discuss our selected cumulative development factors, used to estimate the ultimate frequency, severity, and loss costs underlying our trend and profitability analyses.
- In Section 7, we present our trend analysis for each major coverage.
- In Section 8, we present Board's current benchmarks and information regarding the additional provisions that insurers must consider in their rate filings, including: Loss Adjustment Expenses, Catastrophe Provision, Investment Income on Cash Flow, Health Cost Recovery, Operating Expenses, and Profit.

2. Summary of Alberta Private Passenger Vehicle 2012 to 2021 Experience

2.1. Growth of Insured Vehicles

Since 2012, the number of private passenger vehicles in Alberta has increased annually, except for a slight decrease in 2020, likely due to COVID-19. Figure 1 presents the number of written vehicles insured over each of the last ten years for third party liability¹², collision, comprehensive and all perils coverages. The number of insured vehicles rose from approximately 2.4 million in 2012 to 2.8 million in 2021.

Figure 1: Written Vehicles

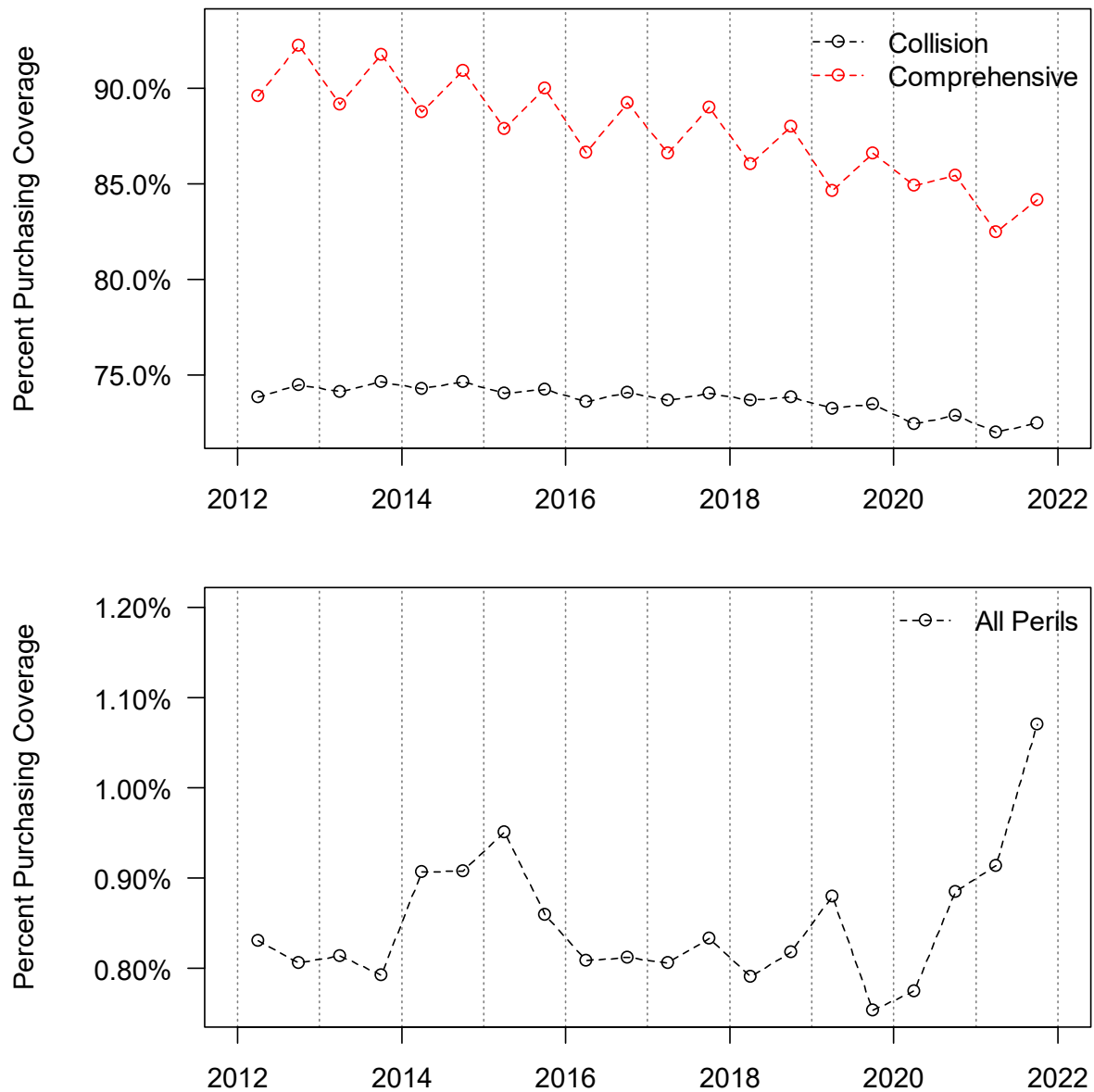


In contrast to TPL, collision and comprehensive coverages had a flatter growth pattern, with a slightly declining pattern beginning in 2018 for comprehensive. The steep rise shown in the lower left panel of Figure 1 during 2021 for all perils is due to an additional 5,000 risks on a small volume, increasing from approximately 23,000 to 28,000.

¹² The growth in TPL is representative of all mandatory coverages which includes accident benefits.

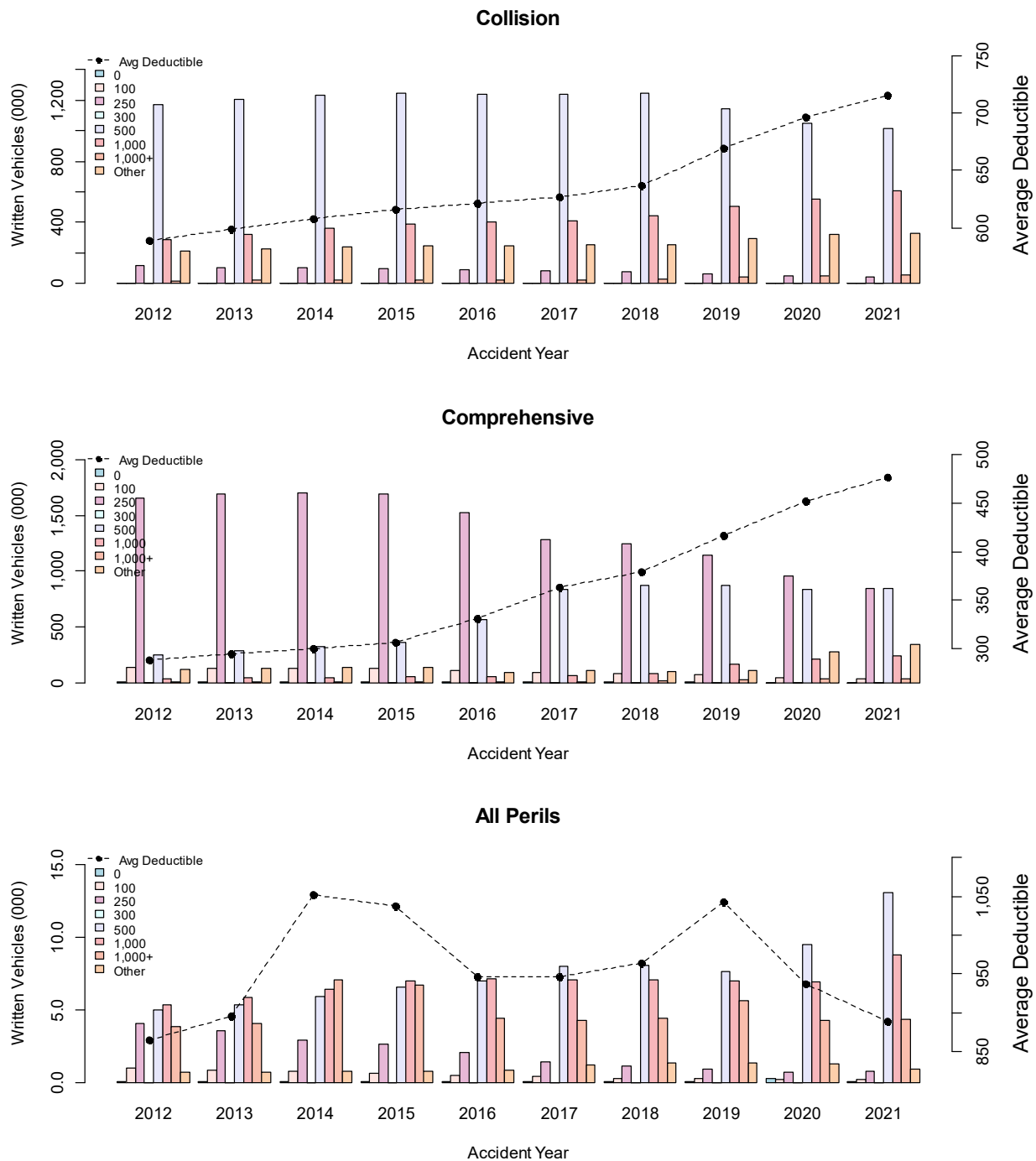
In Figure 2 we present the percentage of risks purchasing the optional physical damage coverages. The number of vehicles is on a semi-annual basis to highlight the seasonal pattern for comprehensive coverage due to the temporary removal of coverage during the first half of the year. Over the last ten years there is a decreasing percentage of risks with comprehensive coverage and a modest decrease in the percentage of risks with collision coverage.

Figure 2: Percent Purchasing Collision and Comprehensive Optional Coverages



In Figure 3 we plot the number of written vehicles at various deductible levels against time and include a line plot representing the average deductible for each accident year. We observe a consistent shift toward larger deductibles for collisions and comprehensive over the last ten years, with the shift more noticeable in recent years.

Figure 3: Average Deductible Summary

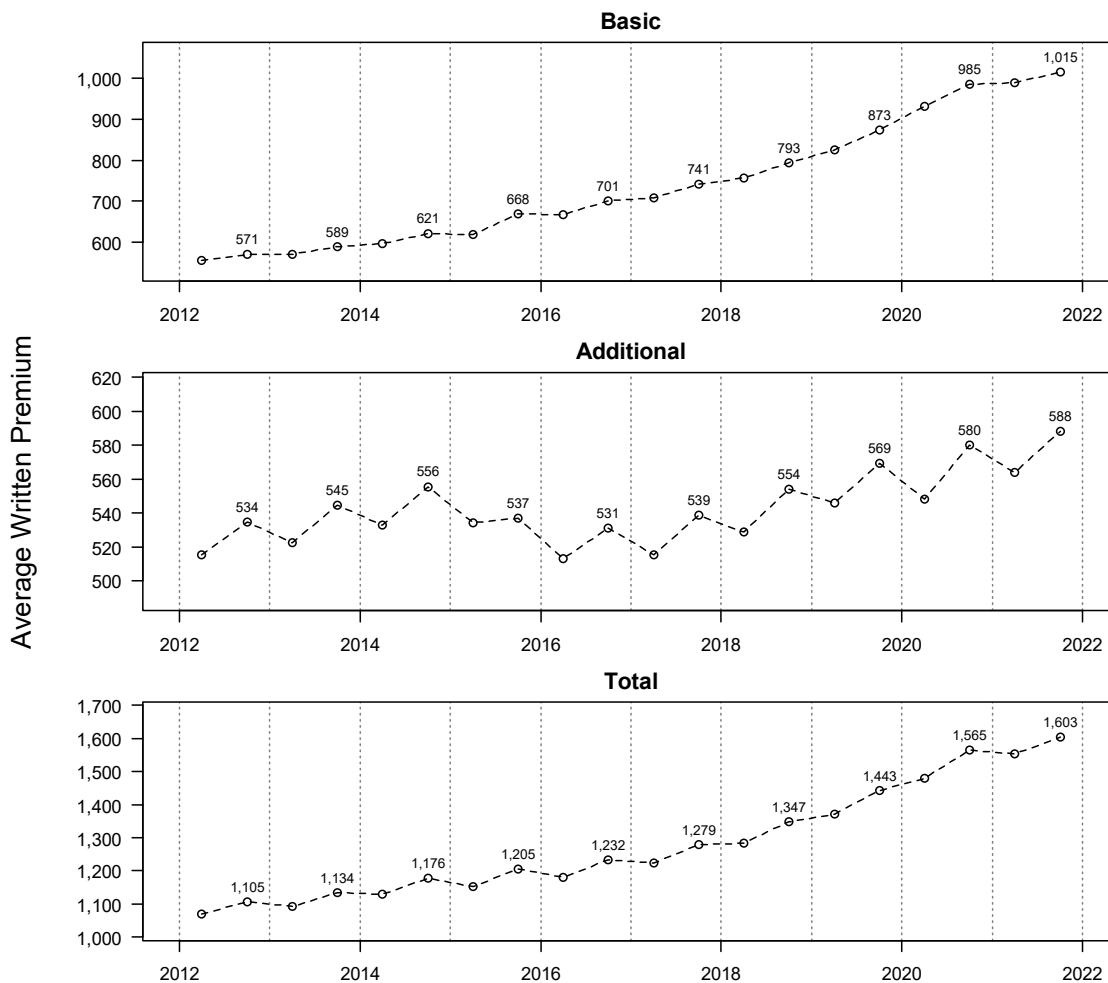


2.2. Change in Average Premiums

In Alberta, there are specific coverages that are mandatory (TPL and accident benefits), while the remainder are optional. The mandatory coverages in Alberta are referred to as Basic Coverages, and the optional coverages as Additional Coverages. In Figure 4, we present the average written premiums for the Basic, Additional, and the total for all coverages, respectively, over the ten-year period, 2012 to 2021, in half-year increments.¹³

The Basic Coverages average premium has gradually increased since 2012. The average premiums for Additional Coverages were relatively flat until changing to an increasing pattern beginning in 2016, subject to seasonal variability. This increase in Additional Coverages may be partially attributable to higher average repair costs on the growing proportion of vehicles with advanced technology.

Figure 4: Average Written Premium – Summary



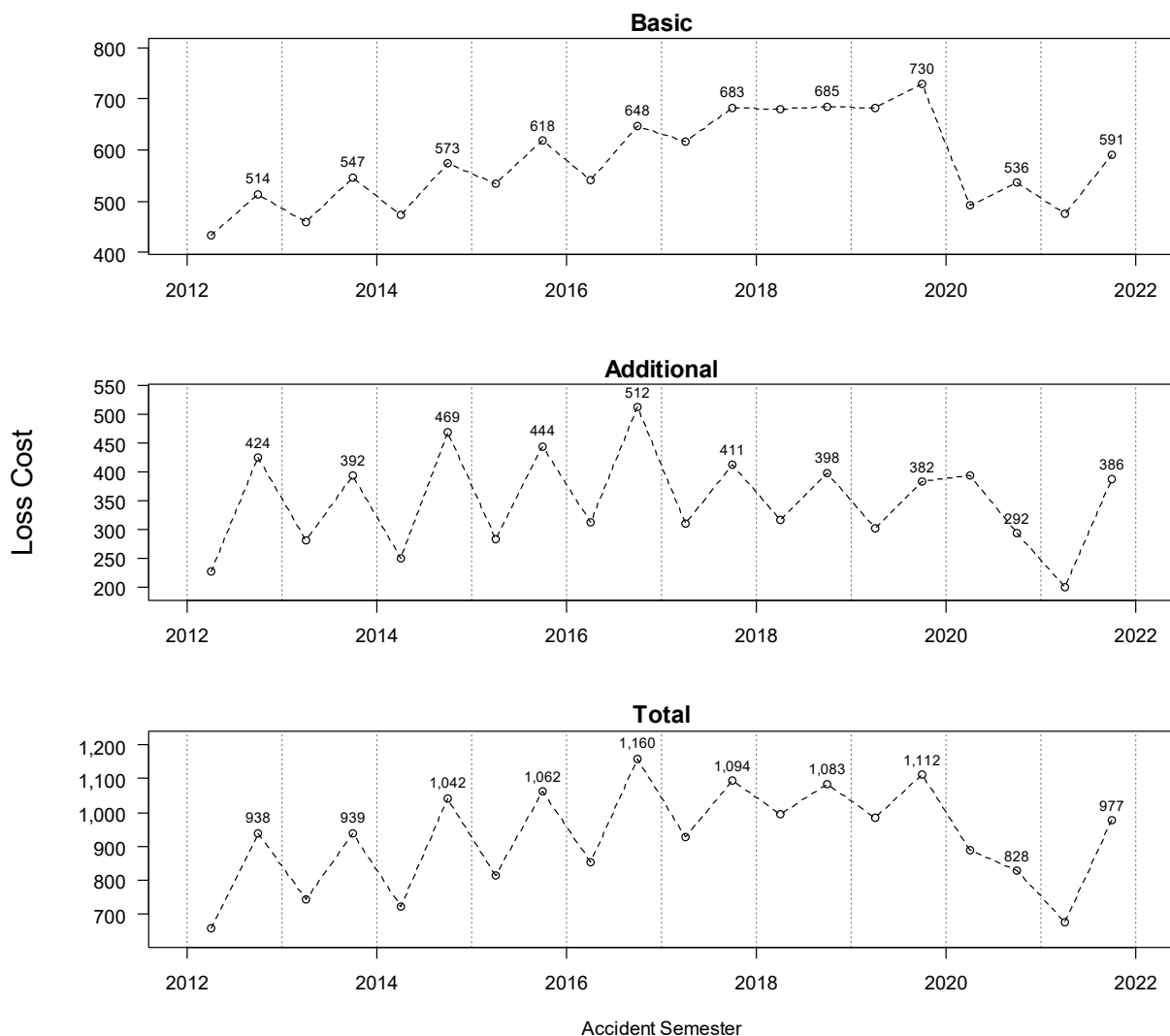
¹³ As discussed in more detail in Section 6.2, we have excluded one major insurer’s physical damage data from the premium and claims experience that we present. The analogous exposure data has also been excluded in Figure 5 and Figure 6 to calculate loss ratios and loss costs on a consistent basis. This data exclusion does not have a material impact on the observations presented above.

2.3. Change in Average Claims Costs

Claims costs comprise the largest component of premiums. In Figure 5 we present the estimated ultimate average claims cost per earned vehicle for the Basic Coverages, Additional Coverages and total categories. In the average claim cost estimate we include:

- indemnity amounts to fully settle and close the claim¹⁴, and
- all internal and external claims settlement costs¹⁵ (e.g., legal fees and claims adjusters).¹⁶

Figure 5: Claim Costs - Summary



¹⁴ The claims costs presented are on an ultimate basis. See Section 6 for more details.

¹⁵ External claim settlement costs are reported by insurers for each individual claim to GISA, referred to as allocated loss adjustment expenses. Internal claim expense factors estimate by GISA are based on aggregated costs reported to GISA.

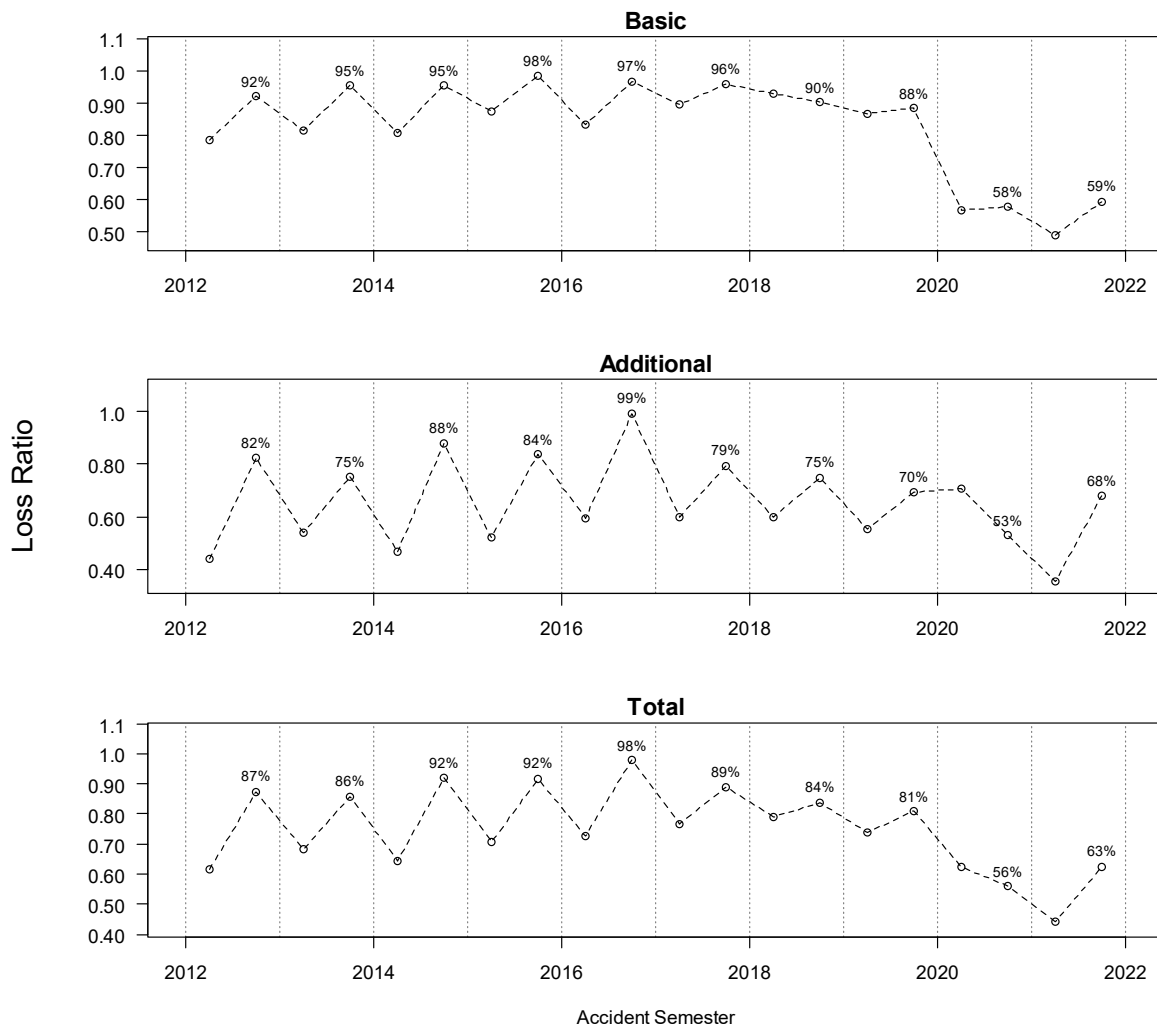
¹⁶ The Health Levy is not included in the noted average claim costs.

Summary of Alberta Private Passenger Vehicle 2012 to 2021 Experience

The claims data presented for each half-year represents amounts for claims where the event that gave rise to the claim occurred in that time period, January 1 to June 30 or July 1 to December 31; and is referred to as accident-half year experience. The COVID-19 pandemic resulted in a decline in vehicle usage and accident events in 2020 and 2021. However, hail-storms in 2020 and 2021 had an offsetting effect from the low claim frequency during the pandemic on the comprehensive coverage included with Additional Coverages.

In Figure 6¹⁷ we present the ratio of the loss and loss adjustment expense amount to the average earned premiums to provide an indication of the relative change in the loss ratio over time.

Figure 6: Loss Ratio - Summary¹⁸



¹⁷ As discussed in more detail in Section 6.2, we have excluded one major insurer’s physical damage data from the premium and claims experience that we present. The analogous exposure data has also been excluded in Figure 5 and Figure 6 to calculate loss ratios and loss costs that are on a consistent basis. This data exclusion does not have a material impact on the observations presented above.

¹⁸ For visual clarity, the accident half-year loss ratio numerical values are only presented for the second half of each year.

Claims costs are a combination of the claims frequency rate (i.e., the average number of claims per 100 insured vehicles) and the average cost of each claim (referred to as the claim severity, measured as the total claims cost as a ratio to the total number of claims). We discuss the historical claims frequency and severity for each coverage more fully in Section 7.

3. Summary of Alberta Private Passenger Vehicle Premium Components

3.1. Components of Premium

Insurance companies submit rate applications following the AIRB rate filing guidelines and processes to receive approval of the premiums they propose to charge. Insurance companies determine their rate level needs (referred to as “rate level indications”) by estimating the average premium they need to charge to provide for (a) what they project their future claim costs will be, (b) what they project their future operating expense costs will be, (c) consideration of future investment income, and (d) a margin for profit. The estimate of the average premium required is compared to the estimate to the average premium currently charged. In this section, we discuss expenses, investment income and the profit provision. In Sections 6 and 7, we discuss the projection of future claim costs including the estimation of historical ultimate claims costs and the trend rates to project those claims costs to the future, respectively.

3.2. Expense Components

In Alberta, the standard automobile policy defines the coverages and endorsements used by all insurers. While standardized coverages are provided by all insurers, policyholders have many insurer choices to obtain their automobile insurance. There are many reasons for price differences between insurers for the same risk with the same coverages. One reason for the difference in price between insurers is based on the differences in the expense component included in the premiums.

There are three main categories of expenses:

- premium tax,
- general administrative including head office costs, and
- acquisition costs.

Some expenses are referred to as variable expenses, as they are based on a percentage of the premium. The higher the premium, the higher the dollar amount included in the total premium for variable expenses like premium tax and commissions. Other expenses are referred to as fixed expenses, as they do not vary with the premium charged. These would include some of the general expense sub-categorizes such as rent and salaries that do not change when a premium change is implemented.

Premium Tax

In Alberta a 4% premium tax is included in all premiums. This is a variable expense, as the amount is based on a percentage of the premium, rather than a fixed dollar amount.

General Administrative Expenses

General administrative and head office expenses are associated with policy processing including underwriting, information technology, actuarial and general management. The largest subcomponent would include associated rent and salaries. These expenses are usually a mix of fixed and variable

expenses, as some of the general expense sub-categorizes such as rent and salaries do not change when a premium change is implemented.

Some insurers charge fees for the payment plans they offer. While some insurers report these fees as additional revenues, other insurers reduce their reported general expenses for these fees.¹⁹

Acquisition Costs

Acquisition costs vary among insurers depending upon the distribution channel. For simplicity, insurers can be categorized under three different distribution channels: independent broker, direct writer or company (internal) agent. Understanding the difference in costs and services between different distribution channels allows policyholders to make informed decisions on their choice of insurer.

Traditional brokers, who are independent from the insurance companies they represent, are the largest distribution channel and interact with the policyholder to explain the coverages and options amongst the insurers that the broker represents. Between 2017 to 2021²⁰, the share of written premiums by independent brokers was relatively stable between 54%-55% in 2017 through 2019 followed by a modest decline to 51% and 49% in 2020 and 2021, respectively. This loss of market share was absorbed by internal agents and direct writers. Brokers are typically compensated on a percentage of premium basis, referred to as standard commissions. In addition, a contingent commission may be paid by the insurer to the broker when target metrics such as growth or profit are met.

Direct writers offer online presence, and internal agents represent only the insurer that employs them. Unlike independent brokers whose compensation is strictly commission stated as a percentage of premium basis, comparable compensation for direct writers and agency-insurers is often a mix of commission and salary; and may include contingent commissions.

3.3. Reported Expenses

Insurers are required to report their private passenger automobile expense information to GISA, and GISA provides an aggregated summary of the industry-wide expense data each year. In Table 2, we present a summary of the GISA expense data for 2017 to 2021²¹ categorized by commissions, profit commissions, premium tax, and general expenses – for all insurers. Expenses are stated as a percent of the total private passenger automobile direct written premiums (DWP).²²

As presented in the Tables below, the reported premium tax rate is not exactly 4.0% in the expense data summarized by GISA, despite the premium tax rate of 4% of premiums. This is likely due to the timing of premium tax payment data associated with the written premiums.

Subject to individual insurer planned changes that may affect future expense costs, in general, recent expense costs are a reasonable forecast for the future expense costs.

¹⁹ Regardless of reporting approach, these fees, and delay in the receipt of premiums, are considered in calculating the rate level change need.

²⁰ At the time of preparation of this Preliminary Report, an advance copy of the 2021 expense data was provided by the AIRB.

²² The term “direct written premiums” is in the context of reinsurance and means before any consideration of reinsurance premiums. This is the basis upon which GISA reports the expense ratios in the Auto 9502 Exhibit.

Table 2: Expense by Category (All Insurers) as % of DWP

	Commissions	Contingent Commissions	Premium Tax	All Other Expenses	Total Expenses
2017	11.5%	1.0%	3.8%	9.9%	26.2%
2018	11.6%	1.0%	3.8%	9.8%	26.2%
2019	11.8%	1.1%	3.7%	9.0%	25.6%
2020	11.1%	1.4%	3.7%	9.4%	25.6%
2021	11.5%	2.4%	3.8%	10.2%	27.8%

The increase in the 2021 total expense ratio over prior years is mainly attributed to the increase in the “all other” or general expenses provision and contingent commission. The one point rise in the 2021 contingent commission provision is likely, in part, due to the favorable loss ratio experience of 2020 and 2021 during the COVID-19 pandemic.

The separate data for independent broker, direct insurers and internal agent insurers²³ was provided by GISA based on data reported by each insurer. In Table 3, we present the total expense ratio for broker-based insurers, direct insurers, and agent-insurers.

Table 3: Total Expenses by Distribution Channel

	Independent Broker	Direct Writers	Internal Agent Insurers	Total
2017	26.4%	24.5%	27.3%	26.2%
2018	26.8%	24.7%	25.7%	26.2%
2019	26.4%	22.9%	25.8%	25.6%
2020	27.3%	22.2%	25.0%	25.6%
2021	29.6%	25.4%	26.2%	27.8%

In general, based on industry-wide averages, the total expense costs for broker-based insurers are higher than for agent-based insurers; and agent-based insurer expense costs are higher than for direct writers.

Over the last five years the independent broker expense ratio has been relatively stable in the range of 26% - 27%, but rising in 2020 and 2021 mainly due to higher contingent commissions (at 2.5% and 3.4%, respectively). The direct writer expense ratio has generally declined, but the increase in 2021 is mainly attributed to a 2-point rise in the contingent commissions. The internal agent expense ratio has been generally stable over the last four years, with the rise in 2021 due to higher general expenses and contingent commissions.

The rise in the direct writers and independent broker insurers total expense ratio for 2021 is mainly attributed to the increase in contingent commissions - which is likely due to the favorable loss ratio for 2020 and 2021 during the COVID-19 pandemic.

²³ In addition to the broker, direct writer and agency insurers, GISA separately identified an “other” category. As the “other” category only represented less than 0.02% of the total premiums, we excluded this segment for simplification purposes.

The expense ratios of individual insurers will vary from these industry averages. Insurers are required to support the expense provision assumed for their rate application.

3.4. Investment Income

Insurers earn investment income on (i) the capital they invest to support the insurance they provide and (ii) the premium received from policyholders until claims are fully settled and paid. Insurers' mix of bonds, stocks, and other investments assets, upon which investment income is earned, are subject to oversight by regulators.²⁴

Company-wide pre-tax investment income rates are reported annually by insurers in their P&C-1 financial returns, and not specific to any line of business or province. We refer to this as the pre-tax return on investment rate or pre-tax ROI.²⁵ Insurers do not report a return on investment rate specific to the capital supporting private passenger vehicles or the associated cashflow in Alberta.

While historical investment income earnings are not a predictor of future investment income earnings, a review of the historical investment income (i.e., ROI) is insightful. The company's chief investment officer typically provides a forecast of the expected investment income rate that is used by the actuary in calculating the required premium for a proposed rating program.

In Table 4, we present the average pre-tax ROI for 2017 to 2021 for insurers in Alberta. To determine the ROI for each year, we calculate a weighted average using the Alberta automobile insurance premiums²⁶ for each insurer with their respective reported ROI.

Table 4: Alberta Pre-Tax Return on Investment Rate

Calendar Year	Weighted Average Pre-tax ROI
2017	3.69%
2018	2.24%
2019	4.23%
2020	4.17%
2021	2.71%

The average pre-tax ROI over the five-year period 2017 to 2021 is 3.41%. However, the actual return realized by individual insurers will vary from these industry averages as each insurer operates under their own corporate board approved investment strategy.

3.5. Profit

Insurers are entitled to a reasonable profit for the services provided and risks undertaken by providing supporting capital.

In Alberta, when setting rates, insurers have two sources of profit for private passenger vehicles:

²⁴ Federally licensed insurers are regulated by OSFI and provincially licensed insurers are regulated by the Alberta Superintendent of Insurance.

²⁵ Any reference to the term ROI is meant to infer a pre-tax basis.

²⁶ Only insurers reporting to OSFI are included.

- Explicit target provision of 7% of premium included in the rates, and
- Investment income earned on capital supporting the private passenger vehicle policies.

The total profit for insurers would be greater than the 7% of premium allowance by AIRB, as the latter source, the investment income earned on capital, is considered outside of the rate setting process. Hence, when insurers calculate their total profits as a percent of equity,²⁷ they would include this investment income on capital along with the 7% of premium profit provision explicitly allowed by AIRB.²⁸

3.6. Realization of the 7% of Premium Profit Provision

While insurers include AIRB's provision of 7% of premium in their rating programs to contribute to their realized profits – if the actual loss or expense amounts are higher or lower than expected, the realized profit provision as a percentage of premium will be higher or lower than the target 7%.

We provide a high-level comparison between the target 7% and realized profit provision over the last nine²⁹ years (2013 to 2021). We do so by making the following calculations and assumptions:

- The historical claims payment pattern across all coverages has an estimated average claim settlement duration of approximately 2.53 years.
- The actual pre-tax ROIs over 2016 to 2020 we presented in Section 3.4 are reasonable estimates of the investment income earned on the cash flow for calculating the discount factor for each year assuming the 2.53 claim settlement duration period.
- We use our estimate of the ultimate loss ratios including loss adjustment expenses³⁰ and the 3.55% of TPL premiums for the Health Cost Recovery provision.
- We assume the GISA reported expense ratios for private passenger automobile for each of 2017 to 2021 apply to those years; and any finance fee revenues are netted against reported expenses.
- We assume a 4-month delay in receipt of premiums.
- We do not consider the investment income earned on supporting capital as this is separate and in addition to the AIRB 7% of premium profit provision.

We present these summary statistics and metrics in Table 5.

²⁷ Shareholders and managers of the firm consider the return on equity so that they may evaluate the rate of return relative to alternative investments.

²⁸ While the amount of capital supporting private passenger vehicle policies is not explicitly stated by insurers, a common rule of thumb in rate applications is a notional \$1 of capital for every \$2 of premium. Under this basis, and assuming rates are adequate, in 2021 with an average ROI of 2.71%, insurers would, on average, have an additional 1.35% of premium on top of the 7% of premium profit provision for a total of 8.35% of premiums. A higher amount of capital would increase the investment income and total profit, and vice versa.

²⁹ Expense data recorded in the AUTO9502 report was first introduced in 2013.

³⁰ As discussed in more detail in Section 6.2, we have excluded one major insurer's physical damage data from the claims experience that we present. The analogous exposure data has also been excluded in Figure 5 and Figure 6 to calculate loss ratios and loss costs that are on a consistent basis. This data exclusion does not have a material impact on the observations presented above. We note the presented loss ratios are consistent with the loss ratios based on the ultimate loss amounts and earned premium as reported by GISA as of December 31, 2021 in the AUTO 1005 Exhibit.

Table 5: Comparison of Target to Realized 7% Profit Provision

Calendar Year	Loss & LAE Ratio ³¹	Discount Factor	Health Levy as % of Total EP	Expense Ratio	Realized Profit Provision ³²
2013	77.2%	0.927	1.3%	24.2%	3.0%
2014	78.7%	0.907	1.1%	24.1%	3.5%
2015	81.5%	0.924	1.3%	25.6%	-2.1%
2016	85.4%	0.935	1.6%	27.0%	-8.5%
2017	83.0%	0.916	1.5%	26.2%	-3.7%
2018	81.5%	0.947	1.8%	26.2%	-5.2%
2019	77.5%	0.905	1.8%	25.6%	+2.5%
2020	59.0%	0.906	1.3%	25.6%	+19.7%
2021	53.5%	0.937	0.8%	27.8%	+21.2%

* Realized Profit Provision = 1 – Discounted Loss & LAE Ratio – Expense Ratio (including health levy)

As presented in Table 5, on average, insurers have exceeded the 7% profit provision target set by AIRB in two of the last nine years. This table is not intended to imply that the excess profit for 2020 and 2021 was intended by insurers. The 2020 and 2021 results were an exception due to the COVID-19 pandemic. Further, this is not a representation of target levels achieved prior to 2017, nor a reflection of future target levels for 2022 and beyond.

³¹ The loss and LAE ratios include the Health Cost Recovery provisions using factors provided by GISA.

³² We assume finance fees are netted from the expense ratio and a 4-month delay in the receipt of premiums. Our findings are not sensitive to this assumption.

4. GISA Reported Financial Data for Alberta Private Passenger Vehicles

In Section 3.6 we presented a hindsight high level review of the realization of the 7% of premium profit target insurers may include in their rate setting models during the last five years for private passenger vehicles in Alberta. These findings are based on the events that occurred during each year of loss, referred to as an accident year, based on incurred loss amounts reported by insurers through the automobile statistical plan (ASP) to GISA and a provision for loss development as described in Section 6 of this report.³³ Adjustment factors provided by GISA are applied to the loss amounts to include internal claims handling expenses. On a similar basis, accident year loss ratios are summarized and presented in the AUTO 1005 Loss Ratio Exhibit prepared by GISA. The expense data used for the hindsight review in Section 3.6 is summarized and presented in the AUTO 9502 Exhibit prepared by GISA.

4.1. GISA's Profit and Loss Exhibit- AUTO 9501

In contrast, when reporting property and casualty (P&C-1) financial data to the Office of the Superintendent of Insurance (OSFI) or the Alberta Superintendent of Insurance, the losses (including claims handling expenses) are presented on a calendar year basis, which represents the amount paid during the year plus the change in the held loss reserve amounts between the end and beginning of the year. Loss reserves are estimates of future payments required to settle and close all claims, including all claims handling expenses. Based on the submission by each insurer of their financial data to GISA, GISA compiles the reported financial data into the industry AUTO9501 Exhibit. No adjustments are made by GISA to the reported financial data of each insurer.

Differences between Statistical Plan Data and AUTO 9502

The premium, loss amount, and expense data presented in the AUTO 9501 Exhibit (financial data) is different than the automobile statistical plan (ASP) data used by insurers in their rate applications and reported in the AUTO 1005 and AUTO 9502 Exhibits for several reasons and is, therefore, not directly comparable.

In the case of losses, these differences are:

- Financial Loss Data - AUTO 9501: Calendar year ultimate loss amount estimated by the appointed actuary of *each* insurer, net of reinsurance, discounted, and includes a provision for adverse deviation (PFAD)
- ASP Loss Data - AUTO 1005: Accident year ultimate loss amount estimated on an aggregated basis for the industry by GISA, direct (i.e., before reinsurance), not discounted, and no PFAD

Provision for Adverse Development (PFAD)

The PFAD included in the estimate of the ultimate loss amount in the financial data of each insurer is an amount estimated by the appointed actuary to account for the potential deviation from the actuary's

³³ As we discuss in Section 6, AIRB has engaged Oliver Wyman to estimate the ultimate loss amounts for the purpose of determining loss trend rates. These ultimate loss amounts include allocated loss adjustment expenses.

best estimate assumptions regarding: (i) the outstanding loss amount, (ii) investment rate, and (iii) recovery from the reinsurer. The PFAD amount included by each insurer is not separately submitted to GISA, and therefore, the PFAD included in the AUTO9501 Exhibit is not explicitly stated or provided.

The Canadian Institute of Actuaries (CIA) Standards of Practice (SOP) provides guidance to the appointed actuary regarding considerations in selecting the margin for adverse deviation (i.e., the PFAD). The range of the provision provided by the CIA SOP is as follows:

Table 6: Canadian Institute of Actuaries Range of Margin for Adverse Deviation

Category	High	Low
Loss Development	20%	2.5%
Recovery from Reinsurance Ceded	15%	0.0%
Investment Return Rates	200 basis points	25 basis points

Discount

Similar to the PFAD provision, the discount rate used by each insurer is not stated by the insurer in the financial data summary submission to GISA, and therefore, the impact of the discount factor can not be stated or provided in the AUTO9501 Exhibit.

Loss Adjustment Expenses

Both the AUTO 9501 and AUTO 1005 Exhibit loss amounts include provisions for loss adjustment expenses. However, in the case of the AUTO 9501 Exhibit, this is included with the loss amounts submitted by each insurer, and not separately stated. In the AUTO 1005 Exhibit, the provision for unallocated claims handling costs is included by a factor determined by GISA based on aggregated submissions by insurers.

Consistent with the presentation of claim amounts, the premiums and expenses are net of reinsurance in the financial data presented in the AUTO 9501, and on a direct basis for ASP data presented in AUTO1005.

Due to these significant differences, the loss ratios and expense ratios in the AUTO 9501 and AUTO 1005 are not directly comparable.

The AUTO 9501 ratio of the net profit before income taxes to the net earned premium is not comparable to the target 7% of premium profit provision insurers may include in their rate setting models. Key characteristics of the AUTO 9501 data which are different from AUTO 1005 include:

- Calendar year basis
- Net of reinsurance
- Discounted
- Includes PFAD
- Includes all investment income including from supporting capital and cash flow

Estimates of loss prepared by *each* insurer’s appointed actuary

4.2. GISA’s AUTO 9501 Reported Financial Results

While the GISA AUTO 9501 Exhibit financial data calendar year loss ratio is not directly comparable to accident year loss ratio results that are discussed in this report and presented by GISA in the AUTO 1005 Exhibit, the GISA AUTO 9501 Exhibit does present a full picture of the total profits for private passenger automobile *as estimated by each insurer* and reported to GISA for each calendar year. This is an additional and more complete basis to consider the amount of profit achieved by insurers for private passenger vehicle insurance.

In Table 7 below, we present the history of the reported financial data in AUTO9501 between 2012 to 2020.³⁴ The net profit before income taxes in the AUTO 9501 Exhibit includes all expenses and revenues including investment income. How insurers allocate the “net general and acquisition expenses,” “net investment income,” and “other revenues and expenses” to private passenger automobile in Alberta can vary by insurer. For example, the amount of investment income is dependent upon the amount of supporting capital an insurer allocates to private passenger automobile in Alberta.

The AUTO 9501 history of the net profit before income taxes over the 2012 to 2020 period does provide an additional (and different) perspective on profit, and how this has changed over time.

Table 7: Reported Financial Profit Before Income Taxes in AUTO 9501

Calendar Year	Net Earned Premium (NEP)	Net Discounted Losses with PFAD	Net General and Acquisition Expenses	Net Investment Income	Other Revenue and Expenses	Net Profit before Income Taxes	Net Profit before Income Taxes % of NEP
2012	\$2,523,586	\$1,946,131	\$634,249	\$224,824	\$0	\$168,030	6.7%
2013	2,703,237	2,219,510	708,814	165,899	(18,031)	(77,219)	-2.9%
2014	2,919,259	2,442,356	751,465	236,620	65,700	27,758	1.0%
2015	3,013,794	2,448,800	802,110	192,109	18,227	(26,780)	-0.9%
2016	3,083,784	2,793,458	866,490	182,372	13,422	(380,370)	-12.3%
2017	2,825,253	2,432,172	829,351	222,545	23,486	(190,239)	-6.7%
2018	3,173,909	2,714,996	860,541	126,591	51,733	(223,304)	-7.0%
2019	3,219,014	2,725,545	906,563	229,758	43,305	(140,031)	-4.4%
2020	3,597,319	2,888,031	983,872	250,756	93,813	69,985	+1.9%

We will update Table 7 above when the 2021 AUTO 9501 Exhibit is available.

³⁴ 2012 is the earliest year provided under the AUTO 9501 Exhibit; and 2021 will be available in the third quarter of 2022.

5. Legislative Reforms and Government Actions

5.1. History of Rate Regulation

On October 5, 2004 the AIRB was established to regulate automobile insurance premiums for Basic Coverage and to monitor premiums for Additional Coverage for private passenger vehicles in the Province of Alberta.

Between 2004 and 2013, the Board was required under Section 602 of the Insurance Act and Section 4 of the Automobile Insurance Premiums Regulation to conduct an annual adjustment process that used the Industry-wide experience to determine whether premiums for Basic Coverage on private passenger vehicles should be adjusted. As part of this process the Board would annually request its actuary, Oliver Wyman, to complete an analysis of the Industry-wide experience. Interested parties including the Consumer Representative were given the opportunity to respond to this analysis at an Open Meeting held in June in either Calgary or Edmonton.

The purpose of the Open Meeting was to review past data related to the frequency and severity of claims, expected rate of return on investment, the economy, operating expenses, and other factors to determine a reasonable estimate of the average premium required to compensate claimants and provide companies with a fair profit after operating expenses. The Board considered its actuary's analysis, submissions by stakeholders, the information presented at the Open Meeting, as well as estimates of the average street premium to establish an Industry-wide Adjustment. In the case of an increase, all insurers were permitted to increase rates up to the amount of the Board approved Industry-wide Adjustment; in the case of a decrease, all insurers were required to fully implement the Board approved Industry-wide Adjustment by November 1st.

On November 27, 2013, the *Enhancing Consumer Protection in Auto Insurance Act* was passed. The associated changes to the Insurance Act and a new, supporting, Automobile Insurance Premiums Regulation came into force effective July 1, 2014. With the changes in the Act and Automobile Insurance Premiums Regulation:

- the Board's mandate was expanded to also regulate Additional Coverage.
- the Industry-wide Adjustment process was discontinued; and
- Alberta moved to a "file-and-approve" model whereby insurers must file on an individual company basis for revisions to their rating programs.

The Automobile Insurance Premiums Regulation requires the Board to conduct an Annual Review (AR) and a Semi-Annual Review (SAR) for private passenger vehicles. A component of these Reviews is to analyze Industry experience and develop benchmarks for individual rate filings. The Board considers all input in developing its benchmarks. The benchmarks are posted on the Board's website at <https://airb.alberta.ca> and include information that insurers should consider in preparing their rate filings.

5.2. 2020 Reforms

On October 30, 2020 the Government announced reforms to the province's automobile insurance framework. Bill 41 amended the Insurance Act and includes several changes that should be reflected in any future filings.

Bill 41 included changes related to prejudgment interest, minor injury regulation, diagnostic and treatment protocols regulation, automobile accident benefits regulation, and the property damage coverage. Bill 41 received Royal Assent on December 9, 2020.

We summarize the amendments below, noting the different effective dates applicable to claims occurring on or after the specified date.

- **Insurance Act – Prejudgment Interest** (Effective upon Royal Assent): Prejudgment Interest paid on non-pecuniary damages will now fluctuate with current interest rates, as it currently does with pecuniary damages.
- **Minor Injury Regulation** (Effective for accidents occurring on or after November 1, 2020): See Section 5.3 for details.
- **Diagnostic and Treatment Protocols Regulation** (Effective October 29, 2020): Dentists, psychologists and occupational therapists are now considered adjunct therapists and the new maximum benefit for treatment by any combination of these adjunct therapists is \$1,000.
- **Automobile Accident Insurance Benefits Regulation** (Effective October 29, 2020, applicable to both new and existing claims): See Section 5.5 for details.
- **Introduction of Direct Compensation Property Damage** (Effective January 1, 2022): Insurers will be required to provide DCPD premiums separated from third party liability premiums.
- **File and Use**: Insurers will be permitted to use a File and Use filing in accordance with the AIRB's File and Use Filing Guidelines.

Reports on the cost impact of Bill 41 can be found on the AIRB's website. The Industry data that this Annual Review report is based upon, as of December 31, 2021, does not include sufficient claims experience to update the expected cost impact of Bill 41. Due to the impact of COVID-19, we expect an additional time lag before the effect of the reforms can be accurately measured using the Industry claims experience.

5.3. Minor Injury Reforms

In 2003 the Alberta Government enacted Bill 53, which provided for:

- An inflation adjusted cap on pain and suffering for minor injuries at \$4,000. We summarize the maximum minor injury amounts by effective date in Table 8 below
- the consideration of collateral sources;
- the determination of wage loss based on net, rather than gross, wages;
- an increase in the limit for medical/rehabilitation benefits under accident benefits to \$50,000; and

- maximum diagnosis and treatment protocol fees for medical/rehabilitation benefits under accident benefits.

Table 8: Historical Minor Injury Cap Amounts

Effective Date Range	Minor Injury Amount
October 1, 2004 – December 31, 2006	\$4,000
January 1, 2007 – December 31, 2007	\$4,144
January 1, 2008 – December 31, 2008	\$4,339
January 1, 2009 – December 31, 2009	\$4,504
January 1, 2010 – December 31, 2010	\$4,518
January 1, 2011 – December 31, 2011	\$4,559
January 1, 2012 – December 31, 2012	\$4,641
January 1, 2013 – December 31, 2013	\$4,725
January 1, 2014 – December 31, 2014	\$4,777
January 1, 2015 – December 31, 2015	\$4,892
January 1, 2016 – December 31, 2016	\$4,956
January 1, 2017 – December 31, 2017	\$5,020
January 1, 2018 – December 31, 2018	\$5,080
January 1, 2019 – December 31, 2019	\$5,202
January 1, 2020 – December 31, 2020	\$5,296
January 1, 2021 – December 31, 2021	\$5,365
January 1, 2022 – December 31, 2022	\$5,488

These reforms became effective October 1, 2004, except for the consideration of collateral sources and the determination of wage loss based on net rather than gross wages, which became effective January 26, 2004.

On February 8, 2008 the Alberta Court of Queen’s Bench ruled that the Minor Injury Regulation be struck down. In June 2009 the Alberta Court of Appeal overturned the February 2008 decision of the Alberta Court of Queen’s Bench. In December 2009 the Supreme Court of Canada denied the request for leave to appeal, thereby affirming the cap on minor injuries.

On March 17, 2011 the Government extended the Minor Injury Regulation to September 30, 2016. It was later further extended to September 30, 2018.

Maximum fees for certain diagnosis and treatment protocols have been updated since introduced in 2005, with the most recent increases effective in June 2013 for physical therapy and February 2016 for chiropractic services.

A renewed Diagnostic and Treatment Protocols Regulation came into force on July 1, 2014.³⁵

³⁵ It is our understanding that the changes were administrative in nature (clarifications).

On May 17, 2018 the Government removed the expiry date for the Minor Injury Regulation and Automobile Accident Insurance Benefits Regulation. In addition, the Government amended the Minor Injury Regulations to clarify³⁶ that some temporomandibular joint injuries, as well as physical or psychological conditions or symptoms arising from sprains, strains and whiplash injuries and that resolve with those injuries, are considered minor injuries under the Minor Injury Regulation and should be treated as such. These changes may contribute to the decline of bodily injury frequency observed in Section 7.2.

Effective for accidents occurring on or after November 1, 2020, the MIR was amended as follows:

- The definition of a “minor injury” was updated to include clinically associated sequelae of sprains, strains or whiplash-associated disorder injuries, whether physical or psychological in nature, that do not result in a serious impairment; and
- Dentists were added as eligible health professionals able to act as certified examiners under the MIR, with their scope limited to temporomandibular joint injuries.

5.4. Grid Rate System

On October 1, 2004, the Government introduced the Grid Rate System, which set maximum premiums to be charged for Basic Coverage, and established two Risk Sharing Pools under a “take all comers” underwriting system.

With the introduction of DCPD effective January 1, 2022, the AIRB Grid rate excludes DCPD. As is the case for coverages such as collision and comprehensive, the DCPD premium will not be used to determine if a risk’s premium is capped by the Grid.

5.5. Automobile Accidents Benefits Revisions

Effective March 1, 2007, the Government revised the accident benefits coverage limits as follows: (1) increased the funeral benefits from \$2,000 to \$5,000 and (2) increased the maximum weekly disability income limit from \$300 to \$400 for employed individuals and from \$100 to \$135 for other individuals.

Effective October 29, 2020, the Government made the following revisions to the Automobile Accident Insurance Benefits Regulation:

- Clarified that Section B - Accident Benefits can be used for any medically necessary equipment, vehicle modifications and home modifications; and
- Increased benefit amounts:
 - chiropractic services from \$750 to \$1,000;
 - massage therapy and acupuncture from \$250 to \$350;
 - funeral expenses from \$5,000 to \$6,150;
 - grief counselling from \$400 to \$500;

³⁶ Insufficient data is available at this time to assess if this clarification will affect claims costs.

- employed disability income benefits from \$400 to \$600 per week;
- non-earner disability income benefits from the current \$135 for 26 weeks, to \$200 for 104 weeks; and psychological, physical therapy, and occupational therapy services from \$600 to \$750.

5.6. Legalization of Cannabis

Effective October 17, 2018, the Federal Government legalized the use of cannabis. No Alberta-specific information is available on how this change may affect claims costs and it is assumed any impact of this change will be implicit within the claims experience data.

6. Loss Development Factor Analysis

6.1. Claim Cost – Data

The source for the claim data that we analyze is the 2021-2 AUTO7001 Automobile Industry Exhibit (as of December 31, 2021) provided by GISA, and it includes the experience of all drivers in Alberta, including drivers insured by the Facility Association and the two RSPs (from the time they were formed). We refer to this information as the AIX report.

The claim data that is available through the Industry AIX report includes:

- Paid Claim Amounts – claim payments made by an insurance company; includes payments that were made on claims that are now closed, as well as payments made on claims that are still open (referred to as partial payments).
- Case Reserves – the insurance company’s estimate of the amount of future claim cost payments to be made on individual claims; a case reserve is assigned to each individual open claim.

The total of the paid claim amounts made on each closed or open claim and the case reserve carried on each open claim is referred to as the reported incurred claim amount.

The case reserves (and hence the reported incurred claim amounts) reflect the views and opinions of the respective insurance company claim adjusters that handle the individual claims and are based on the information available to the claim adjusters as of a particular point in time. Over time, the case reserves are revised by the claim adjusters to more accurately reflect the payments that are made or that are expected to be made based on additional information that becomes available to the claim adjusters.

It is important to note two points about case reserves:

1. How insurance companies determine case reserves varies from company to company. For example, it is typical for insurance companies to instruct their claim adjusters to post a pre-set amount (e.g., \$10,000 for bodily injury claims) as the case reserve when a claim is first reported and before any investigation is performed. This is referred to as the “initial claim reserve.” In a sense, the initial claim reserve serves as a placeholder until investigation is conducted and a more accurate estimate can be established by the claim adjusters. For those companies that follow this approach, the amount of the initial case reserve and the length of time the initial claim reserve remains posted varies by company and, for a particular company, could change over time.
2. The case reserves do not reflect the “actuarial reserve” (also referred to as the bulk reserve or the IBNR reserve) that insurance companies record in their financial statements. This actuarial reserve, which is estimated by the insurance company actuaries, is an aggregate amount that is intended to provide for (i) any overall inadequacies or redundancies in the case reserves that are established on individual claims, and (ii) claims (accidents) that occurred but have not yet been reported to the insurance company as of the time of the financial statement. How insurance companies (their actuaries) determine the “actuarial reserve,” while subject to the common standards of the Actuarial Standards Board (Canada), varies from company to company.

6.2. Data Exclusions

As part of our review process, we consider the individual data of the largest ten insurers/groups in the province for any anomalies in the data that we find may inadvertently lead to an erroneous selected loss trend rate. Only in those situations that we consider the data to be both highly unusual and impactful do we remove the individual insurer/group data from our analysis.

In the case of the physical damage coverages,³⁷ we identified a major insurer/group whose average severity has a very steep rise in 2021, with a severity amount that is materially higher than all other insurers. For example, in the case of collision, this insurer's 2021-1 average severity increased by 75% over 2020-1; and the industry average severity including their data was 13% higher than when excluded. Further, this insurer/group showed a steep decline in the paid to incurred ratio at 12 months (for 2021-1) from approximately 95% to approximately 55% and a large increase in the average case reserve on open claims as of 12 months. Similar, but less pronounced differences were noted for the other physical damage coverages. For this reason, the physical damage data of this one insurer/group was excluded from our analysis.

In the case of bodily injury, we identified a major insurer/group with a steep rise in the accident year 2021 average severity, a decline in the paid to incurred ratio, and rise in the average outstanding on open claims that is inconsistent with all other insurers in the top-ten. However, unlike the noted collision example above, while the rise is unusual, the results were not impactful on the overall industry data. For this reason, we did not exclude any bodily injury data but will continue to monitor this issue in our future reviews.

In Section 7 we discuss the sensitivity of our loss trend rates to the physical damage data exclusions.

6.3. Estimating Ultimate Claim Counts and Ultimate Claim Amounts by Accident Half-Year – General Approach

We estimate the final (ultimate) number of claims and cost³⁸ of all claims that arise from events that occur in the first and second half of the year, separately, through to December 31, 2021 (referred to as "accident half-years"³⁹). These estimates are used to measure and select the benchmark loss trend rates that we recommend to the Board.

We estimate the final/ultimate claim cost by accident half-year by developing our own estimate of the needed actuarial reserve for all insurance companies in aggregate (i.e., the Industry), and adding that amount to the reported incurred claim amounts as published by GISA⁴⁰. In doing so, we consider the Industry's reported claim amounts (the aggregate paid claim amounts and individual claim case

³⁷ In this instance, we define physical damage coverages to include property damage, collision, comprehensive, all perils, and specified perils.

³⁸ By "final" or "ultimate" cost we mean the amount paid by insurance companies at the time that all claims that occur in a particular year have been reported and settled.

³⁹ Accident half-year refers to either the period January 1 through June 30, or July 1 through December 31 of the indicated year. We use the terms "accident half-year" and "semester" (i.e., first semester or second semester; or the June semester or December semester) interchangeably in this report. We also refer to accident half-years or semesters as XXXX-1 or XXXX-2, or XXXX.1 or XXXX.2 where "XXXX" refers to the indicated year.

⁴⁰ GISA edits and compiles the data reported by individual insurers.

reserves), but we do not consider the actuarial reserves established by each insurance company as those reserves are not reported to GISA.

We estimate the Industry actuarial reserve by applying what are referred to as “loss development factors” to the aggregated incurred claim amounts that are reported to GISA.⁴¹ The selection of loss development factors that we apply is based on an analysis that we perform to determine how adequate the individual claim case reserves established by insurance companies (in aggregate) have been historically. We refer to the historical emergence of aggregate claim values as loss development patterns.

We select loss⁴² development factors to estimate the actuarial reserve need, hence the final claim cost, for each accident half-year through December 31, 2021 (we group claims by the accident half-year that the events that give rise to the claims occur), separately for each of the coverages.

We follow a similar approach (using what are referred to as claim count development factors) to estimate the final number of claims that will arise from events that have occurred by accident half-year through December 31, 2021, separately for each of the coverages.

6.4. Selection of Claim Count and Claim Amount Development Factors

Our selected cumulative factors and basis for selection (e.g., weighted average of the last six development factors) are presented in Appendix A. The summary of our selected factors, estimated ultimate losses and claim counts, as well as a comparison to the selections made in our prior review are presented in Appendices C and D.

In Section 6.5 we present a comparison of our current and prior estimates of the ultimate loss cost, frequency and severity for each of the last five years for each coverage. We find the emerged losses during the second half of 2021 to be generally consistent with our expectations based on our prior selected loss development factors.

Due to the COVID-19 pandemic, there is additional uncertainty associated with the estimates for the 2020 and 2021 accident years.

6.5. Selection of Ultimate Loss Costs, Frequencies, and Severities

We note that the selection of development factors influences the selected loss trend rates.⁴³ As a result of the claim experience that has emerged and the development factors we select, our estimates of ultimate loss costs, frequencies,⁴⁴ and severities by accident year have changed from those we presented for the prior review. We present those changes in the following tables.

⁴¹ Our selections are based on the Incurred Development Method.

⁴² We use the terms “loss,” “claim amount,” and “claim cost” interchangeably in this report. In this report, all these terms include a provision for allocated loss adjustment expenses (ALAE).

⁴³ A summary of our selected ultimate loss costs, severity amounts and frequency by accident half-year are presented in Appendix B.

⁴⁴ Number of claims per 1,000 insured vehicles.

Table 9: Changes in Estimated Loss Costs, Frequency and Severity - Bodily Injury

AY	2022 SAR (as of June 30, 2021)			2022 AR (as of December 31, 2021)		
	Loss Cost	Severity	Frequency	Loss Cost	Severity	Frequency
2017	\$415.37	\$63,411	6.55	\$415.07	\$63,197	6.57
2018	\$436.56	\$68,438	6.38	\$440.90	\$68,920	6.40
2019	\$453.54	\$70,050	6.47	\$466.67	\$71,586	6.52
2020	\$335.10	\$76,414	4.39	\$340.28	\$76,857	4.43
2021*	\$308.75	\$74,224	4.16	\$328.96	\$71,208	4.62

* The 2021 data presented for the 2022 SAR only includes data through to June 30, 2021 and is not directly comparable to the full 2021 year in the 2022 AR.

Overall, for the four-year period 2017 to 2020, our estimates of the average annual ultimate loss costs have increased by 1.4%.

Table 10: Changes in Estimated Loss Costs, Frequency and Severity -Property Damage

AY	2022 SAR (as of June 30, 2021)			2022 AR (as of December 31, 2021)		
	Loss Cost	Severity	Frequency	Loss Cost	Severity	Frequency
2017	\$173.43	\$5,639	30.76	\$173.20	\$5,724	30.26
2018	\$175.43	\$5,799	30.25	\$174.19	\$5,903	29.51
2019	\$170.27	\$5,925	28.74	\$167.00	\$6,010	27.79
2020	\$124.24	\$6,152	20.19	\$111.90	\$6,039	18.53
2021*	\$120.05	\$6,337	18.94	\$129.83	\$6,604	19.66

* The 2021 data presented for the 2022 SAR only includes data through to June 30, 2021 and is not directly comparable to the full 2021 year in the 2022 AR.

Overall, for the four-year period 2017 to 2020, our estimates of the average annual ultimate loss costs have decreased by 2.7%. Some of the change from the prior review to the current review is due to the removal of the problematic data of one insurer/group for this review discussed in Section 6.2.

Table 11: Changes in Estimated Loss Costs, Frequency and Severity: Accident Benefits–Total

AY	2022 SAR (as of June 30, 2021)			2022 AR (as of December 31, 2021)		
	Loss Cost	Severity	Frequency	Loss Cost	Severity	Frequency
2017	\$62.47	\$5,396	11.58	\$62.41	\$5,390	11.58
2018	\$66.70	\$5,813	11.47	\$66.90	\$5,829	11.48
2019	\$73.90	\$6,429	11.49	\$72.84	\$6,331	11.50
2020	\$61.57	\$8,068	7.63	\$62.35	\$8,166	7.64
2021*	\$59.14	\$8,044	7.35	\$74.97	\$8,662	8.65

* The 2021 data presented for the 2022 SAR only includes data through to June 30, 2021 and is not directly comparable to the full 2021 year in the 2022 AR.

Overall, for the four-year period 2017 to 2020, our estimates of the average annual ultimate loss costs have decreased by 0.1%.

Table 12: Changes in Estimated Loss Costs, Frequency and Severity: Collision

AY	2022 SAR (as of June 30, 2021)			2022 AR (as of December 31, 2021)		
	Loss Cost	Severity	Frequency	Loss Cost	Severity	Frequency
2017	\$274.52	\$6,524	42.08	\$262.68	\$6,732	39.02
2018	\$282.95	\$6,549	43.20	\$262.21	\$6,626	39.57
2019	\$272.79	\$6,446	42.32	\$250.98	\$6,363	39.45
2020	\$190.50	\$6,785	28.08	\$171.07	\$6,639	25.77
2021*	\$163.21	\$7,381	22.11	\$182.36	\$7,430	24.54

* The 2021 data presented for the 2022 SAR only includes data through to June 30, 2021 and is not directly comparable to the full 2021 year in the 2022 AR.

Overall, for the four-year period 2017 to 2020, our estimates of the average annual ultimate loss costs have decreased by 7.2%. The majority of the change from the prior review to the current review is due to the removal of the problematic data of one insurer/group for this review discussed in Section 6.2.

Table 13: Changes in Estimated Loss Costs, Frequency and Severity: Comprehensive

AY	2022 SAR (as of June 30, 2021)			2022 AR (as of December 31, 2021)		
	Loss Cost	Severity	Frequency	Loss Cost	Severity	Frequency
2017	\$173.99	\$6,250	27.84	\$182.41	\$6,461	28.23
2018	\$174.97	\$6,328	27.65	\$177.23	\$6,581	26.93
2019	\$170.33	\$6,290	27.08	\$174.16	\$6,568	26.52
2020	\$267.60	\$8,053	33.23	\$244.88	\$7,831	31.27
2021*	\$110.62	\$6,255	17.68	\$185.65	\$6,971	26.63

* The 2021 data presented for the 2022 SAR only includes data through to June 30, 2021 and is not directly comparable to the full 2021 year in the 2022 AR.

Overall, for the four-year period 2017 to 2020, our estimates of the average annual ultimate loss costs have decreased by 1.0%. Some of the change from the prior review to the current review is due to the removal of the problematic data of one insurer/group for this review discussed in Section 6.2.

7. Selection of Loss Trend Rates

7.1. Introduction

Loss trend rates are factors that are used in the determination of rate level indications. They are applied to the experience period ultimate incurred losses to adjust those losses to the cost levels that are anticipated during the policy period covered under the proposed rate program.

The application of trend rates is, essentially, a two-step process. The data in the experience period under consideration is adjusted to reflect observed changes in cost conditions that have taken place (i.e., “past trend”), and then the data is further adjusted to reflect future changes in cost conditions that are expected to occur between the end of the experience period and the period the new premiums will be in effect (i.e., “future trend”).

Therefore, past trend rates should reflect the cost level changes that occurred during the experience period. Future trend rates should consider those changes as well as the likelihood that those patterns may change.

To derive estimates of appropriate loss trend rates, we consider the observed trend patterns based on our estimates of the Industry Alberta ultimate claim frequency, claim severity and loss cost⁴⁵ by accident half-year that we derive (as we discuss in Section 6.4) and the results of regression analyses we perform. In doing so, we reflect parameters that could have an impact on the trends, such as time, seasonality, and, as appropriate, “level changes” and coverage reforms.

We also consider the results of statistical tests that we apply.

- With respect to the Adjusted R-squared, we generally refer to values of 80% and greater as “high,” values between 40% and 80% as “moderate,” and values less than 40% as “low.”
- We consider *p*-values less than 5% to be “significant.”
- The confidence interval presented corresponds to a 95% probability level range.

The identification of the underlying trend patterns over the experience period is challenging because factors such as statistical fluctuation in the data points, changes in the underlying exposure, or abnormal weather conditions, etc., can make the underlying trend patterns difficult to discern. For this reason, we model the data several different ways in an attempt to identify the underlying trends during the experience period:

- with and without certain data points to improve our understanding of the sensitivity of the calculated loss trend rates to the inclusion or exclusion of those points; and
- over time periods that are longer than the experience period as a means of increasing the stability/reliability of the data being analyzed and to assess changes in trend patterns that may have occurred.

⁴⁵ Our severity and loss cost estimates include allocated loss adjustment expenses and a provision for the unallocated loss adjustment expenses (ULAE) based on ULAE factors provided by GISA.

In selecting future trend rates, if appropriate, we adjust our selected past trend rates considering the changes that have occurred over the recent past if there is evidence of new patterns emerging.

Time Period

In this review, we present and consider the claim experience by accident half-year, spanning the twenty-year period from 2002-1 to 2021-2.

While we provide this older experience data for information purposes, we continue to select trend rates generally considering the claim experience since 2005 (following the Bill 53 reforms introduced in 2004).

Seasonality

Some coverages exhibit what is referred to as “seasonality” – where the number of claims or claim amounts incurred during the first half of a year are generally higher/lower than claim costs incurred during the second half of a year. In the coverage-by-coverage discussion that follows, we state whether seasonality is statistically significant based on the measured p -values and, if appropriate, include seasonality in our regression model used as the basis for our trend selection.

Other Variables

We have considered the possible impact of economic conditions (as measured by the unemployment rate) and weather (such as recorded snowfall levels) on claim frequency in our prior studies. However, for a variety of reasons, which include the difficulty of forecasting the parameter future level for the trend model, we do not explicitly consider unemployment or weather as a parameter in our trend analysis.

Reforms and Level Changes

The purpose of the reform or level change parameter is to isolate and remove the impact that reform or other event had on the level of claim costs so that the underlying claim cost trend can be identified.

As we consider the bodily injury claim experience that emerged following the 2004 Bill 53 reforms, we do not include a reform parameter in our regression models.

As we consider the accident benefits claim experience that emerged following the 2007 reforms, we do not include a reform parameter in our regression models.

As discussed more fully below, the COVID-19 pandemic has impacted claims costs during 2020 and 2021. As result of this, combined with the limited Bill 41 experience since November 2020, we are not yet able to assess the impact of Bill 41 in our regression models.

Other Considerations

In selecting past loss trend rates, we also consider:

- variance in results (i.e., changes in trends) based on different historical time periods;
- relationship of frequency and severity trend patterns; and
- uncertainty in the estimated values.

In selecting future loss trend rates, we give consideration to changes in current economic conditions that may not be evident in the current data available for the regression analysis. In particular, we

consider the recent rise in inflation which is generally attributed to supply chain issues affecting availability of cars and parts.

COVID-19

COVID-19 “stay-at-home” orders and other directives during the pandemic resulted in a dramatic decline in traffic. While vaccine distribution has contributed to an increase in traffic levels since the early days of the pandemic, there remains uncertainty as to the new normal traffic patterns and claims frequency levels during the time periods during which rate programs that use these benchmarks may be in effect.

The trend rates that we present in this report are intended to measure the rate of change in loss cost experience without influence of the COVID-19 pandemic.

Therefore, we exclude the 2020 and 2021 observations from our selected models for the coverages that have seen a significant change in claim costs as a result of the COVID-19 pandemic. We find severity has been unaffected by the COVID-19 pandemic. In the case of frequency, we observe a significant decrease for all coverages except comprehensive, specified perils and all perils. In the case of these three coverages, the June 2020 hailstorm and other July and August weather storms in central and southern Alberta may be masking any decrease coincident with the COVID-19 pandemic.

Application of Trend Rates

For those rating programs intended to be effective once the COVID-19 pandemic is not expected to have an impact on future claims costs, the historical loss cost data (to which these trend rates will apply to) should be adjusted to remove any impact of the pandemic.⁴⁶

For those rating programs intended to be in effect while the COVID-19 pandemic continues to impact claims costs, the historical loss cost data (to which these trend rates will apply to) should be (i) adjusted to fully remove any impact of the COVID-19 pandemic and (ii) then adjusted to the degree the pandemic is expected to impact claims costs during⁴⁷ the proposed rating program.

Other Economic Considerations

Inflation

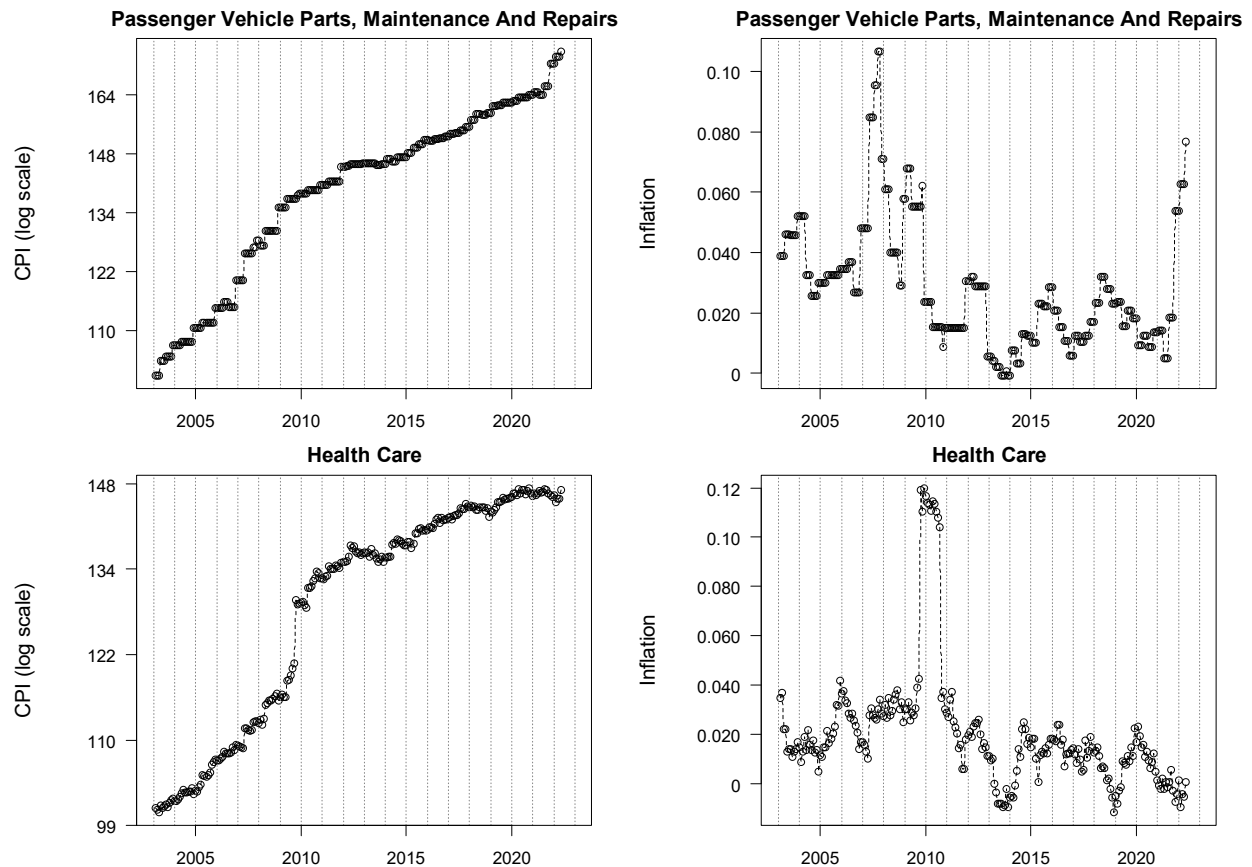
Supply chain issues and pent-up consumer demand has resulted in a recent increase in inflation which may lead to increased claim costs during the prospective period. In Figure 7, we present the consumer price index (CPI) and inflation rate⁴⁸ over the last 20 years in Alberta, separately, for vehicle maintenance and repair costs and health care.

⁴⁶ An alternative is to assign zero weight to the accident year/period data distorted by COVID-19.

⁴⁷ This adjustment should consider what proportion of the policy year loss experience will be impacted by the COVID-19 pandemic.

⁴⁸ As measured by the 12-month change in CPI.

Figure 7: Consumer Price Index

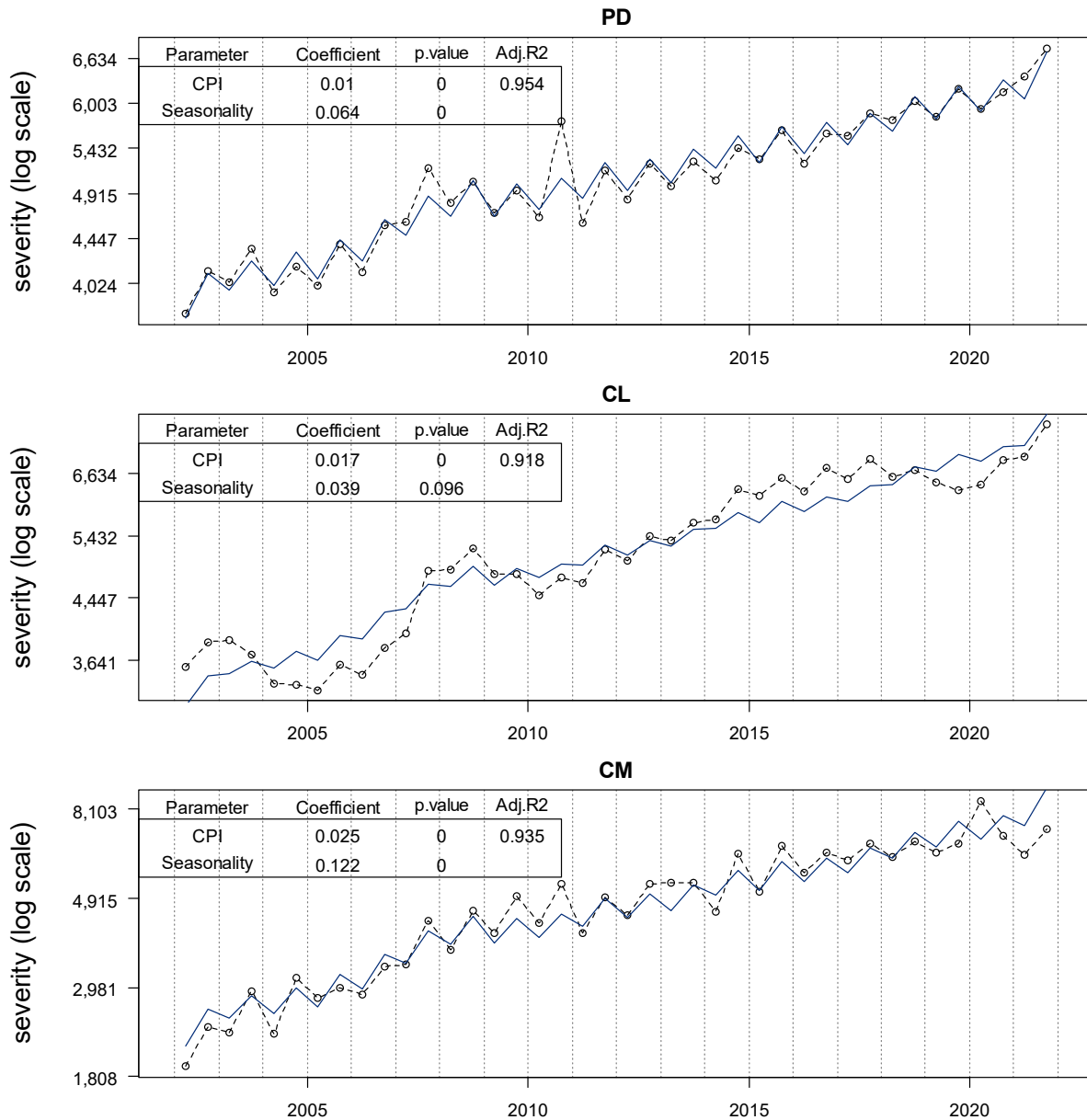


A review of the historical data points (as presented in Figure 7) shows that subject to variability:

- Since 2010, the historical inflation rate for passenger vehicle parts, maintenance and repair costs has generally ranged between +1% to +3%. The average inflation rate between 2010 and 2021 is approximately +1.65%.
- The recent increase the CPI for passenger vehicle parts, maintenance and repair costs has resulted in the highest inflation levels since 2007.
- Health Care costs appear unaffected by the recent inflationary trends.

We expect the recent higher inflation for vehicle parts, maintenance and repair costs to affect claim costs for physical damage coverages since more costly repairs will increase the total amount needed to settle claims. In Figure 8, we examine the historical relationship between claims severity for physical damage coverages and the CPI over the last 20 years. More specifically, we fit regression models to the severity experience using average CPI over the period and seasonality as predictor variables. As expected, we observe significant correlation between the historical physical damage claim costs and CPI index, as indicated by the large Adjusted R^2 values and significant p -values.

Figure 8: Physical Damage x CPI Correlation



Given this correlation, it is reasonable to assume that an increase in inflation will result in an increase in future claim costs. The amount by which claim costs will increase is highly uncertain as the persistence of the higher inflation levels is difficult to predict.

Additional Economic Factors

Although there is a high degree of correlation between CPI and the physical damage trend rate, other social and economic factors may also affect claim costs and the measured loss cost trend rate. This is why the loss cost trend rate is not equal to the CPI, but instead correlated with it. These other social and economic factors influence the difference between the measured loss cost trend rate and the CPI. In

addition to the impact of rising car parts and repair costs, the following economic factors may affect claims costs:

- Surging Gas Prices - the surge in gas prices can affect consumer behaviour regarding vehicle usage. A decline in vehicle usage due to surging gas prices may be correlated with a decline in frequency.
- Interest Rates /economic downturn – increased interest rate rates or a potential economic downturn may result in a decline in the consumer propensity to buy new vehicles. As new cars typically cost more to repair, this would temper the severity trend.

Application

As discussed above, our trend selections are based on models that do not directly consider additional economic parameters, such as CPI, due to the difficulty of forecasting future inflation rates. However, we believe explicit recognition of the current economic environment may be warranted in this case.

To recognize the expectation of higher than historical inflation we suggest that insurers use the most recent *CPI data for vehicle maintenance and repair costs* in Alberta to calculate an adjustment to the selected past severity trend for physical damage coverages as a basis for the future trend rate. If we consider claim cost trend to be the combination of inflation and a residual trend amount, then the future *severity* trend rate may be estimated using the following formula:

$$\begin{aligned} &\text{Future Severity Trend Rate} \\ &= (1 + \text{Annual Future Inflation Rate}) \times \left(\frac{1 + \text{Past Severity Trend Rate}}{1 + \text{Historical Inflation Rate}} \right) - 1 \end{aligned}$$

However, insurers apply *loss cost* trend rates in their rate applications, not severity trend rates. Therefore, for practical purposes we consider a CPI adjustment for the *loss cost* trend rate. The future *loss cost* trend rate is approximately equal to the expected average future inflation rate plus the historical difference between inflation and past loss cost trend.

$$\begin{aligned} &\text{Future Loss Cost Trend Rate} \\ &\cong (\text{Annual Future Inflation Rate}) \\ &+ (\text{Past Loss Cost Trend Rate} - \text{Historical Inflation Rate}) \end{aligned}$$

We recommend that at the time of the rate application preparation, the future loss cost trend rate be calculated as above so as to take into consideration the higher inflation than is implicit in the past loss cost trend rate. Specifically:

The future loss cost trend rate would be based on the annual future inflation rate, the residual trend and consideration of other economic factors.

- Each insurer (when submitting their rate application) would select an **annual future inflation rate** that the insurer determines would be in effect between October 1, 2021 and the average accident date of the proposed rate program. This annual future inflation rate would be based on the most recent CPI data for vehicle maintenance and repair costs in Alberta that is available at the time of the filing preparation, and the actuary's expectation of inflation until the average accident date of the proposed rate program.

Government actions to curb rising costs and its impact on expected inflation should be considered in selecting the annual future inflation rate. As the rate of inflation may vary over the forecast period, the actuary should consider this variation.

- The **residual trend** is equal to the selected past loss cost trend (varies by coverage) less the average historical inflation rate of +1.65% that we measure between 2010 and 2021. The residual trend is presented for each of the physical damage coverages in the following subsections.
- As discussed above if **other social or economic environment changes** are influencing vehicle usage or purchase of vehicles, this too could be considered in the selection of the future loss cost trend rate.

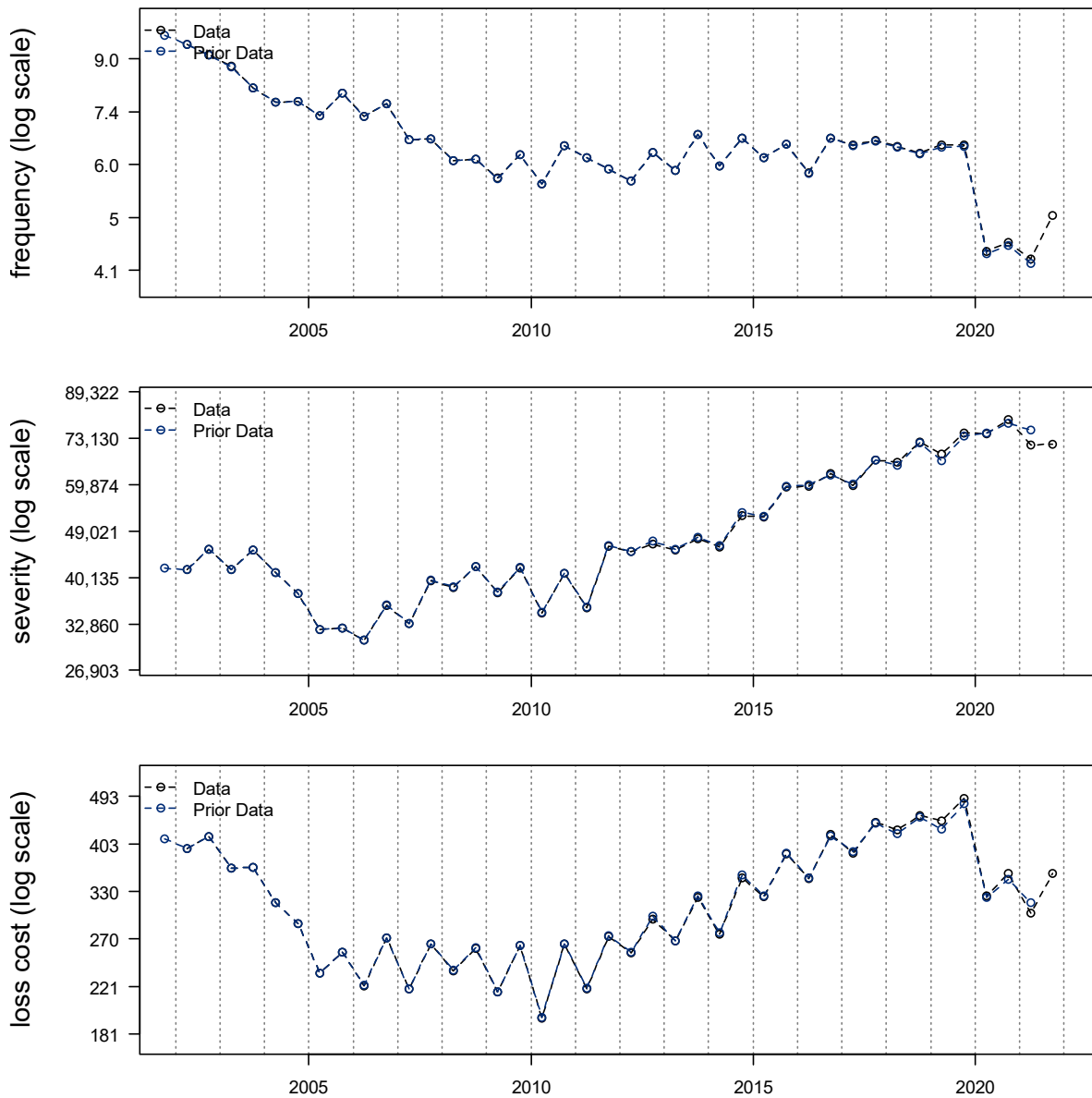
The proposed application of selecting a future loss cost trend based on the most recent increase in CPI and other economic changes should be viewed as a temporary solution until inflation stabilizes. It is expected that these adjustments would no longer be necessary once inflation has returned to historical levels and the economic environment has stabilized.

7.2. Bodily Injury

For the prior review, we selected a past loss cost trend rate of +6.5% and a future loss cost trend rate of +5.0% beginning November 1, 2020.

In Figure 9, we present our estimate of the estimated loss cost (average claim cost per vehicle), average severity (average claim cost per claim), and frequency rate (average claim incidence rate) over the period 2002-1 through 2021-2. We include a comparison to the estimated values used in our prior report and observe the estimates have not changed significantly.

Figure 9: Observed Bodily Injury Loss Cost Experience



A review of the historical data points (as presented in Figure 9) shows that subject to variability:

- Loss cost exhibited a relatively flat trend following Bill 53 (effective October 2004), followed by a large positive trend between 2010 and 2017. Since 2017 we observe early signs of slight flattening and a large decrease during 2020 and 2021 coincident with the COVID-19 pandemic.
- Severity has exhibited a generally upward trend since Bill 53 but includes a relatively flat to declining trend from 2009 through the first half of 2011. Severity begins to increase in 2011-2 and turns to a steeper increase beginning in 2014, then a decline in 2021 coincident with the reforms effective November 2020.

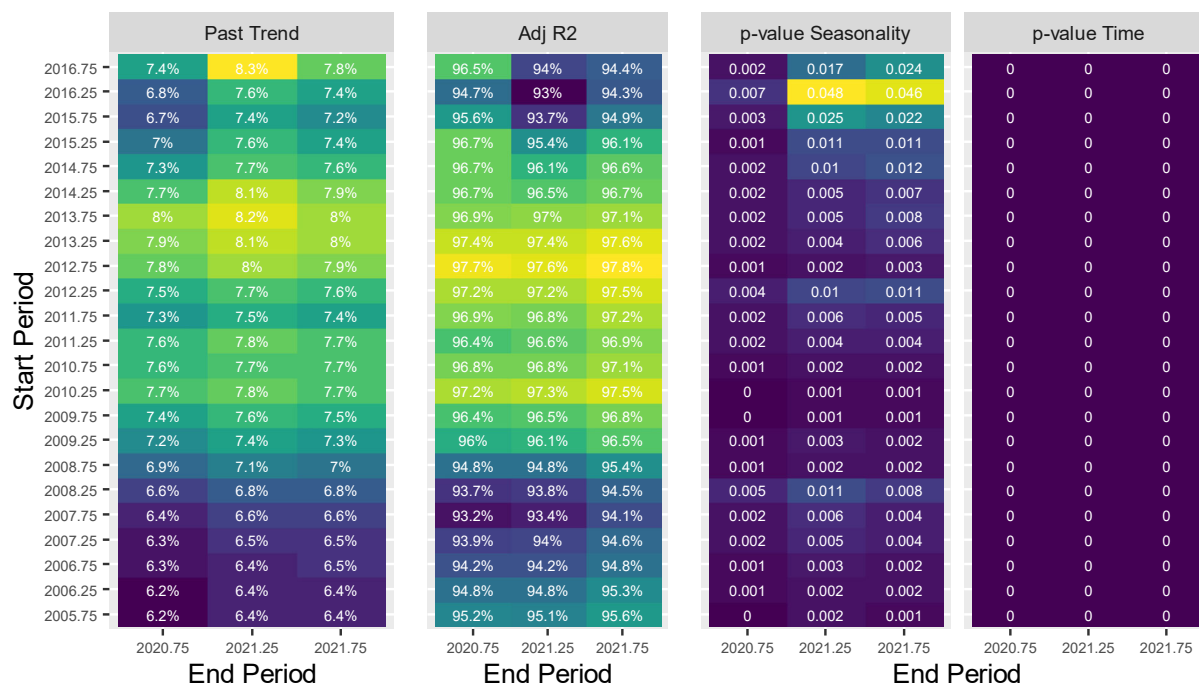
As described in our prior reports, the sharp rise in severity in the second half of 2011 and first half of 2012 may, in part, be attributed to the January 2012 Sparrowhawk Decision.⁴⁹

- Frequency exhibited a downward trend through 2010, which leveled off between 2010 to 2016. More recently we observe early signs of a flattening pattern since 2016 and a large decrease during 2020 and 2021 coincident with the COVID-19 pandemic.

The estimated severity, frequency, and loss cost trends, associated Adjusted R-squared values, *p*-values, and confidence intervals over various trend measurement periods, with and without a seasonality parameter, are presented in Appendix C. We begin our review at 2005-1, following the Bill 53 reforms introduced in 2004.

In Figure 10 we present a heatmap of indicated severity trends beginning 2005-2 through 2016-2, ending 2021-2, 2021-1 and 2020-2 with time, seasonality. In addition, the historical data is adjusted by -18% for the November 2020 reform.⁵⁰

Figure 10: Bodily Injury Severity Heatmap (Time and Seasonality)



- We observe the models with experience periods ending 2021-2 have indicated severity trend rates that range from approximately +6.5% to +8.0%, and have high Adjusted R-squared values and significant *p*-values for time and seasonality.

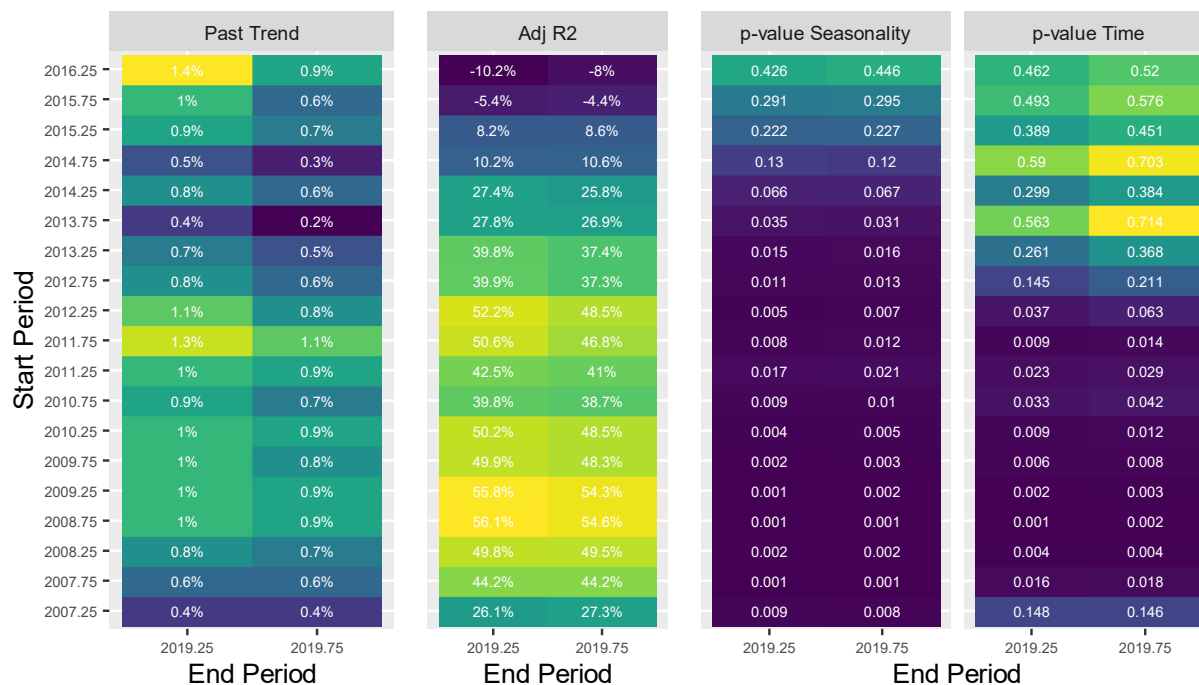
⁴⁹ In Sparrowhawk V. Zapoltinsky the Court of Queen’s Bench of Alberta found the claimant with temporomandibular (TMJ) not to be subject to the MIR cap.

⁵⁰ The initial estimate of the impact of the November 2020 reforms is an 18% reduction in claims costs. This estimate will be updated as data under the November 2020 reforms emerges.

- The models with experience periods ending 2021-1 and 2020-2 have indicated trend rates that are similar to those ending 2021-2.

In Figure 11 we present a heatmap of indicated frequency trends beginning 2007-1 through 2016-1, ending 2019-2 and 2019-1 with time and seasonality parameters included in the model. We exclude the unusually low 2020 and 2021 observations that are coincident with the COVID-19 pandemic.

Figure 11: Bodily Injury Frequency Heatmap (Time and Seasonality)



- The implied frequency trends from the models beginning 2012-1 to 2014-2 are generally flat and have p -values for time that are insignificant. The models fit to longer experience periods have p -values that are significant for time and a small positive trend.
- All models have low to moderate Adjusted R-squared values and, except for the periods starting 2014-1 and subsequent, p -values that are significant for seasonality.

Therefore, while there is a flat to slightly increasing frequency pattern, these frequency trend rates have weak statistical support.

In the AUTO 7001 Exhibit introduction, GISA describes the following bodily injury claim amount and claim count reporting issues that may be affecting the bodily injury loss development data.

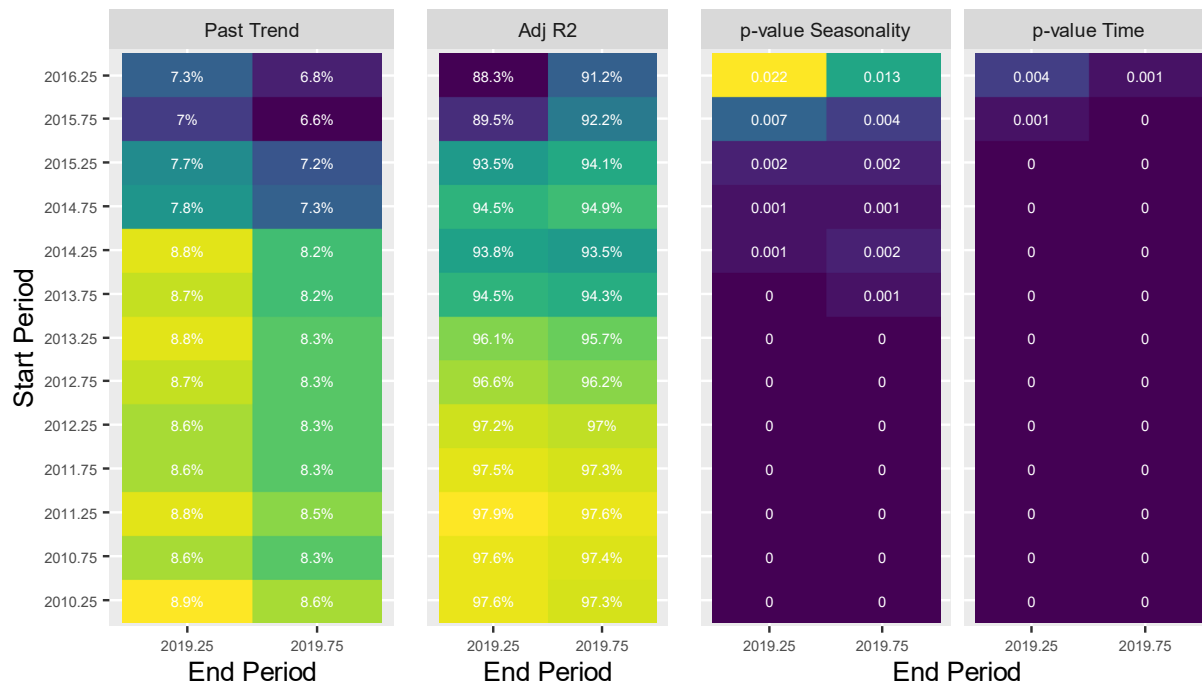
- “A large writer has changed its case reserving protocol for Bodily Injury Kind of Loss as of Accident Year 2015-1 and is now reporting lower incurred claim counts and lower incurred claim amounts at earlier age of development. Another large writer has strengthened their reserving practice for Accident Year 2013 and onwards, starting during the second half of calendar year 2015. Users should exercise caution when using this data.”

- “An unusual significant increase in claim counts for a major writer was noted for Bodily Injury Kind of Loss for Accident Half-Years 2016-1, 2016-2 and 2017-1 at the 6-month development stage. This has been confirmed as a result of a temporary change in its claims handling, which created significant claims backlog. Users should exercise caution when using this data.
- A large writer has confirmed its change in claims handling practice for Bodily Injury claims, which results in larger than historical claims closure across the 2017-1 and later diagonals of the Bodily Injury claim count and amount triangles. Users should exercise caution when using this data.
- A large writer has strengthened their case reserving practice for Bodily Injury Kind of Loss as of Accident Year 2017-2, resulting in larger than usual case reserve amounts across the 2017-2 and later diagonals of the Bodily Injury amount triangle. Users should exercise caution when using this data.”

These reporting issues serve to increase the uncertainty associated with our selected ultimate claim amounts and claim counts. Given this uncertainty which impact the estimated frequency and severity trends, as well as the high *p*-values for our frequency trend models, we also consider the estimated loss cost trends.

In Figure 12, we present a heatmap of indicated loss cost trends beginning 2010-1 through 2016-1, ending 2019-2 and 2019-1 with time and seasonality parameters included in the model. We exclude the unusually low 2020 and 2021 observations that are coincident with the COVID-19 pandemic.

Figure 12: Bodily Injury Loss Cost Heatmap (Time and Seasonality)



- The estimated loss cost trends range from approximately +6.5% to 8.5% with high Adjusted R-squared values, and *p*-values that are significant for time and seasonality.

- The same estimated loss cost trends ending 2019-1 are slightly higher than those ending 2019-2.

Based on these findings, we select a past loss cost trend rate of +7.0%, the approximate trend rate over the shorter more recent periods, ending 2019-2, one half percentage point higher than our prior review.

While the uncertainties related to ultimate claim amounts - particularly for the more recent accident years - make the selection of the future loss trend rate more challenging, we find there is some evidence of moderation to the steep increases in the loss costs.⁵¹ However, this is based on a limited number of data points and clouded by both the pandemic and Bill 41, introducing changes to the minor injury definition (intended to increase the percentage of claimants subject to the cap). We expect Bill 41 will likely temper the future loss cost trend.

For these reasons we recommend a future loss cost trend of +5.0% beginning November 1, 2020; the same as our prior selection.

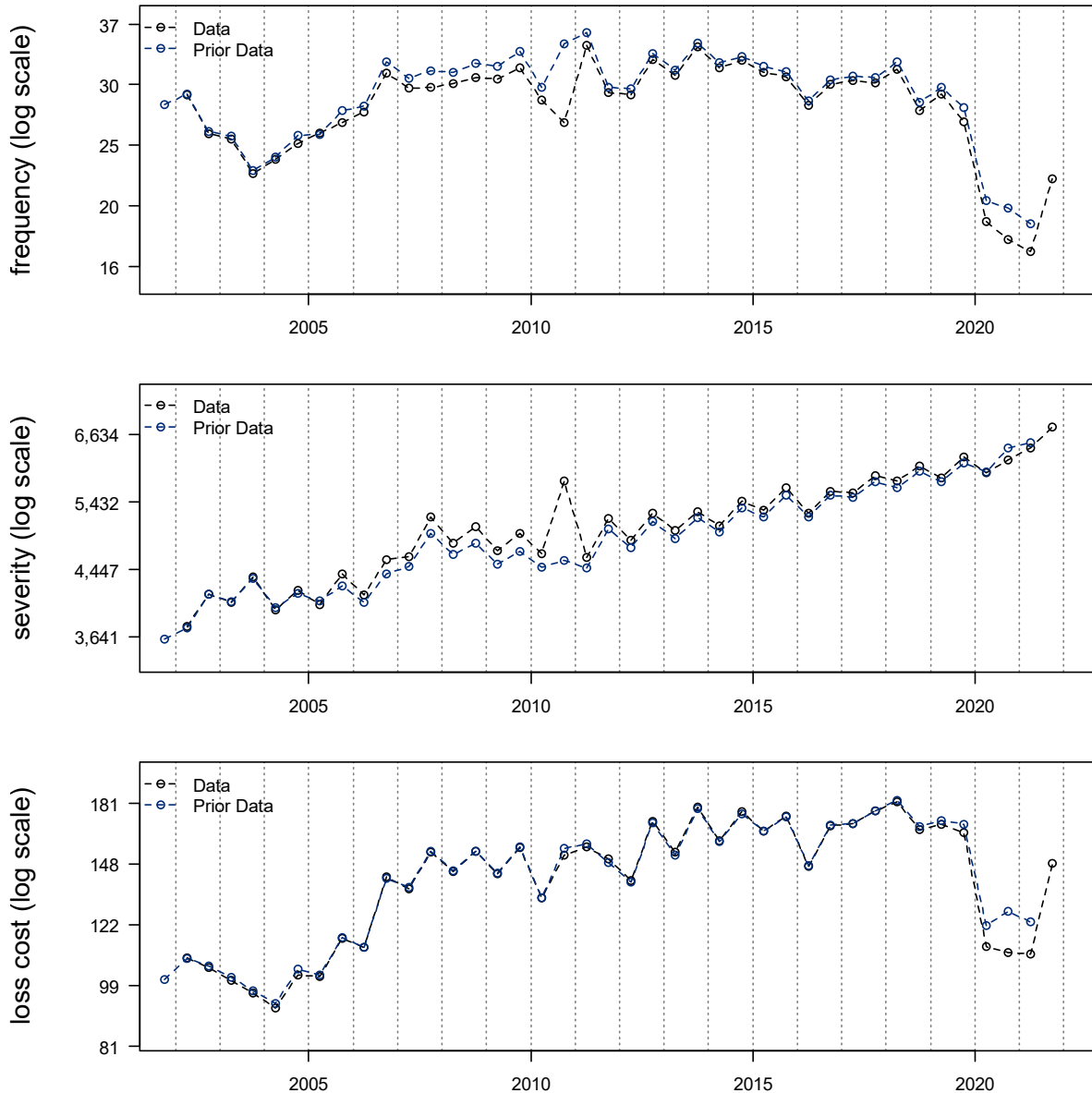
7.3. Property Damage

For the prior review we selected a past and future loss cost trend rate of +1.5%.

In Figure 13, we present our estimate of the actual loss cost, average severity, and frequency rate over the period 2002-1 through 2021-2. We include a comparison to the estimated values used in our prior report and observe that the frequency, severity, and loss cost estimates have decreased in the 2020 and 2021-1 accident semesters. The majority of this is due to the exclusion of one insurer/group with an unusual rise in severity as discussed in Section 6.2.

⁵¹ As mentioned in our 2019 annual report, anecdotal evidence of a stabilization of the percentage of claimants subject to the minor injury cap was provided at the August 2019 Open Meeting which would support a lower future trend. See Appendix E for additional regression statistics.

Figure 13: Observed Property Damage Loss Cost Experience



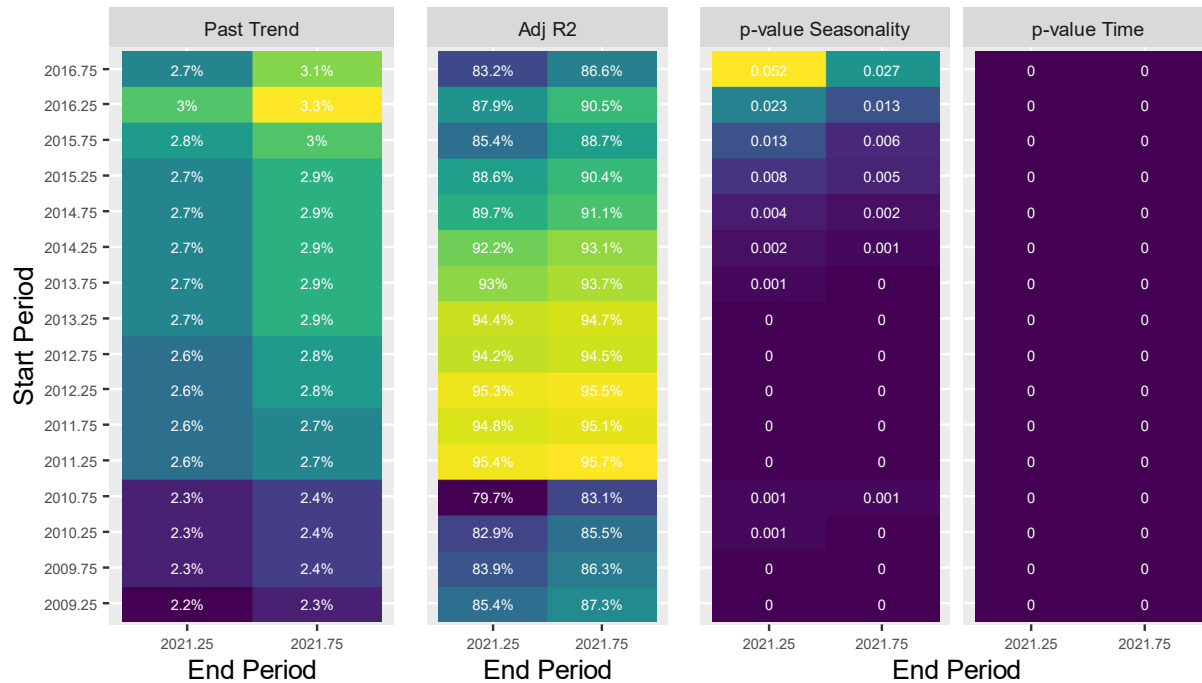
A review of the historical data points (as presented in Figure 13) shows that subject to variability:

- Loss cost has experienced a modest upward loss cost trend beginning 2007. We observe a large decrease during 2020 and 2021 coincident with the COVID-19 pandemic.
- Severity generally exhibited an upward trend over the last twenty years, except for some isolated periods of a flatter or declining pattern.
- Frequency contributed to the rise in the loss cost level over 2003 to 2006, followed by a somewhat volatile but flat pattern, which appears to have turned downward since its peak in 2011. We observe a large decrease during 2020 and 2021 coincident with the COVID-19 pandemic.

The estimated severity, frequency, and loss cost trends, associated Adjusted R-squared values, *p*-values, and confidence intervals over various trend measurement periods, with and without a seasonality parameter, are presented in Appendix C.

In Figure 14, we present a heatmap of indicated severity trends beginning 2009-1 through 2016-2, ending 2021-2 and 2021-1 with time and seasonality parameters included in the model.

Figure 14: Property Damage Severity Heatmap (Time and Seasonality)



- The models ending 2021-2 generally have implied severity trends that fall in the range of +2.3% to +3.3% with high Adjusted R-squared values, and *p*-values that are significant for time and seasonality.
- The estimated trends ending 2021-1 fall within the same range as those ending 2021-2.

In Figure 15, we present a heatmap of indicated frequency trends beginning 2008-2 through 2016-1, ending 2019-1 and 2019-2 with only a time parameter included in the model, as seasonality is not significant. We exclude the unusually low 2020 and 2021 observations that are coincident with the COVID-19 pandemic.

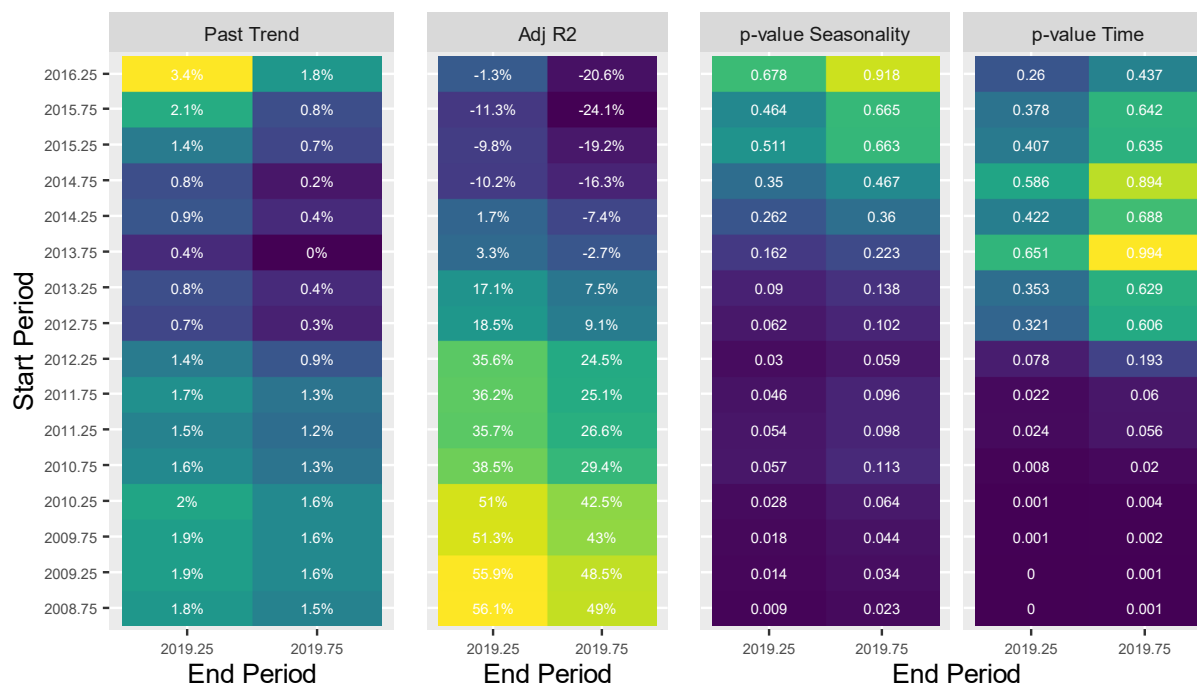
Figure 15: Property Damage Frequency Heatmap (Time)



- The models beginning 2011-1 through 2014-2 ending 2019-2 generally have implied frequency trends that fall in the range of -1.0% to -3.0% with low to moderate Adjusted R-squared values, and *p*-values that are significant for time. We note the longest and shortest trend periods have insignificant *p*-values for time.
- The estimated trends ending 2019-1 are slightly higher than those ending 2019-2.

Given the weak frequency Adjusted R-squared values, we also considered the loss cost trends rates. In Figure 16, we present a heatmap of indicated loss cost trends beginning 2008-2 through 2016-1, ending 2019-1 and 2019-2 with time and seasonality parameters included in the model. We exclude the unusually low 2020 and 2021 observations coincident with the COVID-19 pandemic.

Figure 16: Property Damage Loss Cost Heatmap (Time and Seasonality)



- The models beginning 2008-2 through 2011-2 ending 2019-2 generally have implied loss cost trends that cluster around 1.5%, with moderate to low Adjusted R-squared values, and *p*-values that are significant for time and, for the longer periods, seasonality.
- The estimated trends ending 2019-1 are slightly higher than those ending 2019-2.

As a result, we select a past loss cost trend rate of +1.5% - the same as our prior selected trend.

We estimate *future loss cost* trend will be approximately 0.15⁵² percentage points below the insurer’s expectation of average inflation between October 1, 2021 and the average accident date of the proposed rate program. The insurer’s expectation of inflation should consider the post-October 1, 2021 Vehicle Parts, Maintenance and Repair CPI data available at time of filing. Please refer to Section 7.1 for more details regarding our view on future loss cost trend for physical damage coverages.

Effective January 1, 2022, premiums for Third Party Liability are split into three separate coverages: Bodily Injury, Property Damage -Tort and DCPD. Until separate Property Damage-Tort and DCPD data is available from GISA, the loss cost trend rate that we select for Property Damage is intended to apply to both sub-coverages.

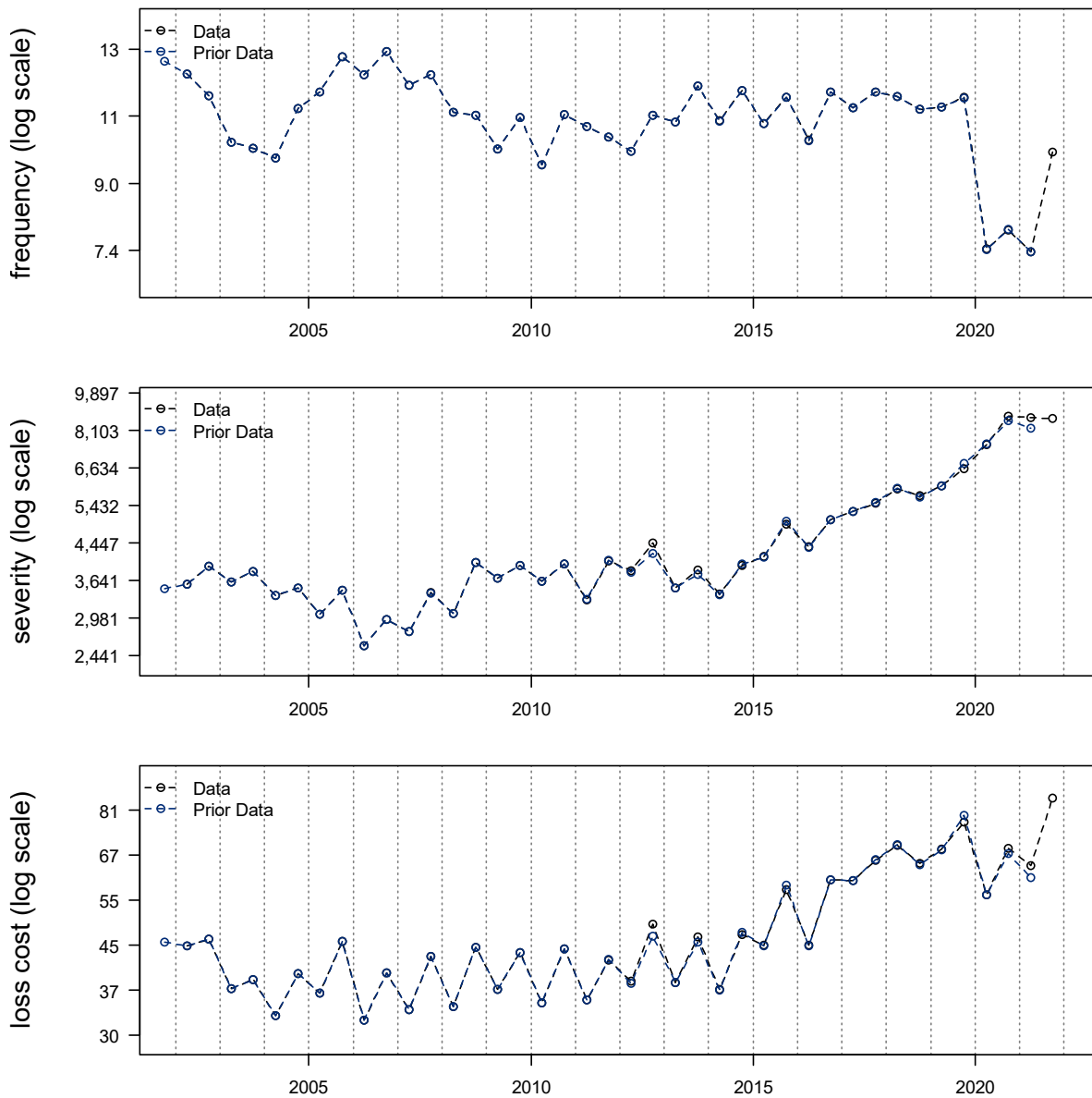
7.4. Accident Benefits

For the prior review, we selected a past lost cost trend rate of +1.0% and a future loss cost trend rate of +12.0% beginning January 1, 2015. We note most rate applications will consider data from 2015 and onward in the experience period to which the trend rates apply.

⁵² -0.15% = 1.5% (past loss cost trend) - 1.65% (historical inflation)

In Figure 17, we present our estimate of the actual loss cost, average severity, and frequency rate over the period 2002-1 through 2021-2. We include a comparison to the estimated values used in our prior report and observe our estimates have not change significantly.

Figure 17: Observed Accident Benefits Loss Cost Experience



A review of the historical data points (as presented in Figure 17) shows that subject to variability:

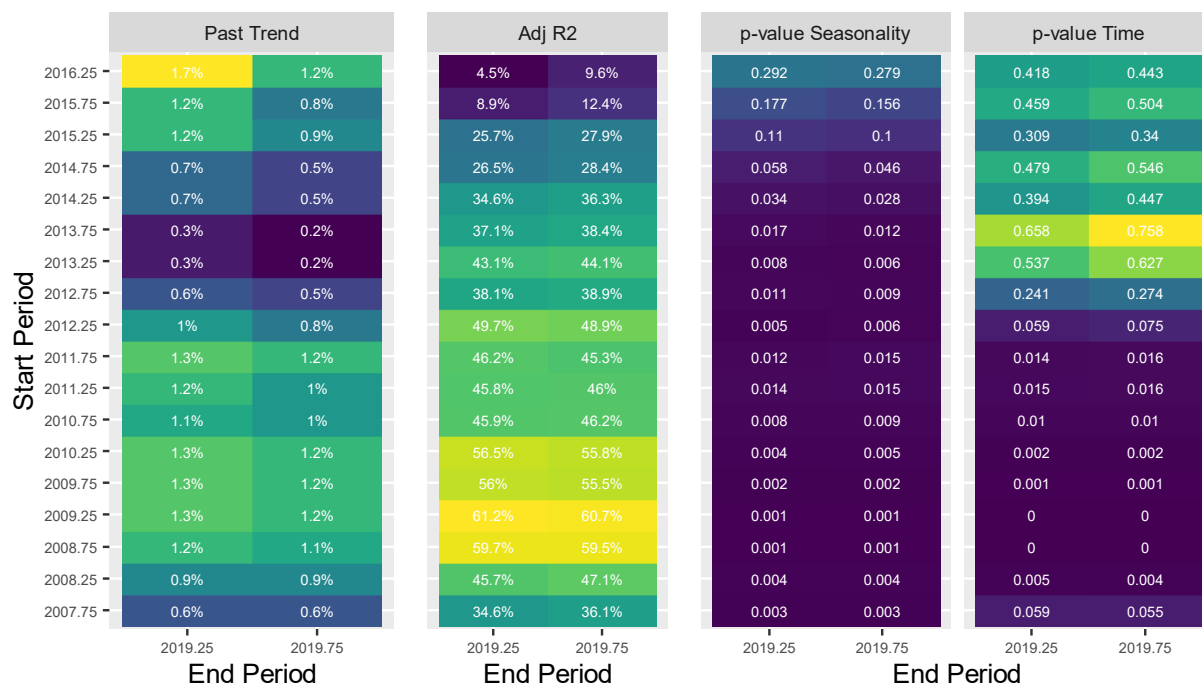
- Loss cost experienced a small positive trend since 2003, changing to a steeper increase beginning in 2015. We observe a significant decrease during 2020 and 2021 coincident with the COVID-19 pandemic.

- Severity increased with the reforms in April 2007, followed by a flat pattern between 2008-2 and 2015-1, which changed to a steeper increasing pattern since 2015.⁵³ The rise in 2020-2 is coincident with the reform changes effective November 2020.
- Frequency has changing patterns, but generally exhibiting a flat pattern since 2012. We observe a large decrease during 2020 and 2021 coincident with the COVID-19 pandemic.

The estimated severity, frequency, and loss cost trends, associated Adjusted R-squared values, *p*-values, and confidence intervals over various trend measurement periods, with and without a seasonality parameter, and with and without a change in level and/or a change in trend rate during 2015, are presented in Appendix C. We begin our review at 2007-2, following the 2007 accident benefit reforms.

In Figure 18, we present a heatmap of indicated frequency trends beginning 2007-2 through 2016-1, ending 2019-2 and 2019-1 with time and seasonality parameters included in the model. We exclude the unusually low 2020 and 2021 observations that are coincident with COVID-19 pandemic.

Figure 18: Accident Benefits Frequency Heatmap (Time and Seasonality)



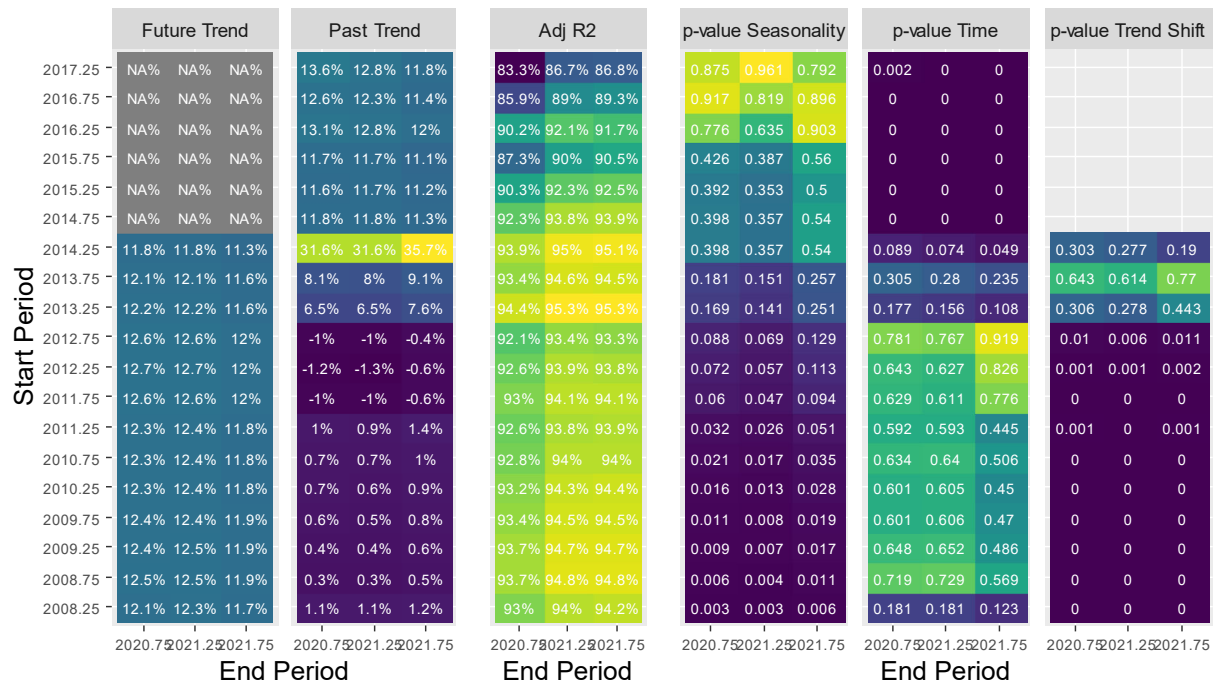
- The models beginning 2007-2 through 2011-2 ending 2019-2 generally have implied frequency trends that cluster around 1.0%, with moderate Adjusted R-squared values, and *p*-values that are significant for time and seasonality.
- The time parameter is generally insignificant for models with shorter experience periods, and the Adjusted R-squared values are lower.
- The estimated trends ending 2019-1 are slightly higher than those ending 2019-2.

⁵³ We note bodily injury severity also exhibited a steeper increasing pattern beginning 2015.

We select a past frequency trend rate of +1.0% based on the models with longer experience periods and higher (but still moderate) Adjusted R-squared values.

In Figure 19, we present a heatmap of indicated severity trends beginning 2008-1 through 2017-1, ending 2021-2, 2021-1 and 2020-2 with time, seasonality, and a 2015-1 change in trend parameter included in the model. In addition, the historical data is adjusted by +8% for the November 2020 reforms.⁵⁴

Figure 19: Accident Benefits Severity Heatmap (Time, Seasonality, 2015-1 Change in Trend)



- The models with experience periods beginning 2008-1 through 2012-2 and ending 2021-2 have implied trend rates that range from -0.5% to +1.5% prior to January 1, 2015 and +11.5% to +12.0% beginning thereafter. These models have high Adjusted R-squared values, and p-values that are significant for a change in trend rate beginning January 2015 and generally for seasonality, but not for time. We therefore find there is no discernable trend (i.e., +0.0%) for time periods prior to January 1, 2015.
- The models with experience periods beginning 2014-2 and subsequent and ending 2021-1 have implied trend rates ranging from +11.0% to +12.0%.⁵⁵ These models have high Adjusted R-squared values and p-values that are significant for time (during the period of higher trend), but not seasonality (also during the period of higher trend).
- The estimated trends ending 2021-1 are slightly higher than those ending 2021-2.

⁵⁴ The initial estimate of the impact of the November 2020 reforms is a +8% increase in claims costs. This estimate will be updated as data under the November 2020 reforms emerges.

⁵⁵ See Appendix E for additional details.

Giving greater weight to the models ending 2020-1, we select a severity trend rate for periods prior to January 1, 2015 of +0.0%, and a severity trend rate for periods after January 1, 2015 of +11.0%.⁵⁶

As a result, we select past and future loss cost trends based on our selected frequency and severity trends. We select a loss cost trend of +1.0% up to January 1, 2015 and +12.0% thereafter.

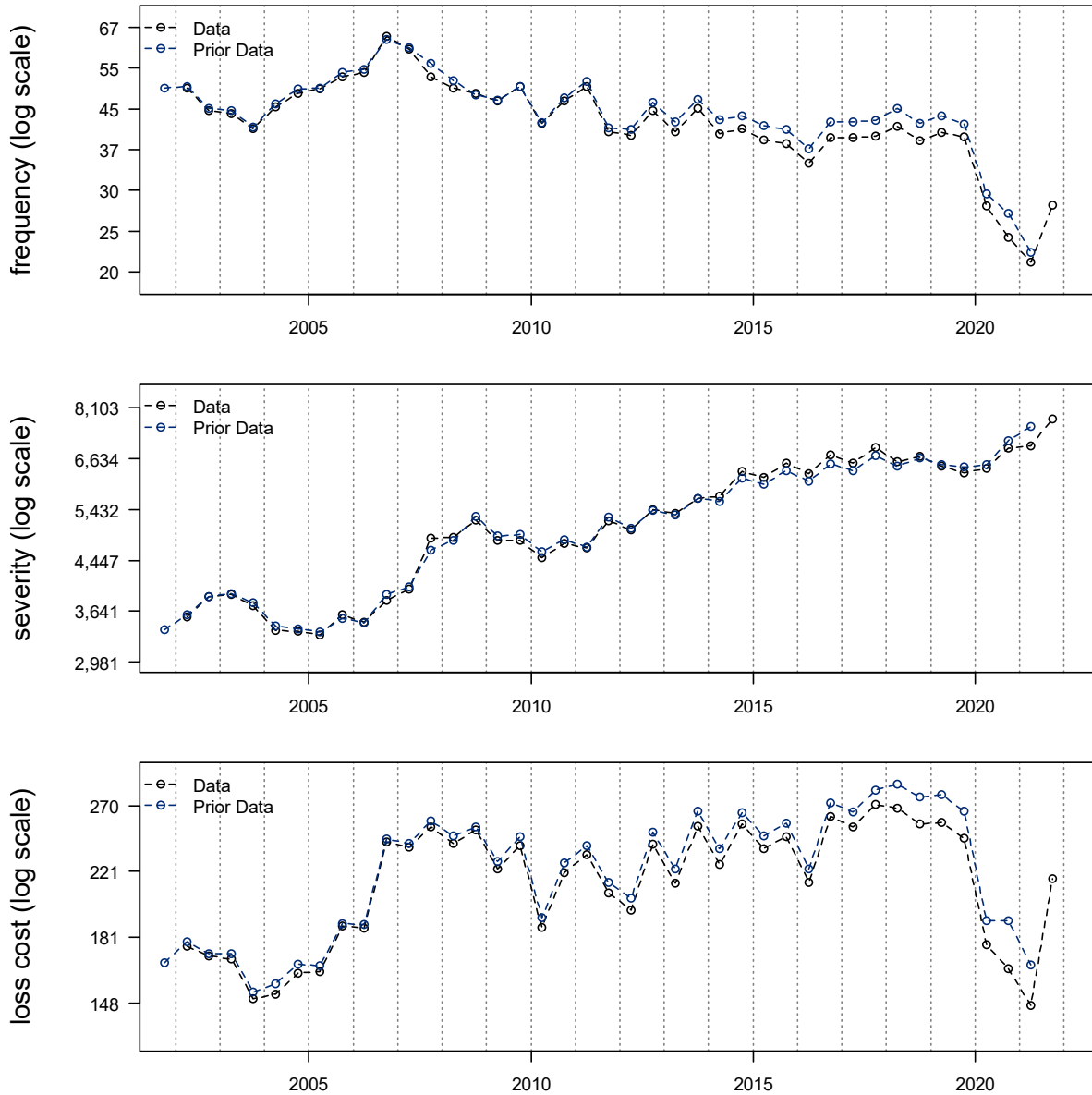
7.5. Collision

For the prior review, we selected a past and future lost cost trend rate of +2.5%.

In Figure 20, we present our estimate of the actual loss cost, average severity, and frequency rate over the period 2002-1 through 2021-2. We include a comparison to the estimated values used in our prior report and observe our frequency and loss cost estimates decreased slightly. The majority of this is due to the exclusion of one insurer/group with an unusual rise in severity as discussed in Section 6.2.

⁵⁶ We give greater weight to the models ending 2020-1, presented in Appendix E, as these models would have limited impact from the reforms effective November 2020, and insurers would separately adjust the historical loss experience in their rate application to a cost level reflective of the new reforms.

Figure 20: Observed Collision Loss Cost Experience



A review of the historical data points (as presented in Figure 20) shows that subject to variability:

- Loss costs has experienced a small positive trend since 2010, which appeared to be flattening out (and possibly declining) over 2018 and 2019, then large decreases during 2020 and 2021 coincident with the COVID-19 pandemic.
- Severity has exhibited an upward trend that is fairly consistent from 2010 to 2016 which then levelled out during 2017 to 2019, followed by a continued upward trend.
- Frequency has been relatively flat since 2010. We observe large decreases during 2020 and 2021 coincident with the COVID-19 pandemic.

The estimated severity, frequency, and loss cost trends, associated Adjusted R-squared values, *p*-values, and confidence intervals over various trend measurement periods, with and without a seasonality parameter, are presented in Appendix C.

In Figure 21, we present a heatmap of indicated severity trends beginning 2009-2 through 2017-2, ending 2021-2, 2021-1, and 2020-2 with a time parameter included in the model.

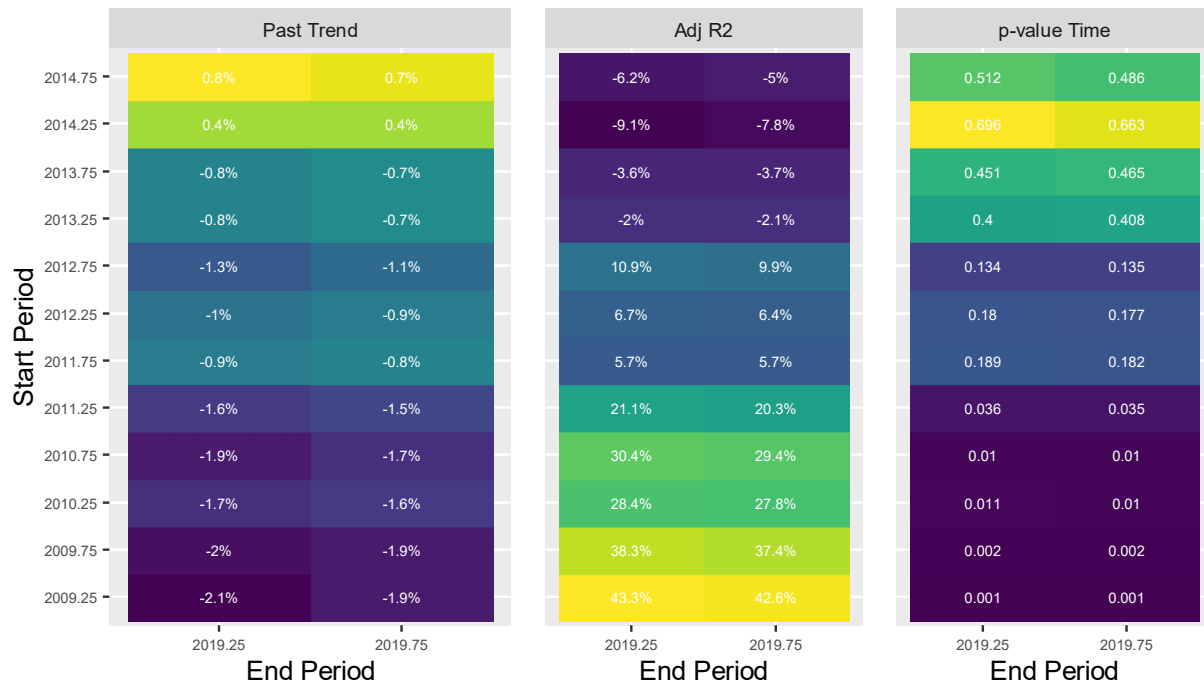
Figure 21: Collision Severity Heatmap (Time)



- The models with experience periods ending 2021-2 have implied severity trend rates ranging from approximately +1.5% to +4.0%, where the estimated trends decrease as the trend period shortens.
- The longer trend periods (beginning 2009-2 through 2012-1) range from about +3.0% to +4.0%, have high Adjusted R-squared values and significant *p*-values for time.
- The models with the shorter experience periods (beginning 2014 and subsequent) have implied severity trend rates that ranging around -1.0% to +2.0%, however have *p*-values that are generally insignificant for time.

In Figure 22, we present a heatmap of indicated frequency trends beginning 2009-1 through 2014-2, ending 2019-2 and 2019-1 with only a time parameter included in the model. We exclude the unusually low 2020 and 2021 observations that are coincident with the COVID-19 pandemic.

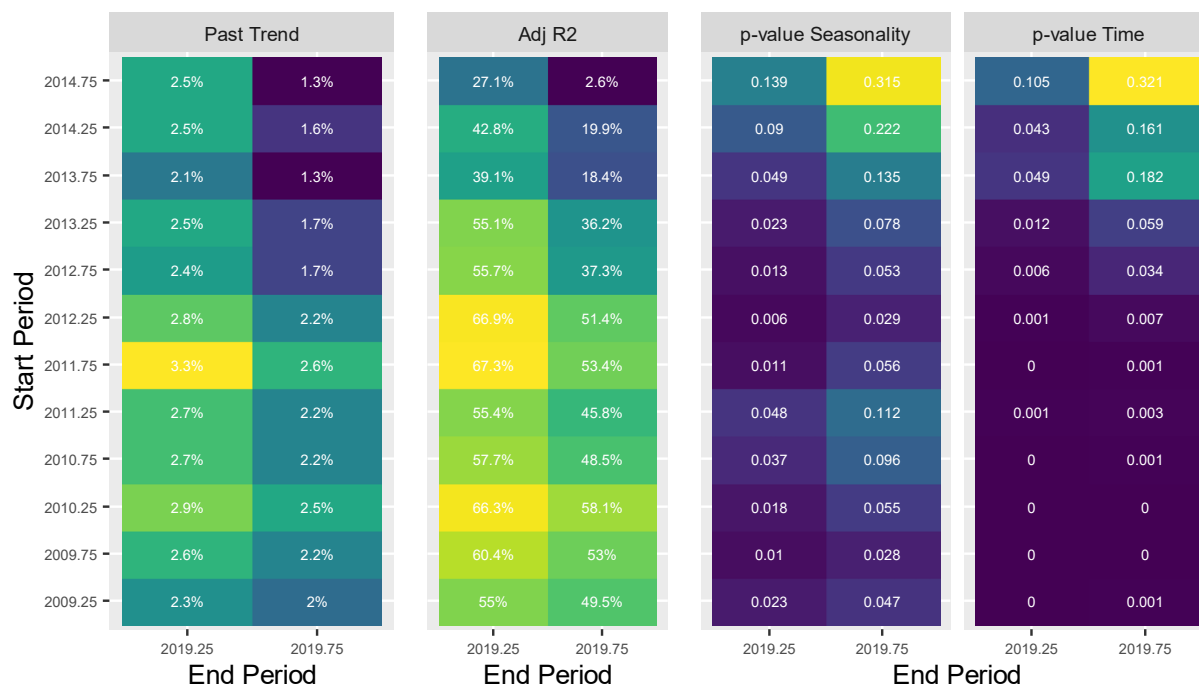
Figure 22: Collision Frequency Heatmap (Time)



The estimated frequency trends generally range from approximately -2.0% to +1.0%, with very low to moderate Adjusted R-squared values and *p*-values (for time) that are only significant for longer periods.

Given the weak frequency Adjusted R-squared values, we also considered the loss cost trends rates. In Figure 23, we present a heatmap of indicated loss cost trends beginning 2009-1 through 2014-2, ending 2019-2 and 2019-1 with time and seasonality parameters included in the model. We exclude the unusually low 2020 and 2021 observations that are coincident with the COVID-19 pandemic.

Figure 23: Collision Loss Cost Heatmap (Time and Seasonality)



- We observe the models with experience periods ending 2019-2, have indicated loss cost trend rates that range from approximately +2.0% to +2.5%, and have low to moderate Adjusted R-squared values and for the longer experience periods, significant *p*-values for time.
- The estimated trends ending 2019-1 have indicated trend rates that are generally one-half to one percentage point higher than those ending 2019-2 as a result of the observed flattening in recent years.
- We note seasonality is generally significant for models ending 2019-1, however insignificant for many models ending 2019-2.

Given the higher Adjusted R-squared values of our direct loss cost models, we select a past loss cost trend rate of +2.5%.

We estimate *future loss cost* trend will be approximately 0.85⁵⁷ percentage points above the insurer’s expectation of average inflation between October 1, 2021 and the average accident date of the proposed rate program. The insurer’s expectation of inflation should consider the post- October 1, 2021 Vehicle Parts, Maintenance and Repair CPI data available at time of filing. Please refer to Section 7.1 for more details regarding our view on future loss cost trend for physical damage coverages.

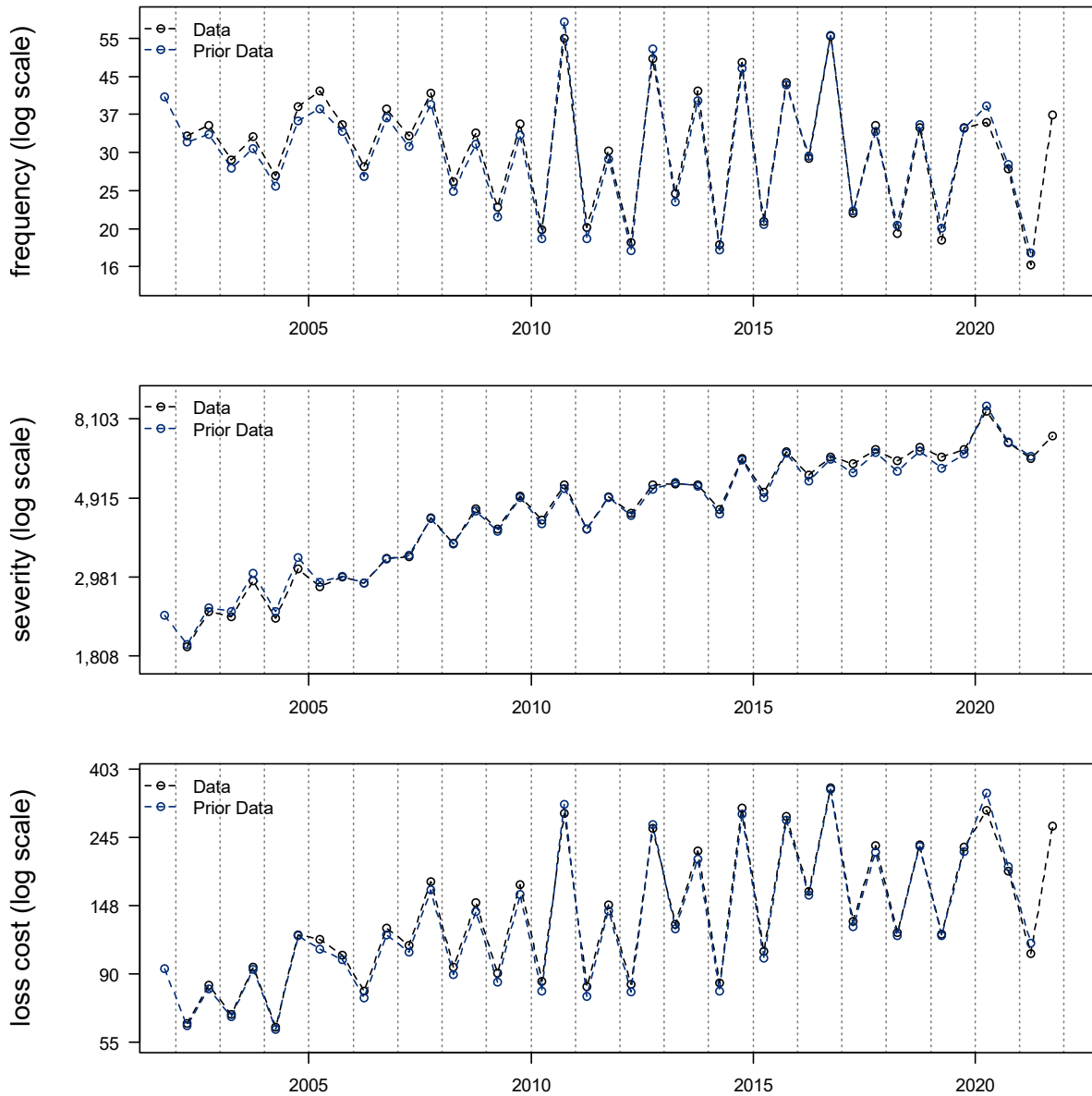
7.6. Comprehensive

For the prior review we selected a past and future loss cost trend rate of +5.0% and +3.5%, respectively.

⁵⁷ +0.85% = 2.5% (past loss cost trend) - 1.65% (historical inflation)

In Figure 24, we present our estimate of the actual loss cost, average severity, and frequency rate over the period 2002-1 through 2021-2. We include a comparison to the estimated values used in our prior report and observe our estimates have not changed significantly.

Figure 24: Observed Comprehensive Loss Cost Experience



As observed from the graphs, the comprehensive coverage claim experience has been quite volatile (particularly for frequency and, therefore, loss cost). This is largely due to the exposure to catastrophes, and other large events such as the wildfires in Slave Lake (May 2011) and Fort McMurray (May 2016) which are not considered catastrophe losses by GISA.

We assume the Southern Alberta June 2020 hailstorm contributes to the unusual rise in frequency and loss cost in 2020-1.

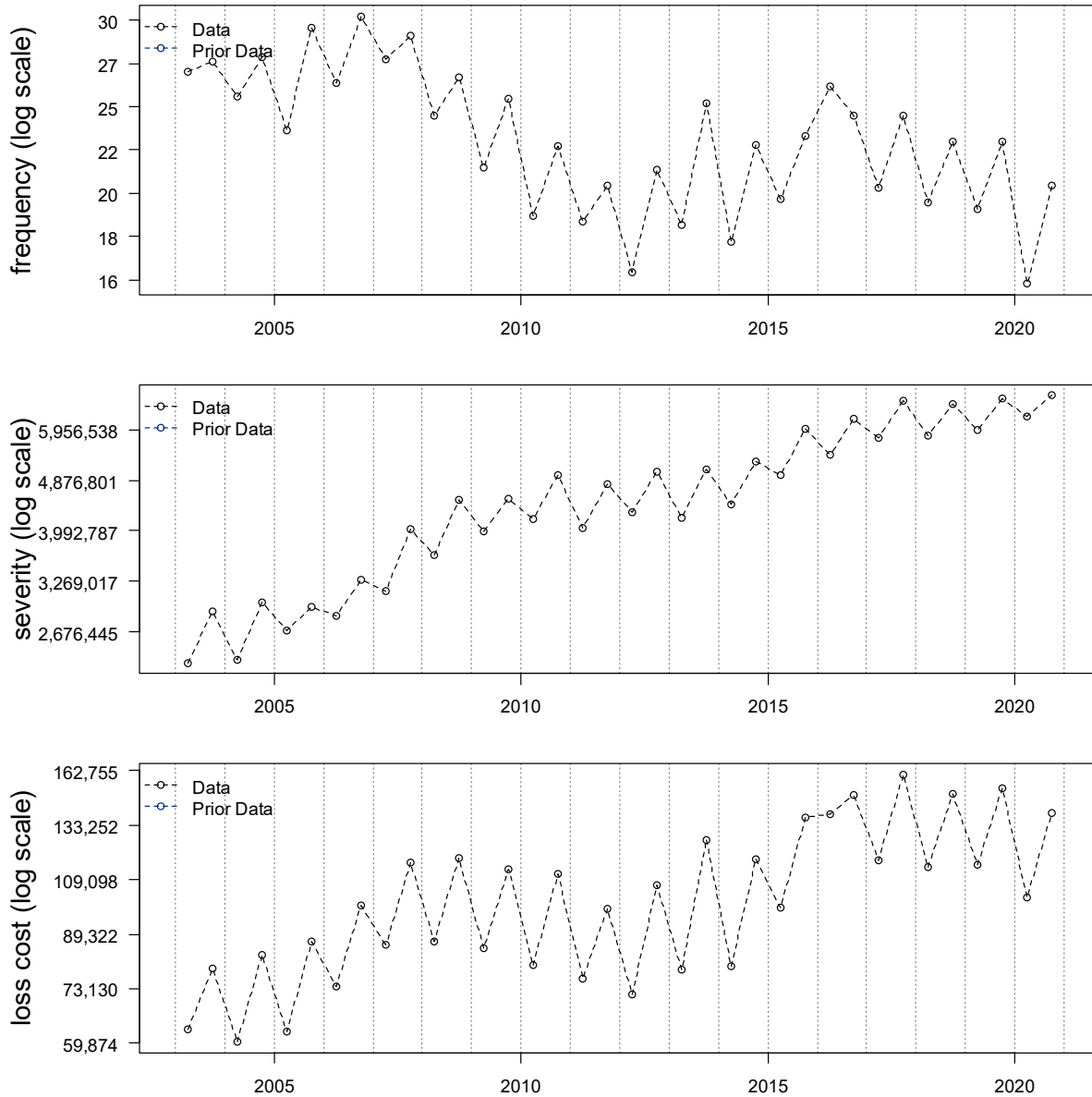
As GISA's 2021 Catastrophe Report was not available at the time of this review, we present the same Excluding Catastrophe graphs and discussion that we had presented in our 2021 annual report based on the GISA Catastrophe data through December 2020 and make no change to our prior selected trend rate.

Similar to other physical damage coverages, we will adjust our future trend selection for inflation in our final report.

Three sets of graphs are presented:

- Total Comprehensive Excluding Catastrophes,
- Comprehensive Excluding both Catastrophes and Theft Claims, and
- Theft-only claims. (Updated with December 31, 2021 data)

Figure 25: Comprehensive – Total (Excluding Catastrophes) – As of December 31, 2020

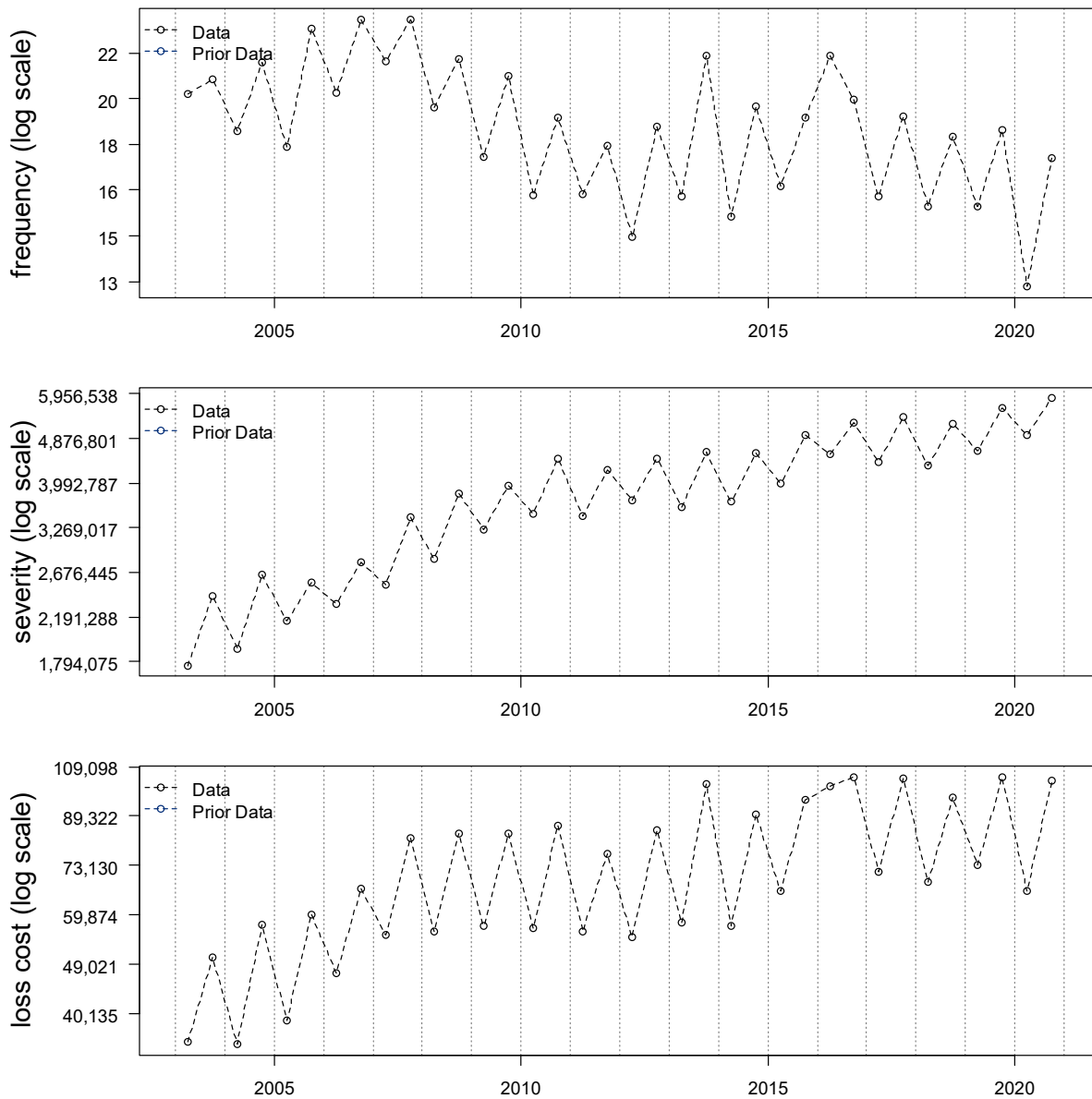


With the removal of catastrophe-related claims the comprehensive coverage claim experience is significantly less variable. Subject to this removal, the historical data points show:

- Severity has consistently trended upward during the experience period.
- Frequency declined through 2012, followed by an increasing trend through 2016 and a decline since. We observe a modest decrease at 2020-1 which may be attributable, in part, to the impact of the COVID-19 pandemic on frequency; however, we do not observe a decrease at 2020-2.

- Loss cost has exhibited an upward trend, including a period of increasing loss cost through 2008, a decline in loss cost from 2008 through 2011, a sharper increase since 2014, and a small decline since 2016.

Figure 26: Comprehensive – Excluding Theft & Excluding Catastrophes – As of December 31, 2020

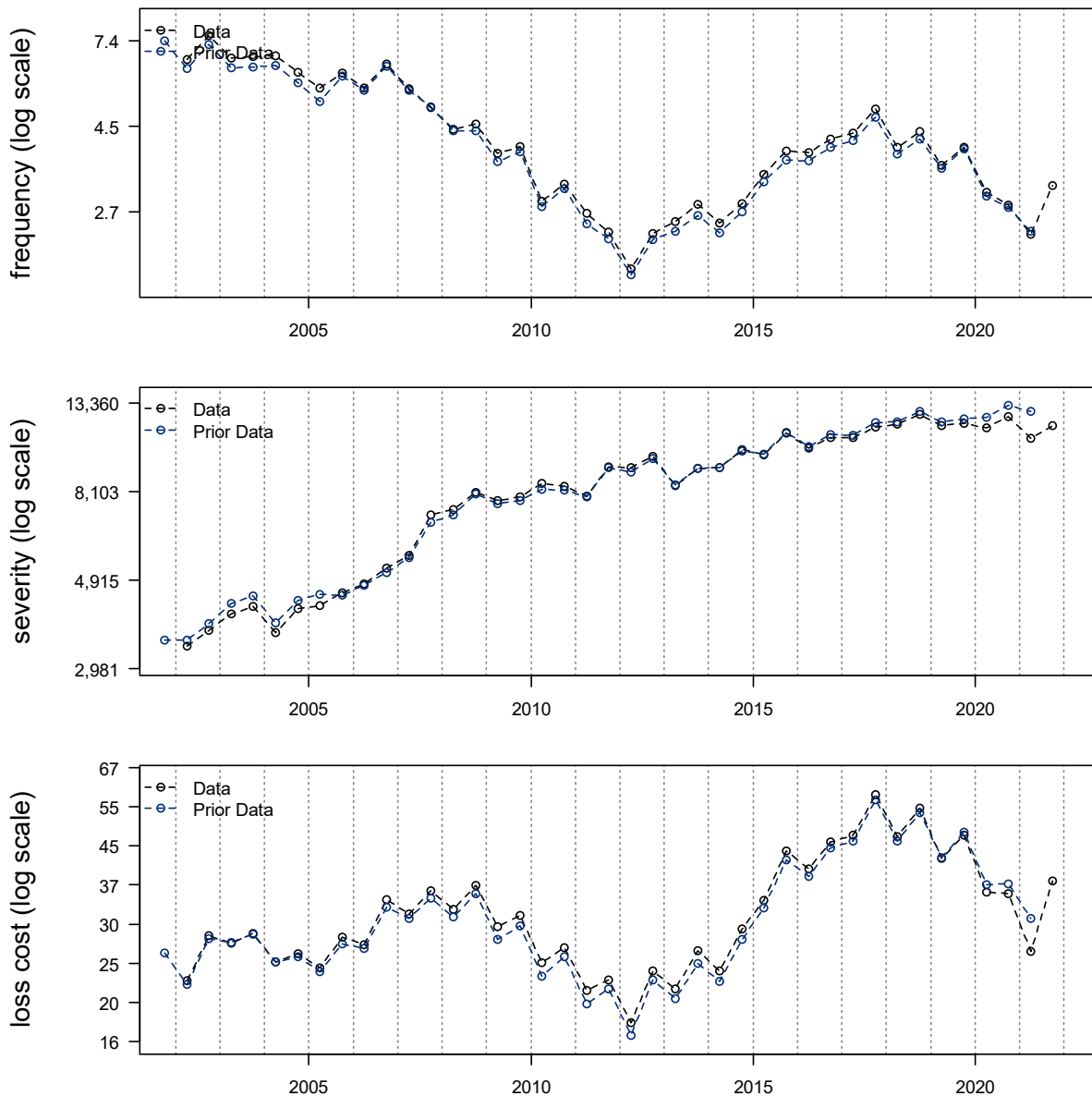


With the removal of both catastrophe and theft related claims the comprehensive coverage claim experience is significantly less variable. Subject to this removal, the historical data points show:

- Severity has trended upward.

- Frequency declined through 2011, followed by a relatively flat trend and a spike in 2016-1 that is likely due to the Fort McMurray event (which is not considered a catastrophe by GISA). We observe a decrease at 2020-1 which may be attributable, in part, to the impact of the COVID-19 pandemic on frequency; however, we do not observe a decrease for 2020-2.
- Loss cost has exhibited an upward trend, including, like frequency, a sharp increase in 2016, followed by a relatively flat trend.

Figure 27: Comprehensive – Theft Only – As of December 31, 2021 (Updated)



Subject to variability, the historical data points show:

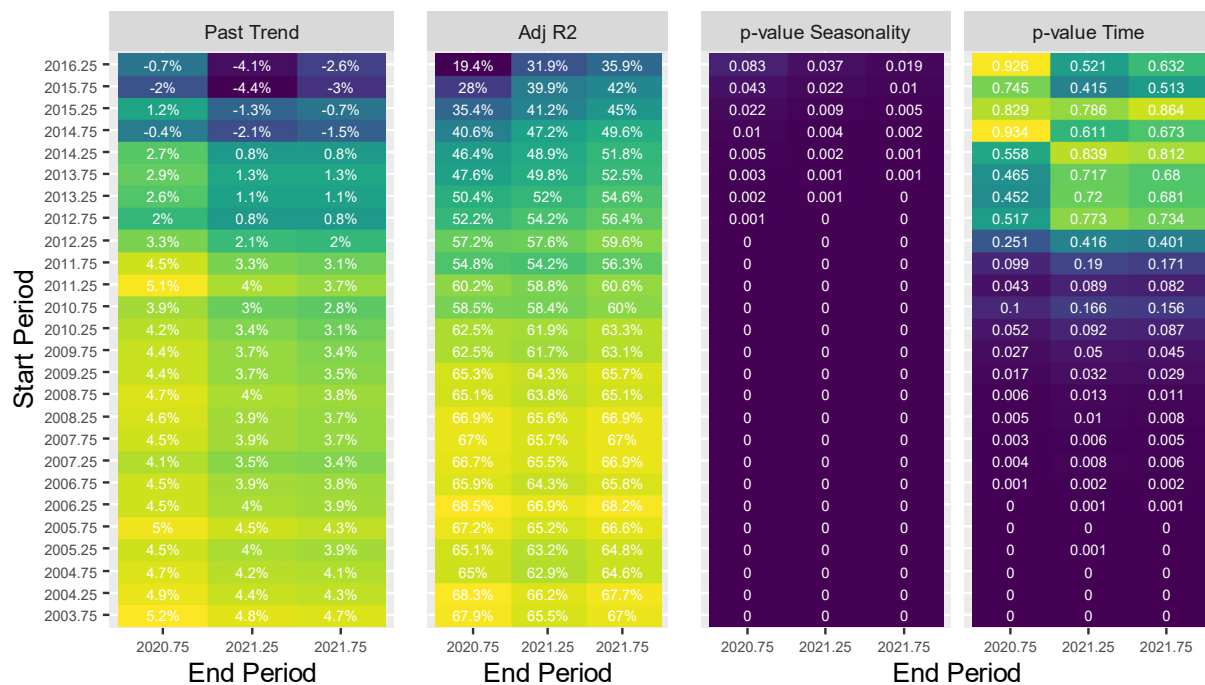
- severity has been generally increasing.
- frequency has increased rapidly since 2012, however has begun to decrease since 2018.
- loss cost increased rapidly since 2014, however has begun to decrease since 2018.

The measured severity, frequency, and loss cost trend, associated Adjusted R-square values, p-values, and confidence intervals over various trend measurement periods, with and without theft and catastrophe claims and for theft only are presented in Appendix C.

Given the variability in the data points and the relative flatness of frequency (except for theft), we base our selected trends on the loss cost experience.

In Figure 28, we present a heatmap of indicated loss cost trends beginning 2003-2 through 2016-1, ending 2021-2, 2021-1, and 2020-2, including both theft and catastrophe claims, with time and seasonality parameters included in the model.

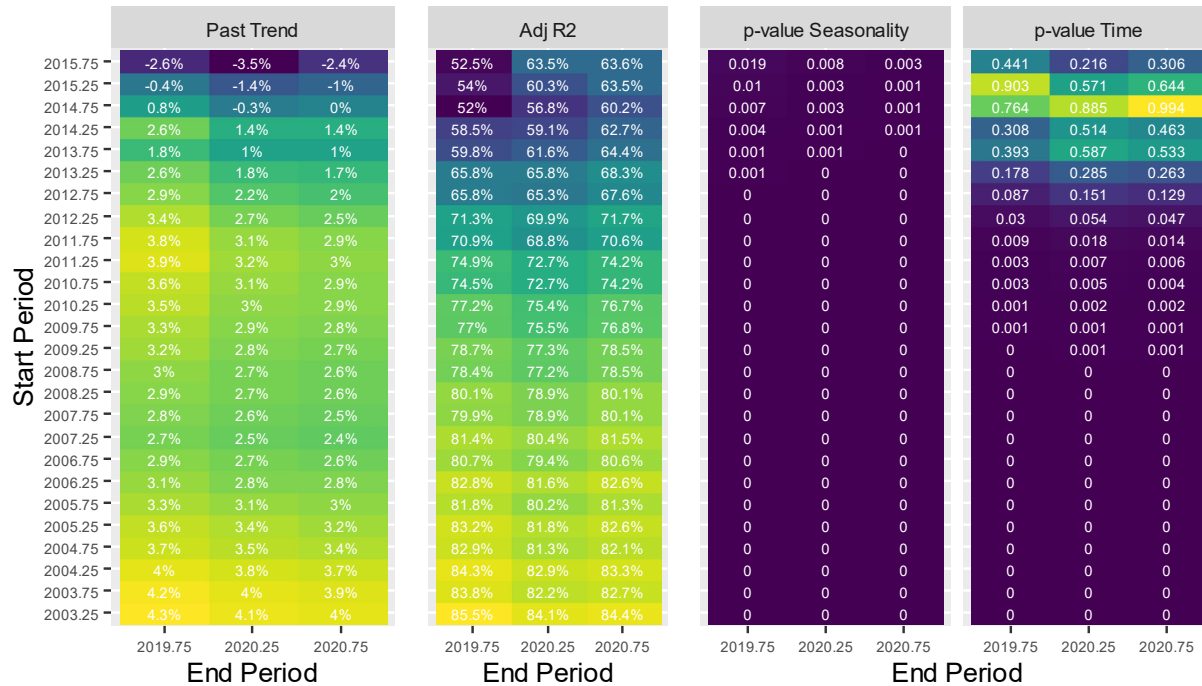
Figure 28: Comprehensive Including Theft and CATs: Loss Cost Heatmap (Time, Seasonality)-Updated



- The models beginning 2003-2 through 2009-2 ending 2021-1 generally have implied loss cost trend rates ranging from approximately +3.5% to +4.5%, with moderate Adjusted R-squared values, and p-values that are significant for time and seasonality.
- The estimated trends ending 2020-2 are generally larger than those ending 2021-1 and 2021-2 due to the spike in loss costs coincident with the Southern Alberta June 2020 hailstorm.
- Over the more recent periods the time parameter is generally insignificant.

To consider the underlying comprehensive trend without the impact of catastrophes and theft claims, in Figure 29, we present a heatmap of indicated annual loss cost trends beginning 2003-1 through 2015-2, ending 2020-2, 2020-1, and 2019-2, excluding both theft and catastrophe claims, with time and seasonality parameters included in the model.

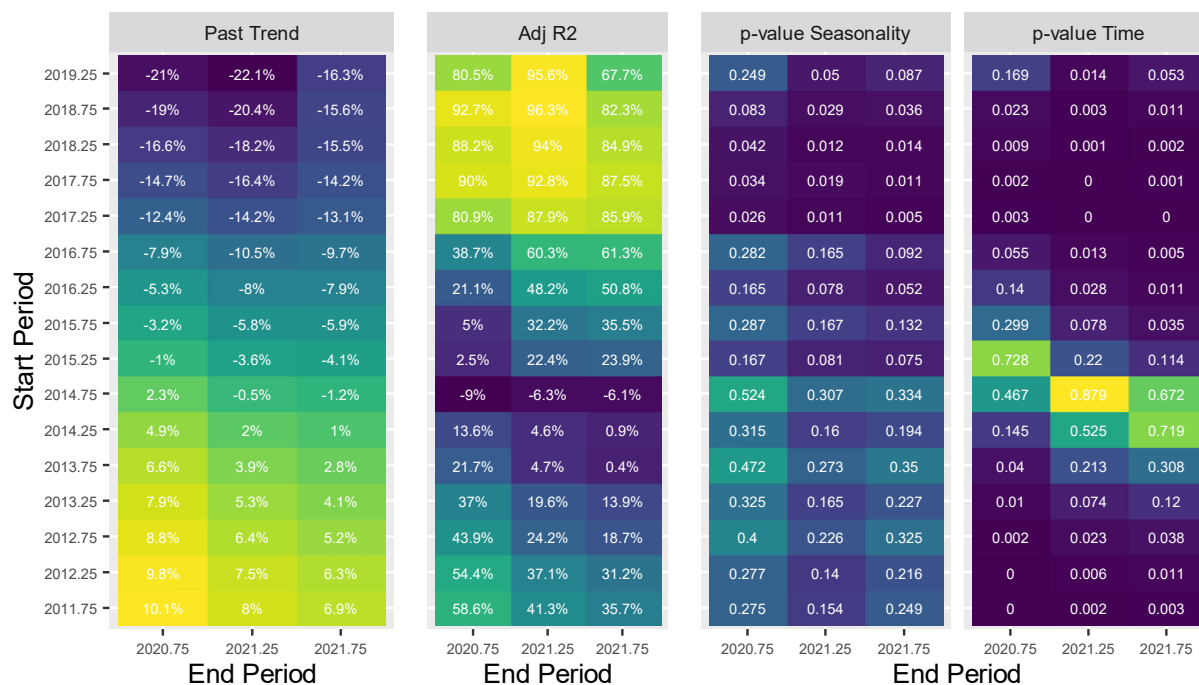
Figure 29: Comprehensive Excluding Theft and CATs: Loss Cost Heatmap (Time, Seasonality) – As of December 31, 2020



- The models beginning 2003-1 through 2012-2 ending 2020-2 generally have implied loss cost trend rates ranging from approximately +2.5% to +4.0%, with moderate-high Adjusted R-squared values, and p-values that are significant for time and seasonality. The models with longer experience periods have higher Adjusted R-squared values, and trend rates that are on the higher end of the observed range. The Fort McMurray event in 2016-1 has a proportionally greater impact on the shorter periods resulting in lower Adjusted R-squared and higher p-values.
- The estimated trends ending 2019-2, which excludes any potential impact of COVID-19, are modestly higher those ending 2020-2.

A key driver of the higher trend rates presented in Figure 24 (including catastrophe and theft claims) relative to Figure 26 (excluding catastrophe and theft claims) is the inclusion of theft claims. We note theft claims began to increase significantly beginning in 2011. In Figure 30, we present a heatmap of indicated loss cost trends beginning 2011-2 through 2019-1, ending 2021-2, 2021-1 and 2020-2, for comprehensive theft claims, with a time and seasonality parameter included in the model.

Figure 30: Comprehensive Theft: Loss Cost Heatmap (Time, Seasonality) – As of December 31, 2021 (Updated)



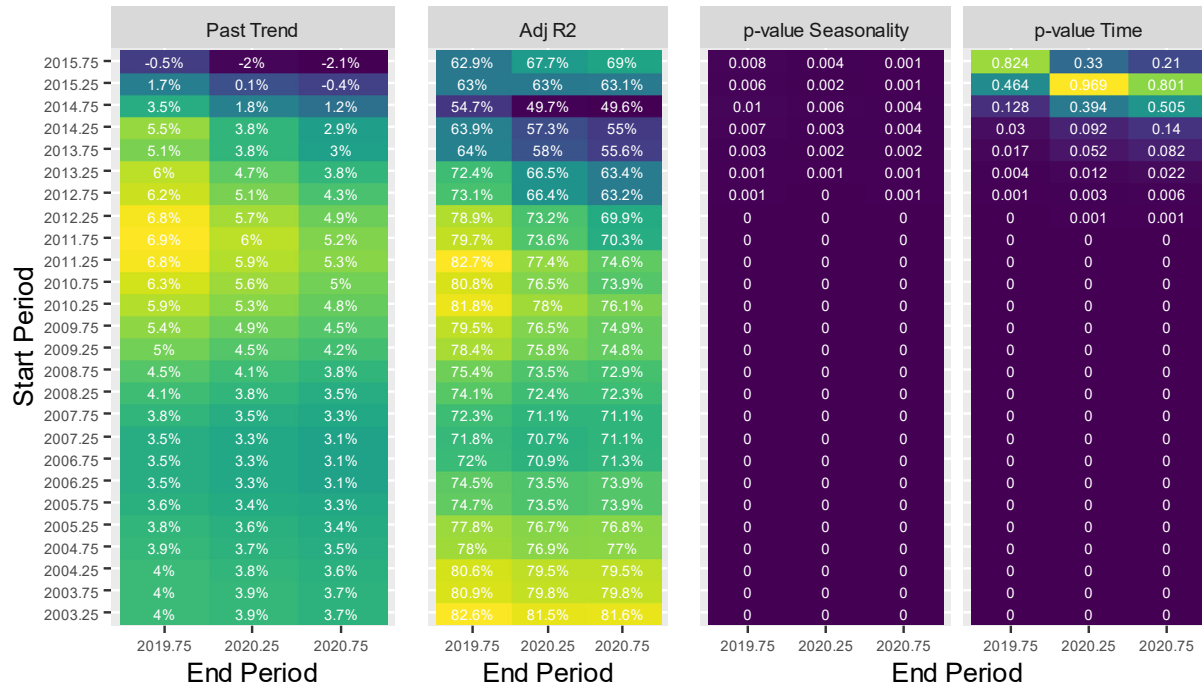
- The models beginning 2011-2 through 2014-1 ending 2021-2 generally have implied loss cost trend rates ranging from +1.0% to +7.0%⁵⁸, with low Adjusted R-squared values, and p-values that are significant for time for the longer experience periods.
- Due to the flattening of the observed theft claims over the most recent two years, the models with shorter experience periods have much lower implied trend rates, however, have high Adjusted R-squared values and p-values that are significant for time and seasonality.
- The estimated trend rates ending 2020-2 and 2021-1 are generally two to four percentage-point higher than those ending 2021-2 for the longer experience periods.

The large increase in the number of theft claims since 2011 contributes to the higher comprehensive loss costs. We select our loss cost trend rate based on the total comprehensive experience, excluding catastrophes, but including theft claims. This approach implicitly includes the effect of the sharp increase to theft claims, however excludes the additional variability caused by the catastrophe experience.

In Figure 31, we present a heatmap of indicated loss cost trends beginning 2003-1 through 2015-2, ending 2020-2, 2020-1 and 2019-2, for comprehensive excluding catastrophe claims, with time and seasonality parameters included in the model.

⁵⁸ The estimated trend rates ending 2021-1 and 2020-2 are lower than those ending 2020-1, due to the continued flattening/decline observed with the 2021-1 and 2020-2 observations.

Figure 31: Comprehensive Excluding CATs: Loss Cost Heatmap (Time, Seasonality) – As of December 31, 2020



The models beginning 2003-1 through 2013-2 ending 2020-2 generally have implied loss cost trend rates ranging from approximately +3.0% to +5.0%, with moderate-high Adjusted R-squared values, and p-values that are significant for time.

The models beginning 2011-1 through 2012-2 (around the time of the large theft increase) and ending 2020-2 generally have implied loss cost trend rates that range from +4.3% to +5.3% and have moderate Adjusted R-squared values.

Due to the flattening of the observations over the most recent three years, the models with shorter experience periods have much lower implied trend rates, moderate Adjusted R-squared values and p-values that are not significant for time.

The estimated trends ending 2019-2, which excludes any potential impact of COVID-19, are generally one-half to one percentage point higher than those ending 2020-2.

The estimated trends ending 2020-1, which includes the impact of COVID-19, if any, are generally one-half percentage point higher than those ending 2020-2.

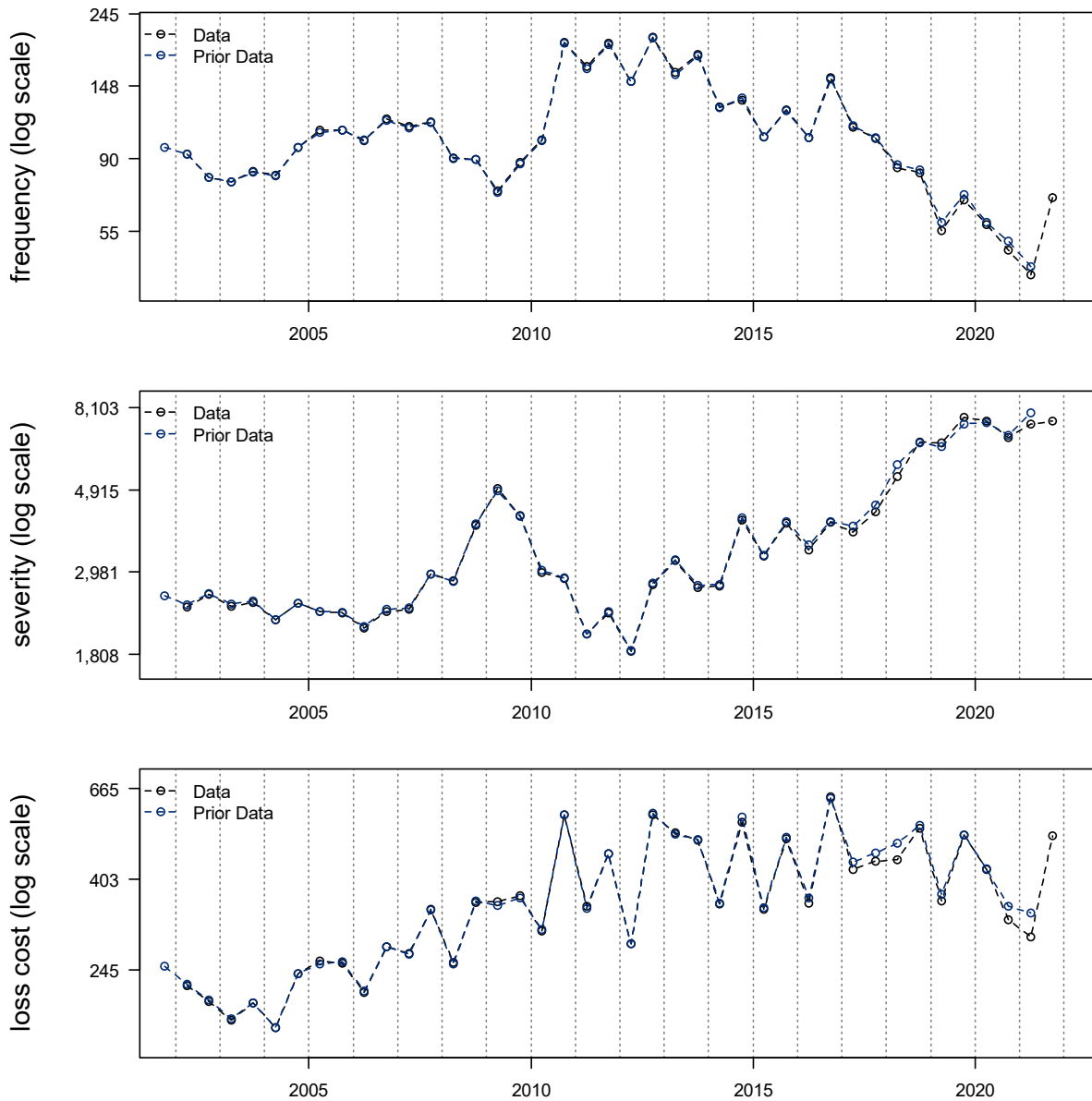
Considering results since 2011, as well as the more recent flattening, with some consideration to the variability in the claim experience, we select past and future loss trend rates of +5.0% and +3.5%, respectively, a decrease from our prior selection.

7.7. All Perils

For the prior review we selected a past and future loss cost trend rate of +2.5%.

In Figure 32, we present our estimate of the actual loss cost, average severity, and frequency rate over the period 2002-1 through 2021-2. We include a comparison to the estimated values used in our prior report and observe our estimates have not changed significantly.

Figure 32: Observed All Perils Loss Cost Experience



A review of the historical data points (as presented in Figure 32) shows that subject to variability:

- Loss cost exhibited a long-term upward trend since 2004, then more volatility since 2010 where the trend turns somewhat flat. We observe a decrease at 2020-2 and 2021-1 that may or may not, in part, be attributed to the COVID-19 pandemic.

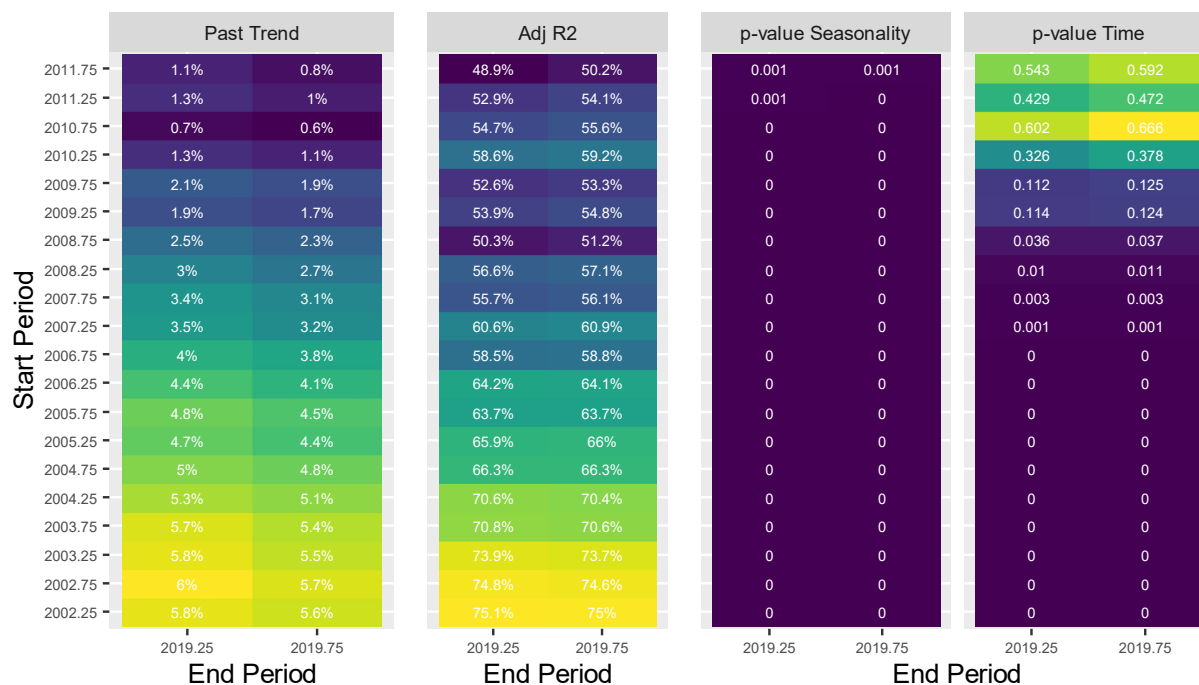
- Severity generally exhibited an upward trend since 2006 with an upward spike in 2008/2009 that dropped off sharply with a consistent upward trend following the drop.
- Frequency exhibited a somewhat flat trend before spiking upward starting in 2009, but a declining trend in recent years with the exception of a spike in 2016-2. We observe a large decrease at 2020-2 and 2021-1 that may or may not, in part, be attributed to the COVID-19 pandemic.

The estimated severity, frequency, and loss cost trends, associated Adjusted R-squared values, *p*-values, and confidence intervals over various trend measurement periods, with and without a seasonality parameter, are presented in Appendix C. We observe the following about these measured trends.

An apparent shift towards higher deductibles in the recent past may be contributing to the decline in frequency and rise in severity. Given the data variability, we base our selected loss cost trend on the loss cost experience directly.

In Figure 33, we present a heatmap of indicated loss cost trends beginning 2002-1 through 2011-2, ending 2019-2 and 2019-1 with time and seasonality parameters included in the model. Although it is unclear if the low 2020 and 2021 observations are (in part) due to the COVID-19 pandemic, we chose to exclude these low observations so as to not understate the trend rate.

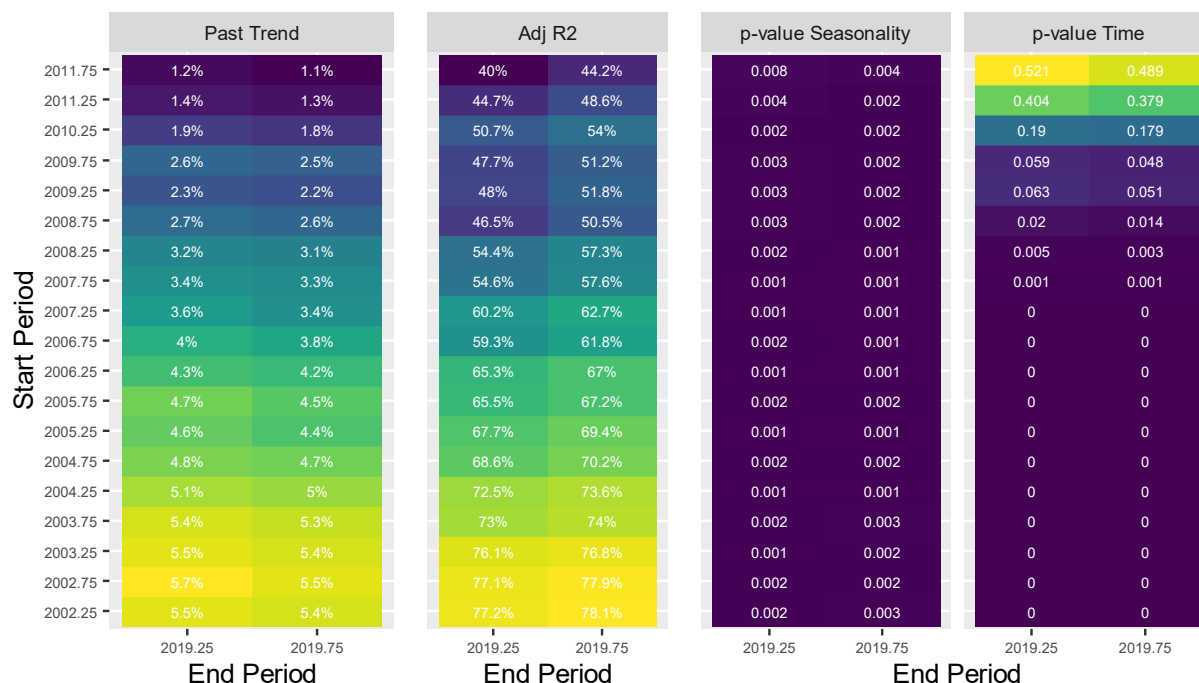
Figure 33: All Perils Loss Cost Heatmap (Time and Seasonality)



- Only the (longer term) loss cost trends beginning 2002-1 through 2008-2, ending 2019-2 have significant *p*-values for time *and* seasonality.
- The trend rates, all with moderate to high Adjusted R-squared values, range from approximately +2.5% to +6.0%, with the lower trend rates for the more recent (shorter) time frames.
- The trends ending 2019-1 are modestly higher than those ending 2019-2.

In Figure 34, we present the same models as above, however excluding the 2010-2, 2012-2 and 2016-2 “spike” points that are likely associated with catastrophes (as per GISA’s AUTO 6001 Exhibit).

Figure 34: All Perils Loss Cost Heatmap (Time and Seasonality, Excluding 2010-2, 2012-2, 2016-2)



We observe the estimated trend rates excluding these three data points are slightly higher than those including the data points.

Considering the declining trend rate pattern, we select a past loss cost trend of +2.5%; the same as our prior review selection.

We estimate *future loss cost* trend will be approximately 0.85⁵⁹ percentage points above the insurer’s expectation of average inflation between October 1, 2021 and the average accident date of the proposed rate program. The insurer’s expectation of inflation should consider the post- October 1, 2021 Vehicle Parts, Maintenance and Repair CPI data available at time of filing. Please refer to Section 7.1 for more details regarding our view on future loss cost trend for physical damage coverages.

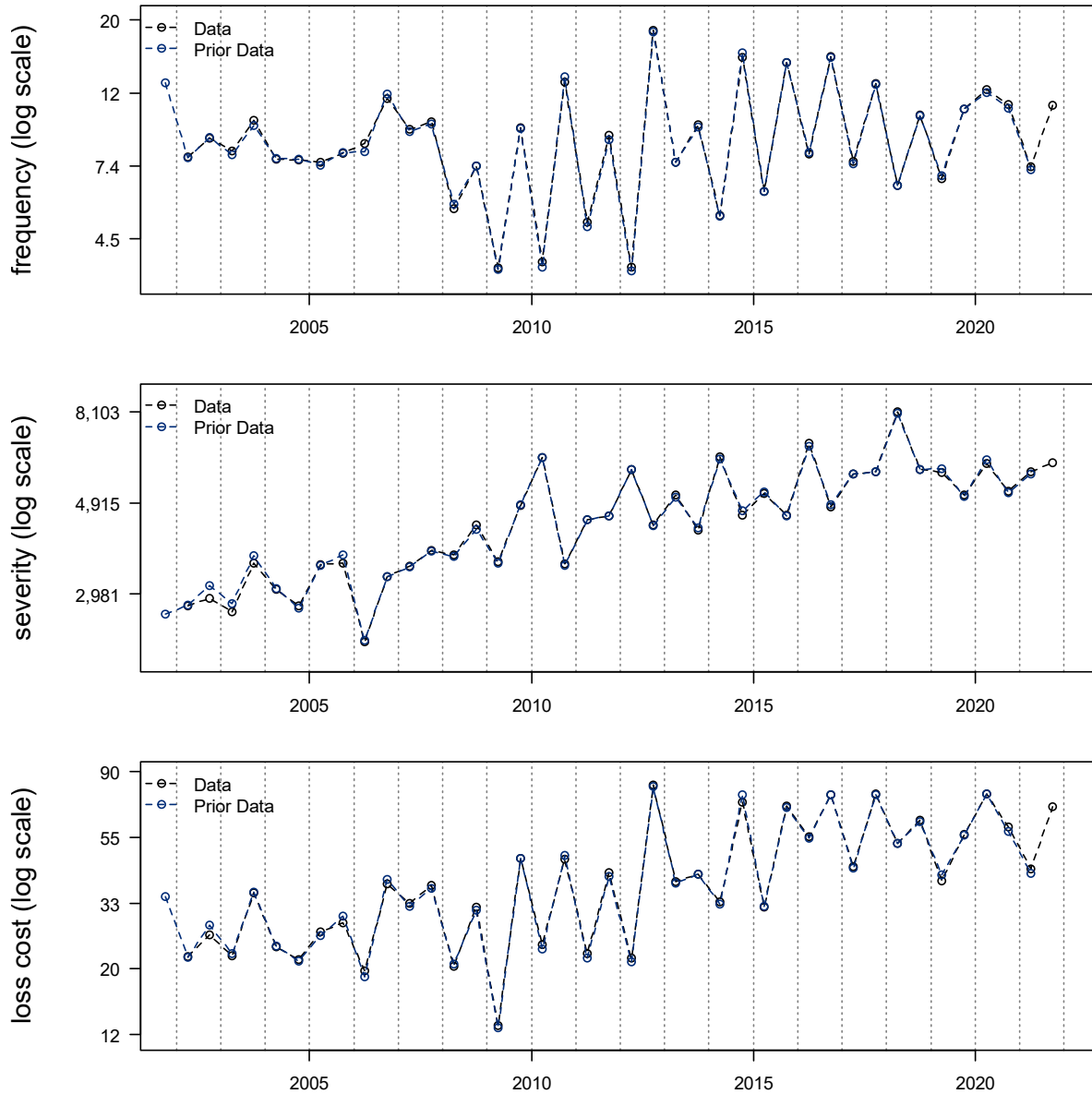
7.8. Specified Perils

For the prior review we selected a past and future loss cost trend rate of +3.0%.

In Figure 35, we present our estimate of the actual loss cost, average severity, and frequency rate over the period 2002-1 through 2021-2. We include a comparison to the estimated values used in our prior report and observe that the estimates have not changed significantly.

⁵⁹ +0.85% = 2.5% (past loss cost trend) - 1.65% (historical inflation)

Figure 35: Observed Specified Perils Loss Cost Experience



A review of the historical data points (as presented in Figure 35) shows that subject to variability:

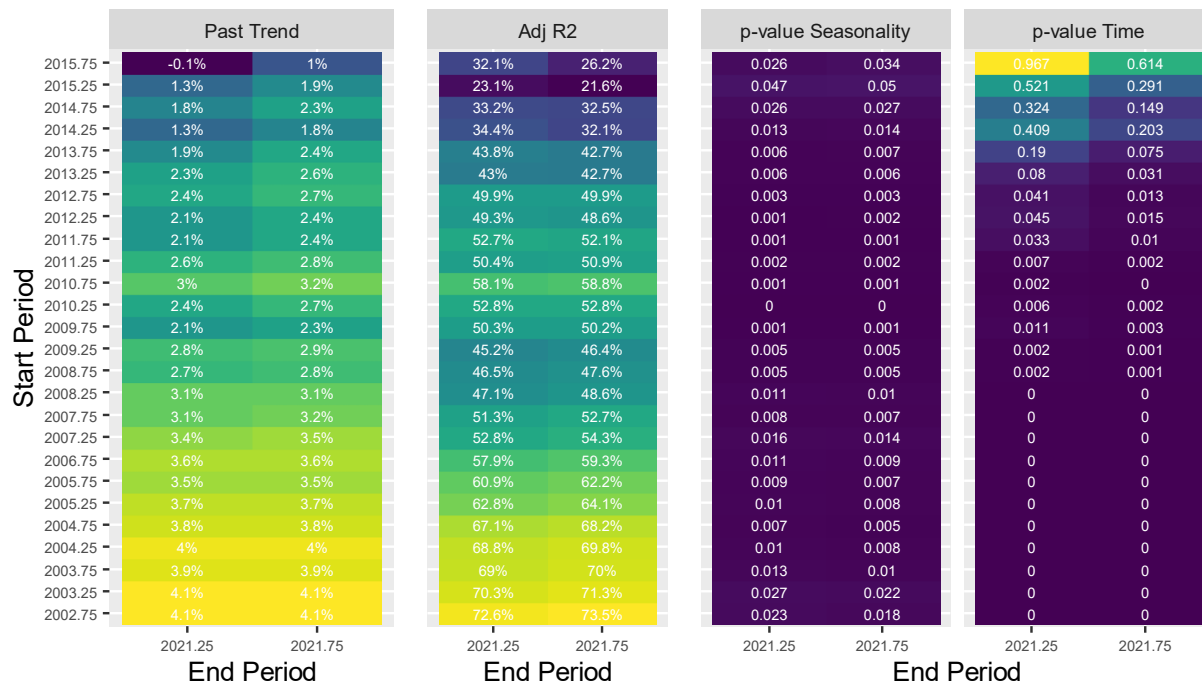
- Loss costs which have generally experienced a positive trend, however, are relatively flat following a rise in 2012.
- Severity has generally been increasing for most of the experience period.
- Frequency is subject to considerable volatility and an upward trend since about 2009, with some flattening since 2014.

The estimated severity, frequency, and loss cost trends, associated Adjusted R-squared values, *p*-values, and confidence intervals over various trend measurement periods, with and without a seasonality parameter, are presented in Appendix C. We make the following observations about these measured trends.

As the vast majority of the frequency and loss cost trends estimated are not statistically significant, we consider the severity trends and assume no frequency trend rate is discernable.

In Figure 36, we present a heatmap of indicated severity trends beginning 2002-2 through 2015-2, ending 2021-2 and 2021-1, excluding the unusually low 2006-1 observation, with time and seasonality parameters included in the model.

Figure 36: Specified Perils Severity Heatmap (Time and Seasonality, excluding 2006-1)



- The models with experience periods beginning 2002-2 through 2013-1 and ending 2021-2 generally have implied severity trend rates ranging from +2.0% to +4.0%, with moderate Adjusted R-squared values, and *p*-values that are significant for time and seasonality.
- The trend rates are generally higher for the models with longer experience periods.
- The models with experience periods ending 2021-1 have indicated trend rates that are similar to those ending 2021-2.

Considering the long-term trend rates over the last ten years, we select a severity trend of +3.0%.

As a result, we select a past loss cost trend rate of +3.0%, the same as our prior selection.

We estimate *future loss cost* trend will be approximately 1.35⁶⁰ percentage points above the insurer's expectation of average inflation between October 1, 2021 and the average accident date of the proposed rate program. The insurer's expectation of inflation should consider the post- October 1, 2021 Vehicle Parts, Maintenance and Repair CPI data available at time of filing. Please refer to Section 7.1 for more details regarding our view on future loss cost trend for physical damage coverages.

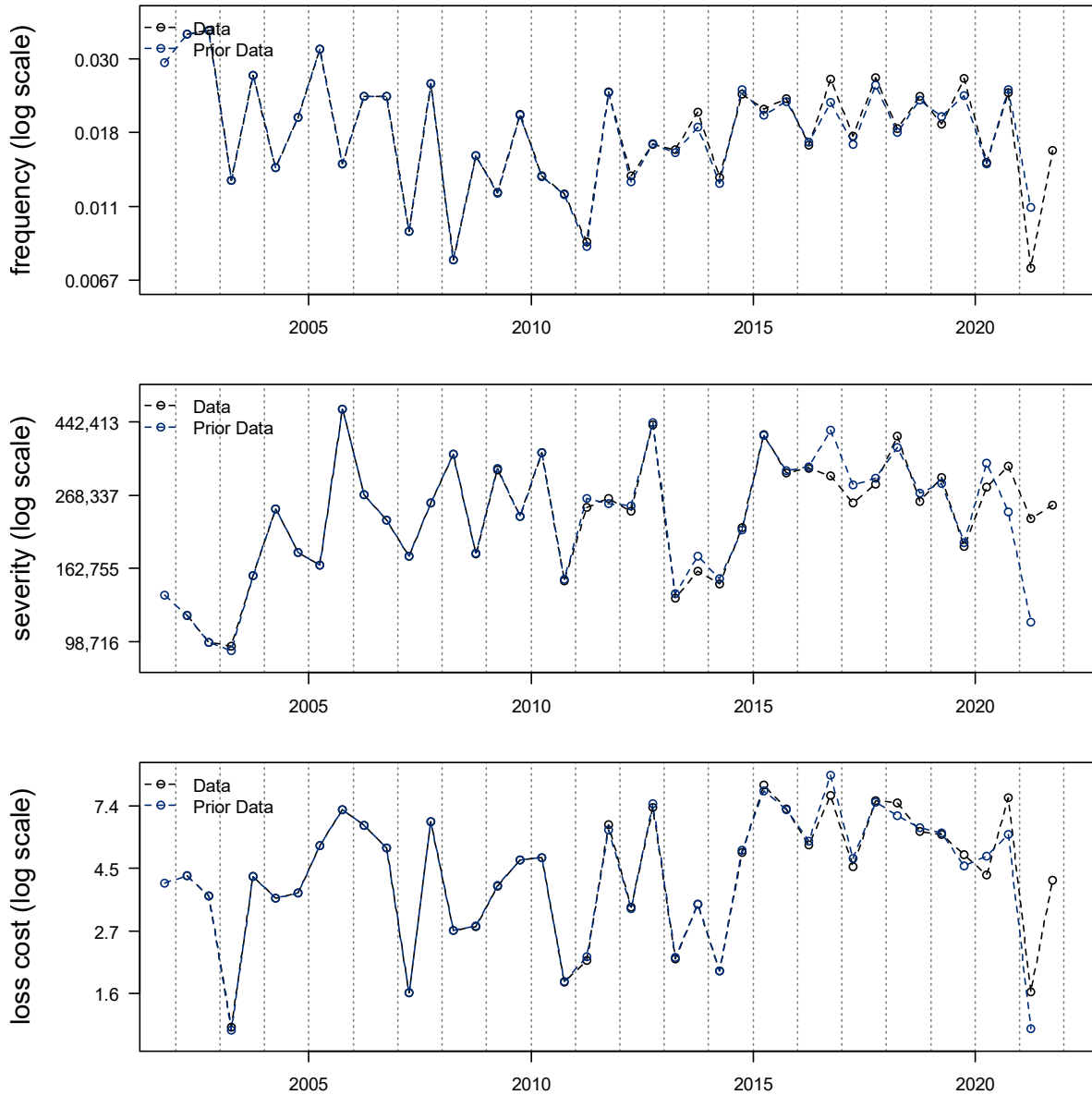
7.9. Underinsured Motorists

For the prior review we selected a past and future loss cost trend rate of +2.0%.

In Figure 37, we present our estimate of the actual loss cost, average severity, and frequency rate over the period 2002-1 through 2021-2. We include a comparison to the estimated values used in our prior report and observe generally similar estimates.

⁶⁰ +1.35% = 2.5% (past loss cost trend) - 0.65% (historical inflation)

Figure 37: Observed Underinsured Motorists Loss Cost Experience



The historical data points indicate a considerable amount of variability (which is as expected given the small number of claims per year averaging close to 50), with severity generally exhibiting a highly variable upward or flat trend (but lower than for bodily injury), and frequency exhibiting a downward trend that flattened until changing to an upward pattern in recent years. We observe a large decrease in frequency at 2021-1 which may, in part, be attributed to the COVID-19 pandemic.

The estimated severity, frequency, and loss cost trends, associated Adjusted R-squared values, p -values, and confidence intervals over various trend measurement periods, with and without a seasonality parameter, are presented in Appendix C.

As the vast majority of the frequency and loss cost trends estimated are not statistically significant, we consider the severity trends and assume no frequency trend rate is discernable.

In Figure 38, we present a heatmap of indicated severity trends beginning 2002-1 through 2012-1, ending 2021-2 and 2021-1 with only a time parameter included in the model.

Figure 38: Underinsured Motorist Severity Heatmap (Time)



- The models ending 2021-2 have implied severity trend rates ranging between +0.5% and +3.0%, with low Adjusted R-squared values, and *p*-values that are generally insignificant for time.
- Models ending 2021-1 have implied trends similar to those ending 2021-2.

We generally find the bodily injury severity trend rate as a reasonable estimate of the underinsured motorist severity trend rate (and assume a 0% frequency trend rate). However, as some portion of the bodily injury severity trend may be driven by an erosion of the Minor Injury Cap, we find the use of the underinsured motorist coverage data to be appropriate at this time.

Due to the limited and volatile claims data, we give consideration to the range of longer- term trend rates, and select a loss cost trend of +2.0%; the same as our prior review.

7.10. Summary of Selections

The following table summarizes our selected loss trend rates by sub-coverage compared to the loss trend rates we selected in those that we selected in our prior review.

Table 14: Estimated Annual Past/Future Loss Cost Trend Rates

Coverages	2022 Semi Annual Review Data as of June 30, 2021	2022 Annual Review Data as of December 31, 2021
TPL-Bodily Injury	+6.5%/5.0% ⁶¹	+7.0%/5.0% ⁶²
TPL-Property Damage	+1.5%	+1.5% / ‡
DCPD ⁶³	+1.5%	+1.5% / ‡
AB – Total	+1.0%/+12.0% ⁶⁴	+1.0%/+12.0% ⁶⁵
Collision	+2.5%	+2.5% / ‡
Comprehensive ⁶⁶	+5.0%/3.5% ⁶⁷	+5.0%/3.5% ^{68‡}
All Perils	+2.5%	+2.5% / ‡
Specified Perils	+3.0%	+3.0% / ‡
Underinsured Motorist	+2.0%	+2.0%

‡ For the 2022 Annual Review the *future* trend rates for property damage, collision, comprehensive, specified perils and all perils, to be modified to account for changes in economic conditions.

⁶¹ Future trend rate begins November 1, 2020, consistent with the recent reform.

⁶² Future trend rate begins November 1, 2020, consistent with the recent reform.

⁶³ The DCPD and TPL-PD trend selections are equivalent and based on the combined experience due to insufficient data given the introduction of DCPD January 2022.

⁶⁴ Future trend rate of +12.0% begins January 1, 2015; most rate applications will only consider data from 2015 and onward.

⁶⁵ Future trend rate of +12.0% begins January 1, 2015; most rate applications will only consider data from 2015 and onward.

⁶⁶ Our comprehensive trend rates remain unchanged from our prior review pending updated catastrophe data.

⁶⁷ Future trend rate begins October 1, 2020.

⁶⁸ Future trend rate begins October 1, 2020.

8. Additional Considerations

8.1. Loss Adjustment Expenses

In determining their rate level needs, insurers should include provisions in their claim costs for allocated loss adjustment expenses (such as the legal expenses associated with claim settlement) and for unallocated loss adjustment expenses (the claim and settlement related expense that cannot be associated directly with individual claims) that are based on their experience.

For the analysis we perform of loss development factors, allocated loss adjustment expenses are included with the reported Industry loss data. For the analysis we perform of trends, we provide for unallocated loss adjustment expenses (ULAE) through the application of calendar year factors that are published by GISA⁶⁹ to the accident year loss experience. These factors are applied uniformly to the claim and ALAE amounts of each coverage.

As points of reference for the Board as it reviews individual insurer rate filings, we provide the Board with the Industry average ULAE⁷⁰ expense provisions published by GISA that are applied to the loss and allocated loss adjustment estimates.

Table 15: Unallocated Loss Adjustment Expenses⁷¹

Year	ULAE %	Year	ULAE %
2006	8.7%	2014	9.3%
2007	8.9%	2015	10.3%
2008	8.4%	2016	8.5%
2009	10.5%	2017	9.2%
2010	10.2%	2018	10.1%
2011	9.5%	2019	10.8%
2012	9.1%	2020	10.3%
2013	9.9%	2021	12.6%

8.2. Catastrophe Provision

The AIRB is no longer approving a benchmark for catastrophe loading. As the impact of catastrophic events can vary greatly amongst insurers due to differences in distribution of risks, insurers are expected to consider their own claim experience. We continue to provide a review of the industry data for insurers who may need to supplement their own data with industry data for credibility reasons.

⁶⁹ The reader is directed to GISA for full description on the data collected and how these total auto ULAE factors are determined by GISA.

⁷⁰ ULAE factors prior to 2005 are presented in Appendix B.

⁷¹ As GISA only publishes these factors annually, we assume the most recent full year factor is a reasonable provision for the subsequent accident half year.

It is our understanding that the losses arising from the 2016 Fort McMurray wildfires are not considered catastrophe losses by GISA and, therefore, not included in our summary table below. Nevertheless, we believe that the fortuitous nature of these losses should be considered by insurers in calculating their rate level needs. Treating these losses as catastrophe-related losses is one approach for insurers to consider in their individual rate applications.

Comprehensive coverage claim costs are affected by the occurrence (or non-occurrence) of catastrophes. GISA defines catastrophes as “weather-related events such as windstorms, hail, and flooding that caused multiple losses to the insurance industry.” Since catastrophic losses result from highly random events, in determining rate level indications insurers should remove actual comprehensive coverage claim costs attributed to catastrophes that occurred in the experience period and include a provision for the amount of catastrophe losses that would be expected on average in any given year.

Total Comprehensive (including thefts)

As noted above, the Board is no longer approving a benchmark catastrophe provision. Under this approach, each insurer would calculate a specific catastrophe provision for its own portfolio in reviewing rate level indications for the comprehensive coverage.

We continue to provide the Board with the historical industry average catastrophe impact by year of occurrence. This industry data may be useful for insurers who may need to supplement industry data with their own for credibility reasons. We summarize the catastrophe losses that have occurred in Alberta over the years 2002 – 2020 for private passenger vehicle comprehensive coverage as reported in GISA’s 2020 Catastrophe Report for Alberta. These data show, among other things, the relationship (presented as factors) between catastrophe losses and non-catastrophe losses. For example, over the last ten years approximately \$1.5 billion of catastrophe losses have been reported as compared to approximately \$2.5 billion of non-catastrophe losses - a ratio of 60%. Over the last five years approximately \$800 million of catastrophe losses have been reported as compared to approximately \$1.5 billion of non-catastrophe losses - a ratio of 55%. We observe relatively low levels of catastrophe claims between 2017 and 2019, followed by a large ratio in 2020 due to the large hailstorm near Calgary⁷².

In Table 16 and Table 17, we present the insurance industry catastrophe data as provided by GISA. The catastrophe factors in Table 16 apply to comprehensive losses that exclude catastrophes claims and include theft claims. The catastrophe factors in Table 17 apply to comprehensive losses that exclude both catastrophes and theft claims.

Table 16: Insurance Industry Catastrophe Data - Comprehensive including Theft

Accident Year	Number of Total Claims	Number of Cat Claims	Catastrophe Claim %	Total Loss and Expense	Cat Loss and Expense	Catastrophe Factor
2002	46,052	1,933	4%	93,461,243	4,388,752	1.049
2003	43,059	3,154	7%	108,029,521	11,697,960	1.121
2004	46,326	6,137	13%	125,207,031	25,614,074	1.257

⁷² Several insurers noted recent catastrophic events in 2021 such as the Calgary hailstorm on July 2, 2021.

Accident Year	Number of Total Claims	Number of Cat Claims	Catastrophe Claim %	Total Loss and Expense	Cat Loss and Expense	Catastrophe Factor
2005	57,486	14,713	26%	153,664,881	42,833,271	1.386
2006	54,272	5,547	10%	157,173,221	18,597,791	1.134
2007	64,921	12,555	19%	234,088,414	60,651,950	1.350
2008	55,202	5,478	10%	212,198,058	24,386,347	1.130
2009	55,109	8,003	15%	227,179,255	44,782,888	1.246
2010	81,703	38,852	48%	369,450,792	189,945,989	2.058
2011	50,815	9,339	18%	212,646,889	44,488,464	1.265
2012	76,278	34,856	46%	349,609,158	170,621,715	1.953
2013	70,662	21,758	31%	342,757,178	132,607,083	1.631
2014	75,606	28,557	38%	397,894,436	187,380,581	1.890
2015	75,211	24,464	33%	410,012,914	156,430,541	1.617
2016	100,438	41,625	41%	555,791,978	241,864,610	1.770
2017	65,956	13,345	20%	377,851,178	75,828,844	1.251
2018	66,495	15,600	23%	382,592,513	94,141,300	1.326
2019	64,604	14,446	22%	368,067,729	78,080,229	1.269
2020	76,788	34,983	46%	569,869,999	309,289,008	2.187
All Years	1,226,983	335,346	27%	5,647,546,388	1,913,631,397	1.512
Last 10 Years	722,853	238,973	33%	3,967,093,972	1,490,732,375	1.602
Last 5 Years	374,281	119,999	32%	2,254,173,397	799,203,991	1.549

Table 17: Insurance Industry Catastrophe Data - Comprehensive excluding Theft

Accident Year	Number of Total Claims Excluding Theft	Number of Cat Claims	Catastrophe Claim %	Total Loss and Expense	Cat Loss and Expense	Catastrophe Factor
2002	36,326	1,933	5%	60,506,527	4,388,752	1.078
2003	33,693	3,154	9%	70,281,433	11,697,960	1.200
2004	37,011	6,137	17%	90,427,749	25,614,074	1.395
2005	48,415	14,713	30%	116,302,636	42,833,271	1.583
2006	43,933	5,547	13%	109,874,473	18,597,791	1.204
2007	55,117	12,555	23%	178,453,746	60,651,950	1.515
2008	46,570	5,478	12%	151,911,193	24,386,347	1.191
2009	47,480	8,003	17%	174,390,025	44,782,888	1.346
2010	75,591	38,852	51%	324,062,270	189,945,989	2.416
2011	45,688	9,339	20%	172,629,720	44,488,464	1.347

Accident Year	Number of Total Claims Excluding Theft	Number of Cat Claims	Catastrophe Claim %	Total Loss and Expense	Cat Loss and Expense	Catastrophe Factor
2012	71,707	34,856	49%	310,091,012	170,621,715	2.223
2013	64,931	21,758	34%	296,686,886	132,607,083	1.808
2014	69,641	28,557	41%	344,567,528	187,380,581	2.192
2015	66,995	24,464	37%	330,203,410	156,430,541	1.900
2016	91,420	41,625	46%	465,792,077	241,864,610	2.080
2017	55,476	13,345	24%	266,481,644	75,828,844	1.398
2018	56,913	15,600	27%	274,400,263	94,141,300	1.522
2019	55,695	14,446	26%	270,024,993	78,080,229	1.407
2020	69,900	34,983	50%	487,995,679	309,289,008	2.731
All Years	1,072,503	335,346	31%	4,495,083,264	1,913,631,397	1.741
Last 10 Years	648,366	238,973	37%	3,218,873,212	1,490,732,375	1.863
Last 5 Years	329,404	119,999	36%	1,764,694,656	799,203,991	1.828

8.3. Investment Income on Cash Flow

The Board Guidelines direct insurers to use their own expected return on investment rate in their rate applications.

To provide a perspective on the investment income rate of individual insurers, we provide an average of the reported return on investment rates of all insurers based on a weighted average of written automobile premiums in Alberta.

Table 18: Industry Average Investment Income Rate

Calendar Year	Industry Average Investment Income Rate
2015	3.31%
2016	2.78%
2017	3.69%
2018	2.24%
2019	4.23%
2020	4.17%
2021	2.71%

8.4. Health Cost Recovery

The Alberta Treasury Board and Finance announced the 2022 Health Cost Recovery assessment factor (percentage) at 3.55% of third party liability premiums. Consistent with the position the Board has taken with respect to the Health Cost Recovery assessment, we recommend 3.55% as the Benchmark.

8.5. Operating Expenses

In determining their rate level needs, insurers include a provision for operating expenses that is based on their experience and expected future expense costs. As a perspective on the expense provisions of individual insurers, we provide the Board with the Industry average expense provisions.

The GISA Automobile Insurance Financial Information Report includes an “Industry Expense Report” for private passenger vehicles, by province. The 2020 Expense Report was released by GISA in August 2021. The 2020 Industry Expense Report was the basis for the 2021 SAR Benchmark.

We were provided by the AIRB with an advance copy of the data underlying the 2021 Expense Report and those estimates as a percentage of written premium are presented in Section 3.2. We note the data provided is currently in draft form and subject to change.

The 2021 Expense Report data shows a rise in the contingent commission and general expense. As the rise in contingent commission is likely due to the low loss ratios during 2020 and 2021, we recommend no change to the contingent commission.

We present the previously approved Benchmark based on the 2020 Expense Report and our recommended Benchmark for the 2022 Annual Review based on the 2021 Expense Report data calculated on the following basis:

- Direct Commissions, Contingent Commissions, Fire and Premium Taxes, and Other Acquisition Expenses be based on direct written premium; and
- General Expenses be based on direct earned premium.
- The resulting recommended Benchmark based on the 2021 Expense Report data and the limitation on contingent commissions and general expenses is 27.1%.

The components of the current and recommended Benchmark are as follows.

Table 19: Summary of Indicated Operating Expense Ratios

Component	Current Benchmark (2021 SAR)	Recommended Benchmark (2022 AR)
Direct Commissions	11.1%	11.5%
Contingent Commissions	1.4%	1.4% (no change)
<i>Total Commissions</i>	<i>12.5%</i>	<i>12.9%</i>
Premium and Fire Taxes	3.7%	3.8%
Other Acquisition Expenses	2.7%	2.9%
General Expenses	7.1%	7.5%
Total Expenses	26.0%	27.1%

8.6. Profit

The Board's current position is to allow a profit provision of 7% of premium.

9. Summary of Benchmarks

In Table 20 we present a summary of our selected benchmarks for the 2022 Annual Review

Table 20: Estimated Annual Past/Future Loss Cost Trend Rates

	2021 Semi Annual Review Data as of June 30, 2021	2022 Annual Review Data as of December 31, 2021
Trend Benchmarks		
TPL-Bodily Injury	+6.5%/5.0% ⁷³	+7.0%/5.0% ⁷⁴
TPL-Property Damage	+1.5%	+1.5% / ‡
DCPD ⁷⁵	+1.5%	+1.5% / ‡
AB – Total	+1.0%/+12.0% ⁷⁶	+1.0%/+12.0% ⁷⁷
Collision	+2.5%	+2.5% / ‡
Comprehensive	+5.0%/3.5% ⁷⁸	+5.0%/3.5% ⁷⁹ ‡
All Perils	+2.5%	+2.5% / ‡
Specified Perils	+3.0%	+3.0% / ‡
Underinsured Motorist	+2.0%	+2.0%
‡ For the 2022 Annual Review the <i>future</i> trend rates for property damage, collision, comprehensive, specified perils and all perils, to be modified to account for changes in economic conditions.		
Other Benchmarks		
Health Cost Recovery	3.55% of TPL Premiums	3.55% of TPL Premiums
Operating Expenses	26.0%	27.1% ⁸⁰
Profit Provision	7%	7%

⁷³ Future trend rate begins November 1, 2020, consistent with the recent reform.

⁷⁴ Future trend rate begins November 1, 2020, consistent with the recent reform.

⁷⁵ The DCPD and TPL-PD trend selections are equivalent and based on the combined experience due to insufficient data given the introduction of DCPD January 2022.

⁷⁶ Future trend rate of +12.0% begins January 1, 2015; most rate applications will only consider data from 2015 and onward.

⁷⁷ Future trend rate of +12.0% begins January 1, 2015; most rate applications will only consider data from 2015 and onward.

⁷⁸ Future trend rate begins October 1, 2020.

⁷⁹ Future trend rate begins October 1, 2020.

⁸⁰ We were provided by the AIRB with an advance copy of the data underlying the 2021 Expense Report (currently in draft form).

10. Distribution and Use

- **Usage and Responsibility of Client** – Oliver Wyman prepared this report for the sole use of the Board for the stated purpose. This report includes important considerations, assumptions, and limitations and, as a result, is intended to be read and used only as a whole. This report may not be separated into, or distributed, in parts other than by the client to whom this report was issued, as needed, in the case of distribution to such client’s directors, officers, or employees. All decisions in connection with the implementation or use of advice or recommendations contained in this report are the sole responsibility of AIRB.
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11. Consideration and Limitations

- **Data Verification** – For our analysis, we relied on data and information provided by the AIRB and GISA without independent audit. Though we have reviewed the data for reasonableness and consistency, we have not audited or otherwise verified this data. Our review of data may not always reveal imperfections. We have assumed that the data provided is both accurate and complete. The results of our analysis are dependent on this assumption. If this data or information is inaccurate or incomplete, our findings and conclusions might therefore be unreliable.
- **Rounding and Accuracy** – Our models may retain more digits than those displayed. Also, the results of certain calculations may be presented in the exhibits with more or fewer digits than would be considered significant. As a result, there may be rounding differences between the results of calculations presented in the exhibits and replications of those calculations based on displayed underlying amounts. Also, calculation results may not have been adjusted to reflect the precision of the calculation.
- **Unanticipated Changes** – We developed our conclusions based on an analysis of the data provided by AIRB and GISA and on the estimation of the outcome of many contingent events. We developed our estimates from the historical claim experience and covered exposure, with adjustments for anticipated changes. Our estimates make no provision for extraordinary future emergence of new types of losses not sufficiently represented in historical databases or which are not yet quantifiable. Also, we assumed that the client named herein will remain a going concern, and we have not anticipated any impacts of potential insolvency, bankruptcy, or any similar event.
- **Internal / External Changes** – The sources of uncertainty affecting our estimates are numerous and include factors internal and external to insurers writing business in Alberta. Internal factors include items such as changes in claim reserving or settlement practices. The most significant external influences include, but are not limited to, changes in the legal, social, or regulatory environment surrounding the claims process. Uncontrollable factors such as general economic conditions also contribute to the variability.
- **Uncertainty Inherent in Projections** – While this analysis complies with applicable Actuarial Standards of Practice, users of this analysis should recognize that our projections involve estimates of future events and are subject to economic and statistical variations from expected values. We have not anticipated any extraordinary changes to the legal, social, or economic environment that might affect the frequency or severity of claims. For these reasons, we do not guarantee that the emergence of actual losses will correspond to the projections in this analysis.

12. Definition of Key Terms

To assist the reader in understanding our report, in this section we define and explain several insurance terms.

12.1. Insurance Coverages

We begin with a general description of the insurance coverages. We note that throughout this discussion of the insurance coverages, the term “insured” is generally used to mean the owner, and family of the owner of the policy, as well as any passengers or other drivers using the car with the owner’s permission.

Third Party Liability (TPL)

There are three parts to this Basic Coverage:

- Bodily Injury (BI) coverage protects the insured against liability arising from an accident that causes bodily injury to another person. Coverage amounts available in Alberta range from the legal minimum of \$200,000 per claim to well over \$2,000,000 per claim.
- Property Damage-tort (PD-tort) coverage protects the insured against liability arising from an accident that causes damage to the property of another person.
- Direct Compensation Property Damage (DCPD) coverage from own insurer for damage to own vehicle caused by a third party due to a collision.

All drivers must purchase at least the legally required minimum amount of TPL coverage available in Alberta.

Accident Benefits (AB)

This Basic Coverage provides for such items as reimbursement of lost income, medical care costs, and funeral costs; it also provides benefits to the dependents of a deceased insured.

Underinsured Motorist (UIM)

This Additional Coverage protects the insured if he or she is caused bodily injury by an at-fault driver who is insured, but who does not have sufficient insurance to cover the liability. In this case the insured collects, from his or her own insurer, the amount of the damage that is in excess of the at-fault driver’s liability coverage and up to the limit of UIM coverage purchased.

Collision

This Additional Coverage generally provides coverage (subject to a deductible) for damage to the insured’s vehicle arising out of a collision.

Comprehensive

This Additional Coverage generally provides coverage (subject to a deductible) for damage to the insured’s vehicle arising out of a peril other than collision (e.g., theft, vandalism, flood, hail, fire, etc.).

All Perils

This Additional Coverage combines the coverages for both collision and comprehensive into one coverage, subject to a common deductible level.

Specified Perils

This Additional Coverage, like collision and comprehensive, provides coverage (subject to a deductible) for specific perils to the insured's vehicle.

12.2. Other Terms

Accident Year

Accident year is the year in which an incident that gives rise to a claim occurred, regardless of when the claim is actually reported to an insurance company. For example, a claim reported on January 15, 2016 for injuries suffered in an automobile accident that occurred on December 15, 2015, is considered to be an accident year 2015 claim.

Allocated Loss Adjustment Expense (ALAE)

ALAE is the claim and settlement expense that can be associated directly with individual claims (e.g., legal expenses). (See ULAE).

Base Rate and Rate Differentials

Insurers generally determine the premium for a particular insured by multiplying a base rate by a series of rate differentials (or rate factors, or rate relativities) that reflect the particular characteristics of the insured. The terms rate differentials, rate factors and rate relativities are used interchangeably. Typically, there is one base rate for each combination of coverage and rating territory. For example, assume a base rate for the TPL coverage of \$200 in Territory #1 and a base rate for the TPL coverage of \$300 in Territory #2. Also, assume the rate differential for a married male driver, age 40, is 1.25. The TPL premium for this driver would be \$250 in Territory #1 (\$200 times 1.25) and \$375 in Territory #2 (\$300 times 1.25).

Case Reserve

The Case Reserve is the provision established by insurance companies for the payment of future losses and claim related expenses associated with a particular claim.

Claim Frequency

Claim Frequency is the average number of claims that occur in a year, per insured vehicle. Claim frequency is a measure of the incidence of automobile claims. For example, if an insurance company provided insurance on 100 vehicles in year 2015 and 5 TPL claims occurred during 2015, the company's TPL claim frequency for 2015 would be 5 percent.

Claim Severity

Claim Severity is the average reported incurred loss and ALAE per claim. Claim severity is a measure of the average cost of automobile claims. For example, if the 5 claims in the previous example resulted in a total incurred loss and ALAE of \$100,000, the claim severity would be \$20,000.

Claim Count Development

Claim Count Development refers to the change in the number of reported claims for a particular accident year over time. (See Loss Development).

CLEAR

CLEAR refers to Canadian Loss Experience Automobile Rating, a system of categorizing Private Passenger vehicles, by make and model-year, for physical damage coverage rating purposes. CLEAR was developed

by the Vehicle Information Centre of Canada (VICC), a part of the Insurance Bureau of Canada. CLEAR considers such elements as the reparability and damageability of the make and model-year. (See MSRP).

Combined Ratio

Combined Ratio is a common measure of premium adequacy. This is the sum of the loss ratio plus the expense ratio (operating expenses divided by written premium). A combined ratio in excess of 100 percent is an indication of premium inadequacy, before consideration of profit and investment income.

Earned Premium

Earned Premium is the amount of written premium that is associated with the portion of the policy term that has expired. For example, assume an automobile policy with a 12-month term is sold on January 1 for \$1,000. The amount of earned premium would be \$500 on June 30.

Exposure Unit

Exposure unit is a measure of loss potential. In Private Passenger vehicle insurance, the exposure unit that is commonly used is the number of insured vehicles. For example, all else being equal, it would be expected that the cost to an insurance company to insure 50 cars would be twice the cost to insure 25 cars.

Health Cost Recovery Assessment

As per Provincial legislation, each insurer is assessed to achieve a target amount set by Government. The Minister of Finance publishes the assessment percentage applied to Third Party Liability written premiums every year. GISA calculates and provides the assessment as a percentage of earned third party liability premiums. Under the legislation, the Government has no subrogation rights against the at-fault parties who are insured by policies of TPL insurance; but instead, collects the assessment.

Loss Cost (Pure Premium)

Loss Cost is the average incurred loss and ALAE per insured vehicle. The loss cost is the product of claim frequency and claim severity. Using the above example, a claim frequency of 5 percent, multiplied by a claim severity of \$20,000, produces a TPL loss cost of \$1,000.

Loss Development

Loss Development is the amount by which reported incurred losses and ALAE for a particular accident year change over time. The two main reasons why reported incurred losses and ALAE amounts change (or develop) over time are:

- Reported incurred losses and ALAE only include case reserve estimates on claims for which the claim adjuster has knowledge, i.e., case reserves are only established on the claims that have been reported to the insurance company. Since typically some period of time elapses between the time of the incident and when it is reported as a claim, the number of reported claims for an accident year would be expected to increase over time. Claims that are reported after the close of an accident year are referred to as “late-reported” claims; and
- Reported incurred losses and ALAE also develop because, for a number of reasons, the initial case reserves established by claims adjusters, cannot fully and accurately reflect the amount the claim will ultimately settle at. We further note that, over time, the percentage by which reported incurred losses and ALAE develop for a given accident year should decline. This is because as accident years become more mature (i.e., become older), fewer reserve estimates are adjusted to reflect newly

reported late claims, actual payments, and additional information that becomes available to the claims adjuster.

Loss Ratio

Loss ratio is the common measure of premium adequacy. Loss ratio is usually defined as estimated ultimate incurred losses and ALAE, divided by earned premium. But the ultimate incurred losses and ALAE may also include provisions for ULAE and the Health Cost Recovery assessment. A loss ratio that exceeds a company's break-even loss ratio (100 percent less budgeted expenses) would suggest premium inadequacy.

Loss Reserving Methods: Incurred Loss Method and Paid Loss Method

Loss reserving methods are often based on historical data grouped into a triangle format. A common approach is to have the rows represent the accident years, and the columns representing the value of the loss at specific dates, such as 12 months, 24 months, 36 months etc., from the beginning of the accident year. The historical changes in the loss data from period to period is reviewed to estimate a pattern to predict how current accident years losses will change over time as claims are settled and closed. The Incurred Loss Method refers to the triangle method of analysis, based on reported incurred losses. The Paid Loss Method refers to the triangle method of analysis, based on paid losses.

MSRP

MSRP refers to the Manufacturer's Suggested Retail Price, and is a system of categorizing Private Passenger vehicles, by make and model-year, for rating purposes for physical damage coverages, according to the original price of the vehicle. (See CLEAR).

Operating Expenses

Insurance company expenses, other than ALAE and ULAE, are typically categorized as Commissions, Other Acquisition, General, Taxes, Licenses, and Fees.

Paid Losses

The total aggregate dollar amount of losses paid on all reported claims as of a certain date.

Premium Drift

Premium Drift is a more general term, and refers to the changes in the amount of premium collected by insurance companies that are attributed to the purchase of newer and more expensive cars (i.e., rate group drift) as well as to changes in the amount of insurance coverage that is purchased (e.g., the purchase of higher limits of liability coverage would increase the amount of premium collected by insurance companies, while the purchase of higher physical damage deductibles would reduce the amount of premium collected by insurance companies). (See Rate Group Drift).

Rate Group Drift

Rate Group Drift refers to the amount of additional premium collected by insurance companies that is attributed to the purchase of newer and more expensive cars by insureds. The premiums charged by insurance companies are higher for newer and more expensive cars. Therefore, as insureds purchase newer and more expensive cars, the amount of premium collected by insurance companies increases. (See Premium Drift).

Ratemaking Methods: Pure Premium Method and Loss Ratio Method

The Pure Premium Method of ratemaking develops indicated rates that are expected to provide for the expected losses and expenses, and provide for the expected profit. The Loss Ratio Method of ratemaking develops indicated rate changes rather than indicated rates.

Rating Territory

Automobile premiums vary by the principal garaging location of the vehicle. Based on Insurance Bureau of Canada's automobile statistical plan, Alberta is currently divided into three areas, or rating territories, of principal garaging location; and, therefore, has three separate sets of rates depending upon which of the three territories the vehicle is principally garaged. (See Statistical Territory)

Reported Incurred Loss

The sum of:

- the total aggregate dollar amount of losses paid on all reported claims as of a certain date (referred to as the valuation date), and
- the total aggregate dollar amount of losses set in reserve by the claim adjusters on each open claim (referred to as "case reserves") as of a certain date (the same evaluation date as for the paid claim amounts).

For example, if two claims were filed against an insurance company, one that settled for \$50,000 and the other that was open with a paid amount of \$25,000 and a "case reserve" (i.e., the claim adjuster's estimate of the dollars still to be paid on the claim) of \$30,000, then the total reported incurred loss on the two claims would be \$105,000 (the sum of \$50,000, \$25,000, and \$30,000).

Reserve

A Reserve is the aggregate provision identified by an insurance company for the payment of future losses and claim related expenses associated with claims that have been incurred.

Surplus

Surplus is the amount of assets of an insurance company in excess of its liabilities.

Statistical Territory

Automobile premiums vary by the principal garaging location of the vehicle. Alberta is divided into four statistical territories, of principal garaging location. Specific statistical territories are grouped together to represent a specific rating territory. In some cases there is one statistical territory in a rating territory, in other cases the rating territory comprises two or more statistical territories. (See Rating Territory).

Total Return on Equity

Total Return on Equity (ROE) refers to an insurer's profit as a percentage of its surplus, where profit is the sum of (i) underwriting profit, and (ii) investment income earned on both the underwriting operations of the company and on the surplus carried by the company.

Unallocated Loss Adjustment Expense (ULAE)

ULAE is the claim and settlement related expense that cannot be associated directly with individual claims (e.g., claim adjuster salaries). (See ALAE).

Underwriting Profit

Underwriting Profit is defined as earned premium, less reported incurred losses and ALAE, less ULAE, less operational expenses.

Underwriting Profit Margin

Underwriting Profit Margin is the provision that is included in the insurance premium for underwriting profit to be earned by the company.

Ultimate Incurred Loss

Ultimate Incurred Loss is an estimate of the total amount of loss dollars that will ultimately be paid to settle all claims that occur during a particular accident year.

Written Premium

Written Premium represents the total amount of premium charged by an insurance company for the insurance policies it has sold. It is generally compiled over a one-year period.

13. Closing

This report was prepared by Paula Elliott, FCAS, FCIA, Rajesh Sahasrabuddhe, FCAS, ACIA, and Chris Schneider ACAS, ACIA of Oliver Wyman

We are available to answer any questions the Board may have on our report.

Sincerely,



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14. Appendices A - C

Appendix A: Selected reported claim count and reported incurred claim amount development factors and basis for selection.

Appendix B: Estimate of the ultimate loss cost, severity and frequency by accident half-year; and period to period percentage changes.

Appendix C: Summary of loss trend regression analysis which includes estimated trend results for various time periods; with and without a seasonality parameter; with and without certain data points; with and without certain level change parameters.

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- Property Damage: Pages 10 to 17
- Accident Benefits: Pages 18 to 31
- Collision: Pages 32 to 39
- All Perils: Pages 40 to 47
- Specified Perils: Pages 49 to 52
- Underinsured Motorists (UM): Pages 53 to 55
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