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## Appendix 1: Driver Safety Rating Pricing Review

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### 1. Introduction

1 In Order 176/19, the Public Utilities Board of Manitoba (PUB) ordered, among other  
2 things, the following:

3 *13.7 With respect to the Driver Safety Rating (DSR) system, the*  
4 *Corporation shall:*

5 *(a) File information in the 2021 GRA as to which rating model it intends*  
6 *to proceed with;*

7 *(b) File a pricing examination in the 2021 GRA, including the financial*  
8 *impact on premium revenue and the cost of modifying the system, of*  
9 *the Registered Owner and Primary Driver rating models;*

10 *(c) File information in the 2021 GRA as to whether it has collected data*  
11 *to recalibrate the amounts of driver premium to be charged under DSR*  
12 *system to be more statistically sound, based on experience; and*

13 *(d) Conduct a review of best practices for rating models in other*  
14 *Canadian jurisdictions and file the results of the review in the 2021*  
15 *GRA.*

16 This document reviews the pricing examination based on the current Driver Safety  
17 Rating (DSR) model and updates the discussion provided in the 2021 General Rate  
18 Application (GRA). Its primary objective is to evaluate the appropriateness of the  
19 current vehicle discounts and driver licence surcharges on a registered owner basis  
20 and is divided into the following sections:

- 21 • Section 2 - overview of the registered owner basis.
- 22 • Section 3 - discusses the methodology and data used to determine the  
23 discounts and surcharges on a registered owner basis.
- 24 • Section 4 - reviews the results and implications of the pricing  
25 examination.
- 26 • Section 5 - discusses on the primary driver basis.

## 2. Registered Owner Basis

1 Manitoba Public Insurance (MPI) currently provides a discount on the vehicle premium  
2 based on the DSR level of the registered owner of the vehicle. Registered owners with  
3 DSR levels between 1 to 15 are eligible for these discounts, which range from 5% for  
4 DSR level 1 to 33% for DSR level 15. Registered owners with DSR level 0 and DSR  
5 levels -1 to -20 do not receive a discount. A more detailed discussion of the DSR  
6 system is provided in the *Driver Classification System Chapter*.

7 At the individual vehicle level, the registered owner model does not consider the  
8 relative risk of the vehicle based on the actual driver(s) of the vehicle. Instead the  
9 model determines the relative risk (and the vehicle discount) simply based on who  
10 owns the vehicle.

11 However, at the overall vehicle level, the vehicle discounts provided (at each DSR  
12 level) are based on the collective loss experience of the drivers of vehicles registered  
13 to owners with the same DSR level. For example, the vehicle discount at DSR level 15  
14 reflects the collective loss experience of the drivers of vehicles registered to owners  
15 with DSR level 15. The vehicle discount is an adjustment (to the base rate) to reflect  
16 the relative risk of all drivers of vehicles registered to owners with DSR level 15 versus  
17 all drivers of vehicles registered to owners with DSR level 0 (i.e. the base DSR level).

## 3. Data and Methodology

### 3.1 PUB Order 1/21

18 In Order 1/21 (Order #11), the PUB directed MPI to incorporate “*Driver Safety Rating*  
19 *into its minimum bias analysis used to set rating relativities.*” In compliance with this  
20 order, MPI included in its 2022 GRA the DSR level as a rating variable when  
21 determining rate group relativities (i.e. the DSR level relativities and rate group  
22 relativities were determined concurrently).

1 The following sections discuss the determination of DSR level relativities, and how MPI  
2 used these relativities to determine the actuarially indicated vehicle premium  
3 discounts by DSR level. *Ratemaking Chapter RM.3.2.1* discusses the determination of  
4 the rate group relativities.

### 3.2 Data

5 MPI used historical reported losses and earned units for merit eligible passenger  
6 vehicles and light trucks. These two vehicle types account for more than 95% of total  
7 merit eligible vehicles. Certain vehicle types and insurance uses were excluded, which  
8 is discussed further in section 3.2 below.

9 For Collision, Comprehensive, Property Damage and Bodily Injury coverages, MPI used  
10 the reported losses and earned units as of December 31, 2020 for insurance years  
11 2016 to 2020.

12 For Personal Injury Protection Plan (PIPP) coverages (i.e. Accident Benefits - Other  
13 and Income Replacement Indemnity), MPI used reported losses and earned units as of  
14 February 28, 2021 for insurance years 2013 to 2018. The reported losses are based  
15 on the claims costs allocation for PIPP coverages pursuant to PUB Order 97/05.

16 MPI did not use reported losses for PIPP coverages for the two most recent accident  
17 years (2019 and 2020). As a result of Centralized Reserving implemented in 2018,  
18 MPI adds lifetime reserves (as applicable) only if the claimant continues to receive  
19 benefits 2 years after the accident date. As such, for accident years 2019 and 2020,  
20 MPI may not have fully reserved some claims given that they have not passed the 2  
21 year mark.

### 3.3 Excluded Data

22 Per section 3.1, the pricing examination strictly uses the data for merit eligible  
23 passenger vehicles and light trucks.

1 MPI did not use the data for merit eligible motorcycles and merit eligible motorhomes.  
2 These vehicle types are not 'typical' vehicle types (i.e. they are insured by a smaller  
3 subset of Manitobans). Further, given their seasonal nature, these vehicle types do not  
4 reflect the same risk as vehicles used year-round. Finally, the risk potential of these  
5 vehicle types is different enough than the more general passenger vehicles and light  
6 trucks (e.g. higher proportion of PIPP losses to total losses for motorcycles).

7 For merit eligible passenger vehicles and light trucks, the pricing examination focused  
8 on determining the discount/surcharge for the 'typical' insurance uses. To that extent,  
9 MPI only used the data for insurance uses in the Private Passenger major class and  
10 excluded the data for merit eligible passenger vehicles and light trucks in the other  
11 major classes. This exclusion includes data for the following insurance uses:

- 12 • Accessible Vehicle-for-Hire
- 13 • Artisan Truck (Gross Vehicle Weight less than 16,331 kg)
- 14 • Common Carrier Local Passenger Vehicle
- 15 • Common Carrier Passenger Vehicle within 161 km in Manitoba
- 16 • Common Carrier Truck within 161 km in Manitoba
- 17 • Common Carrier Truck within city or municipality
- 18 • Limousine Vehicle-for-Hire
- 19 • Taxicab Vehicle-for-Hire

### 3.4 Methodology

20 Similar to the process for determining rate line relativities (see *Rate-making RM.3.2.1*)  
21 MPI organized the reported losses and earned units by territory, insurance use, rate  
22 group and registered owner DSR level to facilitate running the minimum bias  
23 procedure<sup>1</sup> to determine DSR level relativities.

24 The minimum bias procedure isolates the effect of DSR level on loss costs by adjusting  
25 for exposure correlations with other rating variables (i.e. territory, use and rate

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<sup>1</sup> Refer to <https://www.casact.org/pubs/forum/02fforum/02ff591.pdf> for a detailed discussion of the minimum bias procedure.

1 group). This procedure is used throughout the MPI ratemaking methodology to  
2 determine relativities (see *Ratemaking RM.3.2.1* and *Ratemaking RM.4.4*).

3 MPI ran DSR level relativities for the following:

- 4 • Combined Collision, Comprehensive, Property Damage and Bodily Injury loss  
5 costs – the combination of these four coverages will be referred to as ‘Other  
6 than PIPP’ for the remainder of this document
  
- 7 • PIPP loss costs

8 MPI determined the DSR level relativities for Other than PIPP separately for passenger  
9 vehicles and light trucks. MPI then determined the DSR level relativities for combined  
10 passenger vehicles and light trucks by calculating the weighted average of the  
11 individual DSR level relativities. MPI used the earned units, by DSR level, as the  
12 weights to determine the average.

13 MPI did not determine the DSR level relativities for PIPP separately for passenger  
14 vehicles and light trucks, rather the DSR level relativities were determined for these  
15 two vehicle types together.

16 MPI then fitted curves to the combined DSR level relativities using regression analysis  
17 to ensure a smooth increasing relativity line as the DSR level decreases from 15 to -  
18 20. MPI fitted curves to achieve the best possible goodness-of-fit to the observed  
19 data, as measured by the R-squared. MPI fitted curves separately for the Other than  
20 PIPP DSR level relativities and PIPP DSR level relativities. *Figure 1* and *Figure 2* below  
21 show the fitted curves.

Figure DSR App 1- 1 Other than PIPP DSR Level Relativities

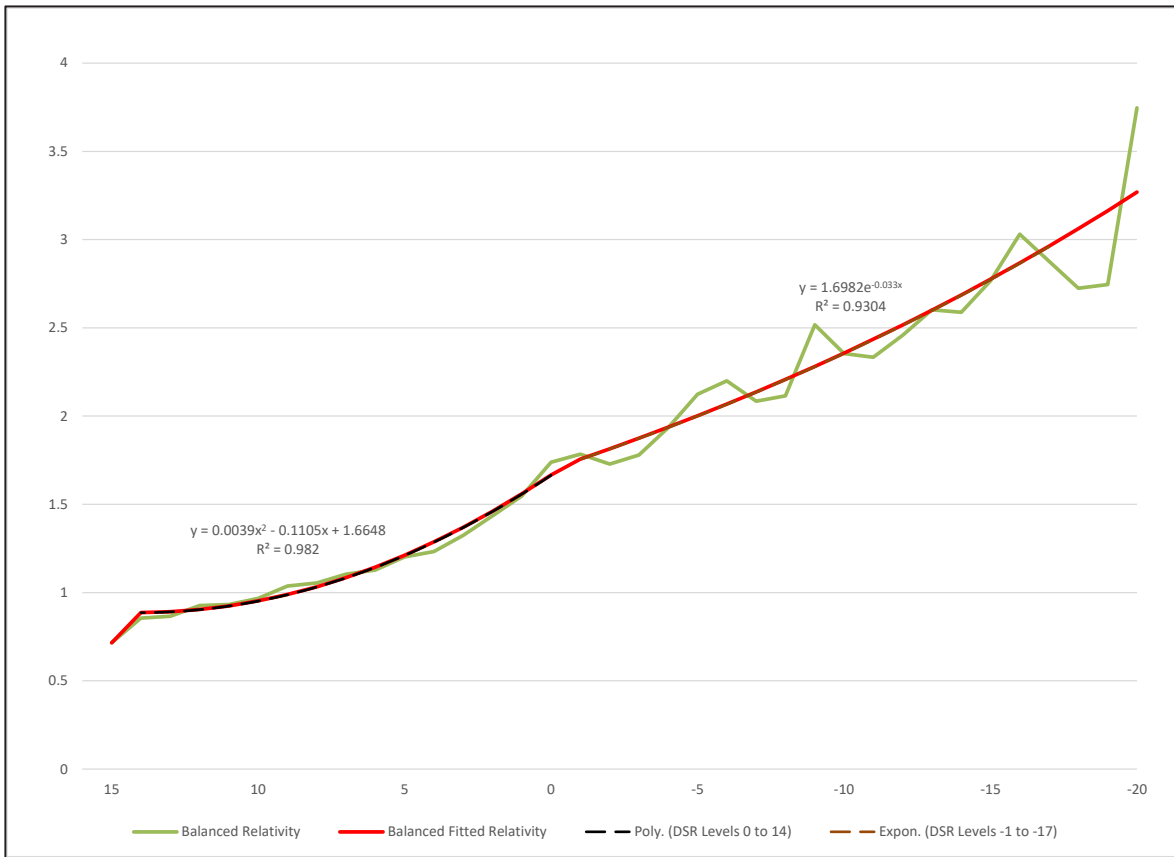
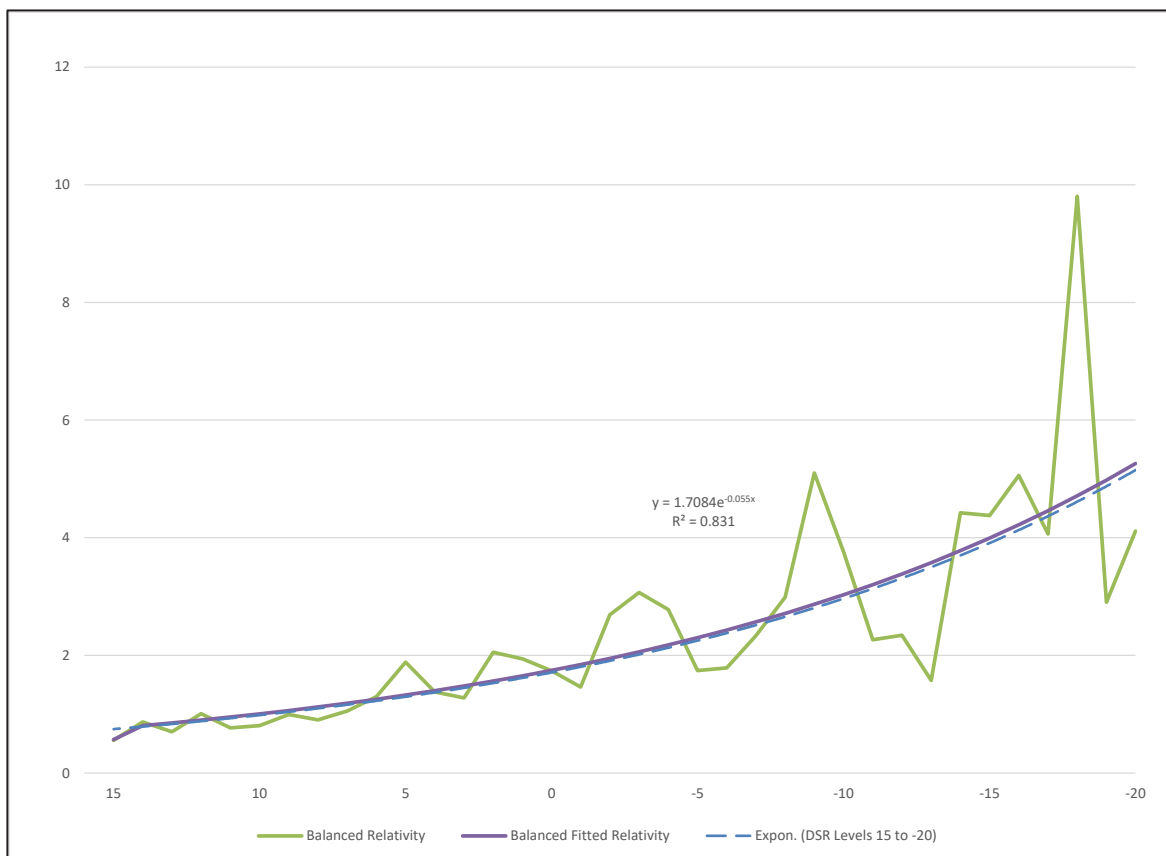


Figure DSR App 1- 2 PIPP DSR Level Relativities



1 MPI then used the fitted curves to determine the average loss costs for each DSR  
 2 level. It did this separately for Other than PIPP and PIPP. For PIPP, MPI only applied  
 3 the fitted curve to the portion of loss costs assigned to the vehicle (i.e. the non-“pool”  
 4 loss costs (see Ratemaking RM.4.3 for details on “pool” costs). MPI assumed that the  
 5 “Pool” costs did not vary with DSR level (i.e. the same average loss costs is used for  
 6 all DSR levels). By coverage:

7  $Average\ Loss\ Cost\ for\ DSR\ Level\ j = Fitted\ Relativity\ at\ DSR\ Level\ j * Average\ Loss$   
 8  $Cost\ for\ the\ Coverage$

9 MPI then determined the total average loss costs for each DSR level.

1 *Total Average Loss Cost for DSR Level j = Sum Average Loss Cost for DSR Level j*  
2 *for All Coverages + PIPP "Pool" Average Loss Costs + Average Fixed Expenses (i.e.*  
3 *not varying by DSR level)*

4 Finally, MPI determined the overall DSR level relativities for each DSR level.

5 *Overall DSR Level Relativity for DSR Level j = Total Average Loss Cost for DSR*  
6 *Level j / Total Average Loss Cost for All DSR levels; where*

7 *Total Average Loss Cost for All DSR Levels = Sum Average Loss Cost for All*  
8 *Coverages + PIPP "Pool" Average Loss Costs + Average Fixed Expenses (i.e. not*  
9 *varying by DSR level)*

10 Figure 3 below presents the derivation of the overall DSR level relativities for all DSR  
11 levels.



**Figure DSR App 1- 3 Overall Relativities by DSR Level**

Line No.	Fitted Relativity			Average Loss Cost				Overall Relativity	
	Colli, Comp, PD & BI		PIPP	Colli, Comp, PD & BI		PIPP			Other Loss Cost & Exp
	DSR	Colli, Comp, PD & BI		Non-Pool	Pool	Total			
1	15	0.7157	0.5674	\$571.09	\$131.80	\$67.52	\$41.13	\$811.54	0.7126
2	14	0.8869	0.8062	\$707.66	\$187.26	\$67.52	\$41.13	\$1,003.57	0.8812
3	13	0.8915	0.8519	\$711.35	\$197.88	\$67.52	\$41.13	\$1,017.89	0.8938
4	12	0.9040	0.9003	\$721.31	\$209.11	\$67.52	\$41.13	\$1,039.07	0.9124
5	11	0.9244	0.9513	\$737.54	\$220.97	\$67.52	\$41.13	\$1,067.16	0.9371
6	10	0.9525	1.0053	\$760.03	\$233.50	\$67.52	\$41.13	\$1,102.19	0.9678
7	9	0.9886	1.0623	\$788.79	\$246.75	\$67.52	\$41.13	\$1,144.19	1.0047
8	8	1.0325	1.1226	\$823.82	\$260.75	\$67.52	\$41.13	\$1,193.21	1.0478
9	7	1.0842	1.1863	\$865.11	\$275.54	\$67.52	\$41.13	\$1,249.30	1.0970
10	6	1.1438	1.2536	\$912.66	\$291.17	\$67.52	\$41.13	\$1,312.48	1.1525
11	5	1.2113	1.3247	\$966.49	\$307.69	\$67.52	\$41.13	\$1,382.82	1.2143
12	4	1.2866	1.3998	\$1,026.58	\$325.14	\$67.52	\$41.13	\$1,460.37	1.2824
13	3	1.3698	1.4792	\$1,092.93	\$343.58	\$67.52	\$41.13	\$1,545.17	1.3568
14	2	1.4608	1.5631	\$1,165.56	\$363.07	\$67.52	\$41.13	\$1,637.28	1.4377
15	1	1.5597	1.6518	\$1,244.44	\$383.67	\$67.52	\$41.13	\$1,736.77	1.5251
16	0	1.6664	1.7455	\$1,329.60	\$405.44	\$67.52	\$41.13	\$1,843.68	1.6189
17	-1	1.7563	1.8445	\$1,401.33	\$428.43	\$67.52	\$41.13	\$1,938.42	1.7021
18	-2	1.8147	1.9492	\$1,447.90	\$452.74	\$67.52	\$41.13	\$2,009.29	1.7644
19	-3	1.8750	2.0597	\$1,496.01	\$478.42	\$67.52	\$41.13	\$2,083.09	1.8292
20	-4	1.9373	2.1766	\$1,545.73	\$505.56	\$67.52	\$41.13	\$2,159.94	1.8967
21	-5	2.0016	2.3001	\$1,597.09	\$534.24	\$67.52	\$41.13	\$2,239.98	1.9669
22	-6	2.0682	2.4305	\$1,650.17	\$564.54	\$67.52	\$41.13	\$2,323.36	2.0402
23	-7	2.1369	2.5684	\$1,705.00	\$596.57	\$67.52	\$41.13	\$2,410.22	2.1164
24	-8	2.2079	2.7141	\$1,761.66	\$630.41	\$67.52	\$41.13	\$2,500.72	2.1959
25	-9	2.2813	2.8681	\$1,820.20	\$666.17	\$67.52	\$41.13	\$2,595.03	2.2787
26	-10	2.3571	3.0308	\$1,880.69	\$703.96	\$67.52	\$41.13	\$2,693.30	2.3650
27	-11	2.4354	3.2027	\$1,943.19	\$743.90	\$67.52	\$41.13	\$2,795.73	2.4549
28	-12	2.5163	3.3844	\$2,007.76	\$786.09	\$67.52	\$41.13	\$2,902.51	2.5487
29	-13	2.5999	3.5764	\$2,074.48	\$830.69	\$67.52	\$41.13	\$3,013.82	2.6464
30	-14	2.6863	3.7792	\$2,143.42	\$877.81	\$67.52	\$41.13	\$3,129.88	2.7484
31	-15	2.7756	3.9936	\$2,214.64	\$927.60	\$67.52	\$41.13	\$3,250.90	2.8546
32	-16	2.8678	4.2202	\$2,288.24	\$980.22	\$67.52	\$41.13	\$3,377.11	2.9655
33	-17	2.9631	4.4596	\$2,364.28	\$1,035.83	\$67.52	\$41.13	\$3,508.76	3.0811
34	-18	3.0616	4.7125	\$2,442.85	\$1,094.59	\$67.52	\$41.13	\$3,646.09	3.2016
35	-19	3.1634	4.9799	\$2,524.02	\$1,156.68	\$67.52	\$41.13	\$3,789.36	3.3274
36	-20	3.2685	5.2623	\$2,607.90	\$1,222.30	\$67.52	\$41.13	\$3,938.85	3.4587
37	<b>All DSR Levels*</b>			<b>\$797.89</b>	<b>\$232.27</b>	<b>\$67.52</b>	<b>\$41.13</b>	<b>\$1,138.82</b>	

\*2021 GRA, Compliance Filing Jan 12, 2021, Figure 7:

Amounts for Private Passenger

Amounts for 'Colli, Comp, PD and BI' and 'PIPP' include claims costs and expenses

Amount for 'Other Loss Cost and Exp' includes the following:

Fixed expenses - operating expenses, regulatory/appeal, road safety, commission flat fees, fleet rebates,

anti-theft discount, reinsurance, and premium taxes and commissions on driver premiums

Fixed other income sources - driver premiums and service fees

#### 4. Results and Implications

- 1 *Figure 4* below shows the DSR discount percentages (for DSR levels 1 to 15) and DSR
- 2 surcharge dollars (for DSR levels -1 to -20) based on the overall DSR level relativities
- 3 presented in *Figure 3*. MPI calculated the discounts and surcharges by comparing the
- 4 relativity at each DSR level to the relativity at DSR level 0 (i.e. the base DSR level).

**Figure DSR App 1- 4      Calculated Discounts and Surcharges**

Line No.	DSR	Overall Relativity	Calculated Discount (a)	Current Discount	Variance	Calculated Surcharge (b)	Current Surcharge
1	15	0.7126	56.0%	33.0%	23.0%		
2	14	0.8812	45.6%	30.0%	15.6%		
3	13	0.8938	44.8%	29.0%	15.8%		
4	12	0.9124	43.6%	28.0%	15.6%		
5	11	0.9371	42.1%	27.0%	15.1%		
6	10	0.9678	40.2%	26.0%	14.2%		
7	9	1.0047	37.9%	25.0%	12.9%		
8	8	1.0478	35.3%	25.0%	10.3%		
9	7	1.0970	32.2%	25.0%	7.2%		
10	6	1.1525	28.8%	20.0%	8.8%		
11	5	1.2143	25.0%	15.0%	10.0%		
12	4	1.2824	20.8%	15.0%	5.8%		
13	3	1.3568	16.2%	10.0%	6.2%		
14	2	1.4377	11.2%	10.0%	1.2%		
15	1	1.5251	5.8%	5.0%	0.8%		
16	0	1.6189	0.0%	0.0%	0.0%		
17	-1	1.7021				\$122.40	\$200.00
18	-2	1.7644				\$180.31	\$200.00
19	-3	1.8292				\$240.61	\$300.00
20	-4	1.8967				\$303.41	\$400.00
21	-5	1.9669				\$368.81	\$450.00
22	-6	2.0402				\$436.94	\$500.00
23	-7	2.1164				\$507.91	\$650.00
24	-8	2.1959				\$581.86	\$800.00
25	-9	2.2787				\$658.91	\$900.00
26	-10	2.3650				\$739.21	\$1,000.00
27	-11	2.4549				\$822.91	\$1,200.00
28	-12	2.5487				\$910.15	\$1,400.00
29	-13	2.6464				\$1,001.10	\$1,600.00
30	-14	2.7484				\$1,095.93	\$1,800.00
31	-15	2.8546				\$1,194.82	\$2,000.00
32	-16	2.9655				\$1,297.94	\$2,200.00
33	-17	3.0811				\$1,405.51	\$2,400.00
34	-18	3.2016				\$1,517.72	\$2,600.00
35	-19	3.3274				\$1,634.78	\$2,800.00
36	-20	3.4587				\$1,756.93	\$3,000.00
37		<b>Average Undiscounted Premium (c)</b>				<b>\$1,506.45</b>	

38 Notes:

39 (a) 1 - Overall Relativity for the respective DSR level / Overall Relativity for DSR level 0

40 (b) [Overall Relativity for the respective DSR level / Overall Relativity for DSR level 0 - 1]

41 \* Average Undiscounted Premium + \$45

42 (c) From the Rate Model; reflects the average for merit eligible passenger vehicles and light trucks

43 based on 2021/22 approved rates

1 The discounts and surcharges calculated apply to vehicles insured by registered  
2 owners with the respective DSR level. For example, a discount of 56.0% applies to  
3 vehicles insured by registered owners with DSR level 15. As stated in section 1, the  
4 discounts and surcharges reflect the collective loss experience of the drivers of  
5 vehicles registered to owners with the same DSR level. This implies the following:

- 6 • The discounts and surcharges do not reflect the relative risk of drivers with  
7 different DSR levels.
- 8 • The discount for a driver with DSR level 15 would be greater than 56.0% given  
9 that the discount was calculated including the loss experience of other drivers  
10 with a DSR level lower than 15.
- 11 • The surcharge for a driver with DSR level -20 would be greater than \$1,756.93  
12 given that the discount was calculated including the loss experience of other  
13 drivers with a DSR level higher than -20.

14 *Figure 4* also compares the calculated discounts to the current discounts. For all DSR  
15 levels whereby discounts are applicable (DSR levels 1 to 15), the calculated discounts  
16 are higher than the current discounts. If MPI increased the current discounts to the  
17 calculated discounts, it estimates that it would require a 21.7% increase in the base  
18 rate<sup>2</sup> (for merit eligible passenger vehicles and light trucks) to offset the revenue loss  
19 from providing higher discounts (i.e. to achieve revenue neutrality). The new overall  
20 discounted average vehicle rate would remain the same in the indicated structure.  
21 However, average vehicle rates by DSR levels will change per *Figure 5* below.

22 *Figure 4* also shows the current surcharges for DSR levels -1 to -20. However, these  
23 surcharges are not directly comparable to the calculated surcharges. As stated earlier,  
24 the calculated surcharges apply to vehicles insured by registered owners with the  
25 respective DSR level. However, the current surcharges are applicable at the driver

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<sup>2</sup> The base rate reflects the average undiscounted premium per *Figure 4*.

1 level (i.e. based on the DSR level of the driver). The calculated surcharges represent  
2 the minimum surcharges for drivers with the respective DSR levels.

3 *Figure 5* shows the changes in average rate by DSR level based on applying the higher  
4 calculated discounts offset by the 21.7% increase in the base rate required to achieve  
5 revenue neutrality. Registered owners at DSR levels 10 to 15 would see lower average  
6 rates. All other registered owners would see higher average rates up to 21.7% for  
7 DSR levels 0 to -20.

**Figure DSR App 1- 5 Changes in Average Rate**

Line No.	DSR	Average Rate			
		Current	Indicated	Ind vs. Curr, \$	Ind vs. Curr, %
1	15	\$963	\$770	-\$193	-20.1%
2	14	\$1,045	\$988	-\$56	-5.4%
3	13	\$1,067	\$1,010	-\$58	-5.4%
4	12	\$1,102	\$1,049	-\$53	-4.8%
5	11	\$1,114	\$1,074	-\$39	-3.5%
6	10	\$1,142	\$1,123	-\$20	-1.7%
7	9	\$1,171	\$1,178	\$8	0.7%
8	8	\$1,171	\$1,229	\$58	5.0%
9	7	\$1,181	\$1,298	\$117	9.9%
10	6	\$1,268	\$1,372	\$105	8.3%
11	5	\$1,349	\$1,448	\$99	7.4%
12	4	\$1,349	\$1,529	\$180	13.4%
13	3	\$1,434	\$1,625	\$191	13.3%
14	2	\$1,428	\$1,714	\$286	20.0%
15	1	\$1,519	\$1,833	\$314	20.6%
16	0	\$1,543	\$1,877	\$334	21.7%
17	-1 to -20	\$1,575	\$1,916	\$341	21.7%
18	Total	\$1,165	\$1,165	\$0	0.0%

8 *Figure 6* shows the indicated surcharges (based on the overall DSR level relativities)  
9 after adjusting for revenue neutrality.

**Figure DSR App 1- 6      Calculated Surcharges**

Line No.	DSR	Surcharge	
		Indicated	Current
1	-1	\$139	\$200
2	-2	\$210	\$200
3	-3	\$283	\$300
4	-4	\$359	\$400
5	-5	\$439	\$450
6	-6	\$522	\$500
7	-7	\$608	\$650
8	-8	\$698	\$800
9	-9	\$792	\$900
10	-10	\$890	\$1,000
11	-11	\$991	\$1,200
12	-12	\$1,098	\$1,400
13	-13	\$1,208	\$1,600
14	-14	\$1,324	\$1,800
15	-15	\$1,444	\$2,000
16	-16	\$1,569	\$2,200
17	-17	\$1,700	\$2,400
18	-18	\$1,837	\$2,600
19	-19	\$1,979	\$2,800
20	-20	\$2,128	\$3,000

## 5. Primary Driver Basis

1 A primary driver model would provide a discount on the vehicle premium based on the  
 2 DSR level of the primary driver(s) of the vehicle (rather than the registered owner of  
 3 the vehicle). The primary driver(s) of the vehicle would have to be declared when the  
 4 insurance policy is written.

5 The primary driver model shares a similar shortcoming to the registered owner model  
 6 particularly if only one primary driver is captured per vehicle. At the overall vehicle  
 7 level, the vehicle discounts provided (at each DSR level) are based on the collective  
 8 loss experience of the drivers of vehicles insured by primary drivers with the same  
 9 DSR level. This implies that the discounts and surcharges do not reflect the relative  
 10 risk of drivers with different DSR levels.

1 MPI did not conduct a pricing examination using the primary driver model mainly  
2 because it does not have the information on the primary driver(s) of its insured  
3 vehicles. While MPI can assume that the registered owner is the primary driver in the  
4 case of registered owners with only one registered vehicle, doing so would revert back  
5 to the registered owner model. Further, 24% of registered owners have more than  
6 one registered vehicle meaning the assumption is less likely to be applicable.

7 One other limitation in conducting a pricing examination relates to how a subset of  
8 Collision losses would be handled under a primary driver model. For Collision losses  
9 where a driver can be identified<sup>3</sup>, 41% of reported losses<sup>4</sup> are attributable to claims  
10 where the driver is not the registered owner. The handling of these losses under a  
11 primary driver model would impact the determination of the appropriate vehicle  
12 discounts.

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<sup>3</sup> Collision losses where a driver cannot be identified are commonly a result of hit-and-run accidents.

<sup>4</sup> For insurance years 2016 to 2020 as of February 28, 2021.