

# Rate Framework Modernization

Risk Disparity Analysis  
December 2015

# Context

- In examining the proposed 34 industry classes, it is important to understand that while each class may have some level of risk disparity (employers bringing a different claims experience relative to the class), addressing this risk disparity can not be done at the expense of the actuarial predictability of each industry class (see slide 5).
- In addition, while the WSIB recognizes that there could be a level of risk disparity within the 34 classes, in large part, the proposed risk band approach, which sees the number of risk bands increase based on the level of disparity in each respective class, would address some of these concerns as each employer would gravitate towards a risk band and premium that would be reflective of their own risk profile and actuarial predictability.
- That said, the WSIB has undertaken further analysis to determine whether expansion of the 34 classes along the NAICS hierarchy, while ensuring the ability to set fair and stable rates through actuarial predictability, would produce better outcomes. This information is being provided to support the engagement of stakeholders as the WSIB moves toward the finalization of the new Rate Framework.

## Risk Disparity

- Risk disparity would be examined by comparing the risk profile of the proposed 34 industry classes to the next level of the NAICS industry classes.

*For example: Class A1 = NAICS 11 (2-digit). This analysis examined the 4-digit NAICS classes below 11, i.e. 111, 112, 113, 114, 115.*

- This would assist in determining if further expansion of the number of classes would produce improved outcomes that address and balance any risk disparity and actuarial predictability.

## Actuarial Predictability

- Each class must have a level of actuarial predictability that supports the setting of reliable and predictable premium rates that mitigates volatility.
- The threshold for actuarial predictability was determined at:
  - \$12 billion of insurable earnings over a 6 year period (i.e. \$2B per year) or
  - \$6.0B of insurable earnings combined with \$15.0M in claims costs over a 6 year period.

# Methodology - Risk Disparity Analysis

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The proposed 34 industry classes were reviewed to assess:

## Rule 1 - Risk Disparity

- The disparity in the risk profile within each industry class, tested to the next level of NAICS industry subclasses where appropriate, is greater than +/- 20%.

AND

## Rule 2 – Actuarial Predictability

- The industry class meets a level of actuarial predictability that would support reliable and stable premium rate setting, established as:
  - \$12.0 billion in insurable earnings, over 6 years; or
  - \$6.0 billion in insurable earnings and \$15.0 million in claims costs, over 6 years.

# Results - Risk Disparity Analysis

- The charts below demonstrate the expansion of the industry classes, utilizing the risk disparity methodology previously outlined in this presentation.

## Results of Risk Disparity Analysis – Updated 34 Class Structure

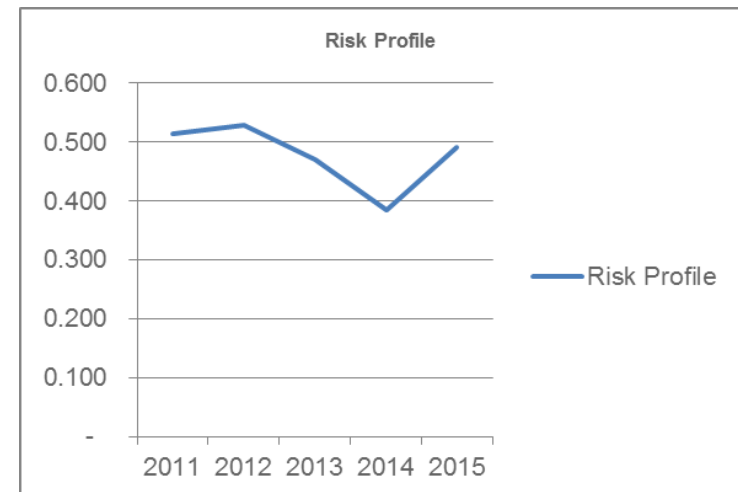
### Proposed 22 Class Structure

CLASS LETTER	CLASS DESCRIPTION	NAICS EQUIVALENT
A	Primary Resource Industries	11-21
B	Utilities	22
C	Public Administration	236
D	Food, Textile, and Related Manufacturing	237
E	Resource and Related Manufacturing	238
F	Machinery and Related Manufacturing	31
G1	Building Construction	32
G2	Infrastructure Construction	33
G3	Specialty Trades Construction	41
H	Wholesale Trade	44
I	General Retail	45
J	Specialized Retail and Department Stores	48-49
K	Transportation and Warehousing	51
L	Information and Culture	52-53-55
M	Finance	54
N	Professional, Scientific and Technical	56
O	Administrative, Waste and Remediation	61
P	Hospitals	91
Q	Health and Social Services	621-623-624
R	Leisure and Hospitality	622
S	Other Services	71-72
T	Education	81

CLASS LETTER	CLASS DESCRIPTION	NAICS EQUIVALENT
A1	Agriculture	11
A2	Mining, Quarrying & Oil and Gas Extraction	21
B	Utilities	22
C	Public Administration	91
D	Food/Textile & Related Manufacturing	31
E1	Non-Metallic/Mineral Manufacturing	321-322-326-327
E2	Printing, Petroleum/Chemical Manufacturing	323-324-325
F1	Metal/Transportation/Furniture Manufacturing	331-332-336-337
F2	Machinery/Electrical/Other Manufacturing	333-335-339
F3	Computer/Electronics Manufacturing	334
G1	Building Construction	236
G2	Infrastructure Construction	237
G31	Foundation/Structure/Building Exterior Contractors	2381
G32	Building Equipment Contractors	2382
G33	Specialty Trade Contractors	2383-2389
H1	Petroleum/Food/Vehicle/Other Wholesale	411-412-413-415-418
H2	Personal/Building Materials/Machinery Wholesale	414-416-417-419
I1	Vehicle/Building Material/Food & Beverage Retail	441-444-445-447
I2	Furniture/Home/Clothing Retail	442-448
I3	Electronics/Appliances/Personal Care Retail	443-446
J	Specialized Retail & Department Stores	45
K1	Rail/Water/Truck & Postal Service Transportation	482-483-484-491
K2	Air/Ground/Pipeline/Courier Transportation & Warehousing	481-485-486-487-488-492-493
L	Information & Culture	51
M	Finance	52-53-55
N	Professional, Scientific & Technical	54
O	Administrative, Waste & Remediation	56
P	Hospitals	622
Q1	Nursing & Residential Care Facilities	623
Q21	Ambulatory Health Care	621
Q22	Social Assistance	624
R	Leisure & Hospitality	71-72
S	Other Services	81
T	Education	61

# Results - Risk Disparity Analysis

- In reviewing the following slides that assess the risk disparity for each of the 34 classes, it is important to remember that risk disparity alone can not substantiate a distinct industry class. The predictability of risk is an essential component in setting stable and reliable rates.
- For example, as illustrated on the right, classes that do not meet the threshold for predictability could see their risk profile fluctuate significantly.
- As such, looking at the risk disparity results in any one year may not be a sound basis to impact the classification structure.



# Risk Disparity Analysis – A1 Agriculture

- Class **A1 Agriculture** (NAICS # 11) is based on the experience of:
  - A11: Crop Production (NAICS # 111)
  - A12: Animal Production (NAICS # 112)
  - A13: Forestry and Logging (NAICS # 113)
  - A14: Fishing, Hunting and Logging (NAICS # 114)
  - A15: Support Activities for Agriculture and Forestry (NAICS # 115)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class A1 Risk Profile	Difference
111	Crop Production	4.235	17.587	0.415	0.603	-31.1%
112	Animal Production	1.735	12.728	0.734	0.603	21.7%
113	Forestry and Logging	0.548	10.060	1.836	0.603	204.6%
114	Fishing, Hunting and Trapping	0.000	0.000	0.000	0.603	-
115	Support Activities for Agriculture and Forestry	0.530	2.102	0.396	0.603	-34.3%
	<b>Total</b>	7.049	42.477	0.603		

- Subclasses A11, A12, A13, and A15 meet the risk disparity rule (risk profile for each of the originally proposed 22 industry classes and the next level of NAICS industry subclasses is greater than +/- 20%), whereas subclass A14 does not.
- All the subclasses A11, A12, A13, A14 and A15 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in claims costs (CC) in order to set a reliable premium rate.
- Since no subclass meets both the risk disparity and the actuarial predictability rules, this Class should not be expanded.

## Risk Disparity Analysis – A2 Mining, Quarrying & Oil and Gas Extraction

- Class **A2 Mining, Quarrying & Oil and Gas Extraction** (NAICS # 21) is based on the experience of:
  - A21: Oil and Gas Extraction (NAICS # 211)
  - A22: Mining and Quarrying (except Oil and Gas) (NAICS # 212)
  - A23: Support Activities for Mining and Oil and Gas Extraction (NAICS # 213)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class A2 Risk Profile	Difference
211	Oil and Gas Extraction	0.027	0.326	1.222	0.577	111.8%
212	Mining and Quarrying (except Oil and Gas)	8.456	46.562	0.551	0.577	-4.5%
213	Support Activities for Mining and Oil and Gas Extraction	2.410	15.943	0.662	0.577	14.7%
	<b>Total</b>	10.893	62.831	0.577		

- Subclass A21 meets the risk disparity rule (difference is greater than +/-20%), whereas subclasses A22 and A23 do not meet the rule.
- Subclass A22 meets the actuarial predictability threshold, whereas subclasses A21 and A23 do not meet the threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Since no subclass meets both the risk disparity and the actuarial predictability rules, this Class should not be expanded.

# Risk Disparity Analysis – B Utilities

- Class **B Utilities** (NAICS # 22) is based on the experience of:
  - B1: Electric Power Generation, Transmission and Distribution (NAICS # 2211)
  - B2: Natural Gas Distribution (NAICS # 2212)
  - B3: Water, Sewage and Other Systems (NAICS # 2213)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class B Risk Profile	Difference
2211	Electric Power Generation, Transmission and Distribution	16.142	22.489	0.139	0.139	0.4%
2212	Natural Gas Distribution	1.018	1.202	0.118	0.139	-15.0%
2213	Water, Sewage and Other Systems	0.220	0.437	0.199	0.139	43.3%
	<b>Total</b>	17.3792	24.128	0.139		

- Subclass B3 meets the risk disparity rule (difference is greater than +/-20%), whereas subclasses B1 and B2 do not meet the rule.
- Subclass B1 meets the actuarial predictability threshold, whereas subclasses B2 and B3 do not meet the threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Since no subclass meets both the risk disparity and the actuarial predictability rules, this Class should not be expanded.



# Risk Disparity Analysis – C Public Administration

- Class **C Public Administration** (NAICS # 91) is based on the experience of:
  - C1: Federal Government Public Administration (NAICS # 911)
  - C2: Provincial and Territorial Public Administration (NAICS # 912)
  - C3: Local, Municipal and Regional Public Administration (NAICS # 913)
  - C4: Aboriginal Public Administration (NAICS # 914)
  - C5: International and Other Extra-Territorial Public Administration (NAICS # 919)

NAICS #	Class Description	Insurable Earnings 5 years (\$B)	Claims Costs 5 years (\$M)	Subclass Risk Profile	Class C Risk Profile	Difference
911	Federal Government Public Administration	0.000	0.000	N/A	0.436	-
912	Provincial and Territorial Public Administration	0.046	0.014	0.030	0.436	-93.1%
913	Local, Municipal and Regional Public Administration	10.210	48.345	0.474	0.436	8.6%
914	Aboriginal Public Administration	1.919	5.667	0.295	0.436	-32.3%
919	International and Other Extra-Territorial Public Administration	0.296	0.356	0.120	0.436	-72.4%
	<b>Total</b>	12.471	54.381	0.436		

- Subclasses C2, C4 and C5 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses C1 and C3 do not.
- Except for subclass C3, subclasses C1, C2, C4 and C5 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- In addition, merging the similar low risk disparity subclasses (C2, C4, and C5) together to form a subclass (total IE of \$2.261B and CC of \$6.036M), does not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC.
- Consequently, this Class should not be expanded into further subclasses.

# Risk Disparity Analysis – D Food, Textile & Related Manufacturing

- Class **D Food, Textile & Related Manufacturing** (NAICS # 31) is based on the experience of:
  - D1: Food Manufacturing (NAICS # 311)
  - D2: Beverage and Tobacco Product Manufacturing (NAICS # 312)
  - D3: Textile Mills (NAICS # 313)
  - D4: Textile Product Mills (NAICS # 314)
  - D5: Clothing Manufacturing (NAICS # 315)
  - D6: Leather and Allied Product Manufacturing (NAICS # 316)

NAICS #	Class Description	Insurable Earnings 5 years (\$B)	Claims Costs 5 years (\$M)	Subclass Risk Profile	Class D Risk Profile	Difference
311	Food Manufacturing	23.668	62.891	0.266	0.256	3.7%
312	Beverage and Tobacco Product Manufacturing	4.189	8.663	0.207	0.256	-19.3%
313	Textile Mills	1.095	2.172	0.198	0.256	-22.5%
314	Textile Product Mills	0.539	2.051	0.380	0.256	48.5%
315	Clothing Manufacturing	1.098	2.314	0.211	0.256	-17.7%
316	Leather and Allied Product Manufacturing	0.133	0.594	0.447	0.256	74.5%
	<b>Total</b>	30.721	78.685	0.256		

- Subclasses D3, D4 and D6 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses D1, D2 and D5 do not.
- Except for subclass D1, subclasses D2, D3, D4, D5 and D6 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- In addition, merging the similar low risk disparity subclasses (D2, D3 and D5) together to form a subclass (total IE of \$6.381B and CC of \$13.149M), or merging the similar high risk disparity subclasses (D4 and D6) together to form a subclass (total IE of \$0.672B and CC of \$2.645M), does not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC.
- Consequently, this Class should not be expanded into further subclasses.

# Risk Disparity Analysis – E1 Non-Metallic & Mineral Manufacturing

- Class **E1 Non-Metallic & Mineral Manufacturing** (NAICS # 321-322-326-327) is based on the experience of:
  - E11: Wood Product Manufacturing (NAICS # 321)
  - E12: Paper Manufacturing (NAICS # 322)
  - E13: Plastics and Rubber Products Manufacturing (NAICS # 326)
  - E14: Non-Metallic Mineral Product Manufacturing (NAICS # 327)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class E Risk Profile	Difference
321	Wood Product Manufacturing	3.714	18.716	0.504	0.323	56.0%
322	Paper Manufacturing	6.738	23.953	0.356	0.323	10.1%
326	Plastics and Rubber Products Manufacturing	11.831	44.553	0.377	0.323	16.6%
327	Non-Metallic Mineral Product Manufacturing	6.632	32.148	0.485	0.323	50.1%
	<b>Total</b>	28.915	119.370	0.413		

- Subclasses E11 and E14 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses E12 and E13 do not. As well, subclasses E12, E13 and E14 meet the actuarial predictability threshold, whereas subclass E11 does not meet the threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar high risk disparity subclasses (E11, E12, E13 and E14) together to form a new Class E1 that has a higher risk profile (0.413), as compared to the original Class E risk profile (0.323), reduces the original risk disparity differences in most instances.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
321	0.504	0.413	22.1%
322	0.356	0.413	-13.9%
326	0.377	0.413	-8.8%
327	0.485	0.413	17.4%

## Risk Disparity Analysis – E2 Printing, Petroleum & Chemical Manufacturing

- Class **E2 Printing, Petroleum & Chemical Manufacturing** (NAICS # 323-324-325) is based on the experience of:
  - E21: Printing and Related Support Activities (NAICS # 323)
  - E22: Petroleum and Coal Product Manufacturing (NAICS # 324)
  - E23: Chemical Manufacturing (NAICS # 325)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class E Risk Profile	Difference
323	Printing and Related Support Activities	6.245	10.485	0.168	0.323	-48.0%
324	Petroleum and Coal Product Manufacturing	3.011	6.771	0.225	0.323	-30.4%
325	Chemical Manufacturing	14.127	32.231	0.228	0.323	-29.4%
	<b>Total</b>	23.383	49.487	0.212		

- All of the subclasses meet the risk disparity rule (difference is greater than +/-20%).
- Subclass E23 meets the actuarial predictability threshold, however subclasses E21 and E22 do not meet the threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar low risk disparity subclasses (E21, E22, and E23) together to form a new Class E2 that has a lower risk profile (0.212), as compared to the original Class E risk profile (0.323), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
323	0.168	0.212	-20.7%
324	0.225	0.212	6.3%
325	0.228	0.212	7.8%

## Risk Disparity Analysis – F1 Metal, Transportation & Furniture Manufacturing

- Class **F1 Metal, Transportation & Furniture Manufacturing** (NAICS # 331-332-336-337) is based on the experience of:
  - F11: Primary Metal Manufacturing (NAICS # 331)
  - F12: Fabricated Metal Product Manufacturing (NAICS # 332)
  - F13: Transportation Equipment Manufacturing (NAICS # 336)
  - F14: Furniture and Related Product Manufacturing (NAICS # 337)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class F Risk Profile	Difference
331	Primary Metal Manufacturing	10.424	51.224	0.491	0.295	66.6%
332	Fabricated Metal Product Manufacturing	16.769	73.999	0.441	0.295	49.6%
336	Transportation Equipment Manufacturing	43.837	144.410	0.329	0.295	11.7%
337	Furniture and Related Product Manufacturing	6.876	24.905	0.362	0.295	22.8%
	<b>Total</b>	77.906	294.537	0.378		

- Subclasses F11, F12 and F14 meet the risk disparity rule (difference is greater than +/-20%), whereas subclass F13 does not. All of the above subclasses meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar high risk disparity subclasses (F11, F12, F13 and F14) together to form a new Class F1 that has a higher risk profile (0.378), as compared to the original Class F risk profile (0.295), reduces the original risk disparity differences in most instances.
- Recent history has shown that expanding the subclasses further (especially those with low insurable earnings) would change the makeup of the current class structure on an ongoing basis. Keeping Class F1 together absorbs the annual fluctuations that could occur at a more detailed level.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
331	0.491	0.378	30.0%
332	0.441	0.378	16.7%
336	0.329	0.378	-12.9%
337	0.362	0.378	-4.2%

## Risk Disparity Analysis – F2 Machinery, Electrical & Other Manufacturing

- Class **F2 Machinery, Electrical & Other Manufacturing** (NAICS # 333-335-339) is based on the experience of:
  - F21: Machinery Manufacturing (NAICS # 333)
  - F22: Electrical Equipment, Appliance and Component Manufacturing (NAICS # 335)
  - F23: Miscellaneous Manufacturing (NAICS # 339)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class F Risk Profile	Difference
333	Machinery Manufacturing	17.155	44.293	0.258	0.295	-12.5%
335	Electrical Equipment, Appliance and Component Manufacturing	4.864	10.878	0.224	0.295	-24.2%
339	Miscellaneous Manufacturing	3.901	9.218	0.236	0.295	-19.9%
	<b>Total</b>	25.920	64.388	0.248		

- Subclass F22 meets the risk disparity rule (difference is greater than +/-20%), whereas subclasses F21 and F23 do not. Except for subclass F21, subclasses F22 and F23 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar low risk disparity subclasses (F21, F22, and F23) together to form a new Class F2 that has a lower risk profile (0.248), as compared to the original Class F risk profile (0.295), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
333	0.258	0.248	3.9%
335	0.224	0.248	-10.0%
339	0.236	0.248	-4.9%

# Risk Disparity Analysis – F3 Computer & Electronics Manufacturing

- Class **F3 Computer & Electronics Manufacturing** (NAICS # 334) is based on the experience of:
  - F31: Computer and Electronic Product Manufacturing (NAICS # 334)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class F Risk Profile	Difference
334	Computer and Electronic Product Manufacturing	20.066	6.481	0.032	0.295	-89.0%
	<b>Total</b>	20.066	6.481	0.032		

- Class F3 meets the risk disparity rule (difference is greater than +/- 20%), and meets the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, separating Class F3 from Class F to form a new class that has a lower risk profile (0.032), as compared to the original Class F risk profile (0.295), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
334	0.032	0.032	0.0%

Note: A further review of this class has shown that going to the next level of NAICS (i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

# Risk Disparity Analysis – G1 Building Construction

- Class **G1 Building Construction** (NAICS # 236) is based on the experience of:
  - G11: Residential Building Construction (NAICS # 2361)
  - G12: Non-residential Building Construction (NAICS # 2362)

NAICS #	Class Description	Insurable Earnings 5 years (\$B)	Claims Costs 5 years (\$M)	Subclass Risk Profile	Class G1 Risk Profile	Difference
2361	Residential Building Construction	7.142	36.832	0.516	0.514	0.3%
2362	Non-residential Building Construction	8.447	43.296	0.513	0.514	-0.3%
	<b>Total</b>	15.589	80.129	0.514		

- Subclasses G11 and G12 do not meet the risk disparity rule (difference is greater than +/-20%), and there is minimal risk disparity between the two subclasses.
- Subclasses G11 and G12 meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Consequently, this Class should not be expanded into further subclasses.



# Risk Disparity Analysis – G2 Infrastructure Construction

- Class **G2 Infrastructure Construction** (NAICS # 237) is based on the experience of:
  - G21: Utility System Construction (NAICS # 2371)
  - G22: Land Subdivision (NAICS # 2372)
  - G23: Highway, Street and Bridge Construction (NAICS # 2373)
  - G24: Other Heavy and Civil Engineering Construction (NAICS # 2379)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class G2 Risk Profile	Difference
2371	Utility System Construction	6.436	37.198	0.578	0.590	-2.0%
2372	Land Subdivision	0.094	0.068	0.073	0.590	-87.7%
2373	Highway, Street and Bridge Construction	5.298	28.320	0.535	0.590	-9.4%
2379	Other Heavy and Civil Engineering Construction	1.292	11.788	0.912	0.590	54.7%
	<b>Total</b>	13.120	77.375	0.590		

- Subclasses G22 and G24 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses G21 and G23 do not.
- Subclass G21 meets the actuarial predictability threshold, however subclasses G22, G23 and G24 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Consequently, this Class should not be expanded into further subclasses.

## Risk Disparity Analysis – G31 Foundation, Structure & Building Exterior Contractors

- Class **G31 Foundation, Structure & Building Exterior Contractors** (NAICS # 2381) is based on the experience of:
  - G31: Foundation, Structure and Building Exterior Contractors (NAICS # 2381)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class G3 Risk Profile	Difference
2381	Foundation, Structure, and Building Exterior Contractors	13.761	138.648	1.008	0.569	77.1%
	<b>Total</b>	13.761	138.648	1.008		

- Subclass G31 meets the risk disparity rule (difference is greater than +/-20%), and meets the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, separating Class G31 from Class G3 to form a new class that has a higher risk profile (1.008), as compared to the original Class G3 risk profile (0.569), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
2381	1.008	1.008	0.0%

Note: A further review of this class would assist in determining if going to the next level of NAICS (i.e. to the 5 digit level) is possible, and would meet the actuarial predictability threshold necessary to form a distinct industry class.

# Risk Disparity Analysis – G32 Building Equipment Contractors

- Class **G32 Building Equipment Contractors** (NAICS # 2382) is based on the experience of:
  - G32: Building Equipment Contractors (NAICS # 2382)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class G3 Risk Profile	Difference
2382	Building Equipment Contractors	33.631	132.608	0.394	0.569	-30.7%
	<b>Total</b>	33.631	132.608	0.394		

- Subclass G32 meets the risk disparity rule (difference is greater than +/- 20%) and meets the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.

- However, separating Class G32 from Class G3 to form a new class that has a lower risk profile (0.394), as compared to the original Class G3 risk profile (0.569), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
2382	0.394	0.394	0.0%

Note: A further review of this class would assist in determining if going to the next level of NAICS(i.e. to the 5 digit level) is possible, and would meet the actuarial predictability threshold necessary to form a distinct industry class.

# Risk Disparity Analysis – G33 Specialty Trade Contractors

- Class **G33 Specialty Trade Contractors** (NAICS # 2383-2389) is based on the experience of:
  - G331: Building Finishing Contractors (NAICS # 2383)
  - G332: Other Specialty Trade Contractors (NAICS # 2389)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class G3 Risk Profile	Difference
2383	Building Finishing Contractors	9.758	50.388	0.516	0.569	-9.2%
2389	Other Specialty Trade Contractors	6.182	38.562	0.624	0.569	9.7%
	<b>Total</b>	15.940	88.950	0.558		1.92%

- Subclasses G331 and G332 do not meet the risk disparity rule (difference is greater than +/-20%).
- Both subclasses G331 and G332 meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar low risk disparity subclasses (G331 and G332) together to form a new Class G33 that has lower risk profile (0.558), as compared to the original Class G3 risk profile (0.569), reduces the original risk disparity differences in most instances.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
2383	0.516	0.558	-7.5%
2389	0.624	0.558	11.8%

## Risk Disparity Analysis – H1 Petroleum, Food, Vehicle & Other Wholesale

- Class **H1 Petroleum, Food, Vehicle & Other Wholesale** (NAICS # 411-412-413-415-418) is based on the experience of:
  - H11: Farm Product Wholesaler - Distributors (NAICS # 411)
  - H12: Petroleum Product Wholesaler - Distributors (NAICS # 412)
  - H13: Food, Beverage and Tobacco Wholesaler - Distributors (NAICS # 413)
  - H14: Motor Vehicle and Parts Wholesaler - Distributors (NAICS # 415)
  - H15: Miscellaneous Wholesaler – Distributors (NAICS # 418)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class H Risk Profile	Difference
411	Farm Product Wholesaler-Distributors	0.345	1.678	0.487	0.196	148.3%
412	Petroleum Product Wholesaler-Distributors	1.302	5.145	0.395	0.196	101.6%
413	Food, Beverage and Tobacco Wholesaler-Distributors	5.042	18.970	0.376	0.196	91.9%
415	Motor Vehicle and Parts Wholesaler-Distributors	3.900	12.822	0.329	0.196	67.7%
418	Miscellaneous Wholesaler-Distributors	8.137	24.297	0.299	0.196	52.3%
	<b>Total</b>	18.727	62.912	0.336		

- All of the subclasses meet the risk disparity rule (difference is greater than +/-20%). Except for subclass H15, subclasses H11, H12, H13, and H14 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar high risk disparity subclasses (H11, H12, H13, H14 and H15) together to form a new Class H1 that has a higher risk profile (0.336), as compared to the original Class H risk profile (0.196), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
411	0.487	0.336	44.9%
412	0.395	0.336	17.6%
413	0.376	0.336	12.0%
415	0.329	0.336	-2.1%
418	0.299	0.336	-11.1%

Note: A further review of this class has shown that going to the next level of NAICS (i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

## Risk Disparity Analysis – H2 Personal, Building Materials & Machinery Wholesale

- Class **H2 Personal, Building Materials & Machinery Wholesale** (NAICS # 414-416-417-419) is based on the experience of:
  - H21: Personal and Household Goods Wholesaler - Distributors (NAICS # 414)
  - H22: Building Material and Supplies Wholesaler - Distributors (NAICS # 416)
  - H23: Machinery, Equipment and Supplies Wholesaler - Distributors (NAICS # 417)
  - H24: Wholesale Electronic Markets, and Agents and Brokers (NAICS # 419)

NAICS #	Class Description	Insurable Earnings 5 years (\$B)	Claims Costs 5 years (\$M)	Subclass Risk Profile	Class H Risk Profile	Difference
414	Personal and Household Goods Wholesaler-Distributors	11.620	13.949	0.120	0.196	-38.8%
416	Building Material and Supplies Wholesaler-Distributors	12.335	19.520	0.158	0.196	-19.3%
417	Machinery, Equipment and Supplies Wholesaler-Distributors	16.479	24.852	0.151	0.196	-23.1%
419	Wholesale Electronic Markets, and Agents and Brokers	3.074	0.746	0.024	0.196	-87.6%
	<b>Total</b>	43.507	59.067	0.136		

- Subclasses H21, H23 and H24 meet the risk disparity rule (difference is greater than +/-20%), whereas subclass H22 does not. Except for subclasses H21 and H24, subclasses H22 and H23 meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar low risk disparity subclasses (H21, H22, H23, and H24) together to form a new Class H2 that has a lower risk profile (0.136), as compared to the original Class H risk profile (0.196), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
414	0.120	0.136	-11.6%
416	0.158	0.136	16.6%
417	0.151	0.136	11.1%
419	0.024	0.136	-82.1%

Note: A further review of this class has shown that going to the next level of NAICS(i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

## Risk Disparity Analysis – I1 Vehicle, Building Material, Food & Beverage Retail

- Class I1 Vehicle, Building Material, Food & Beverage Retail (NAICS # 441-444-445-447) is based on the experience of:
  - I11: Motor Vehicle and Parts Dealers (NAICS # 441)
  - I12: Building Material and Garden Equipment and Supplies Dealers (NAICS # 444)
  - I13: Food and Beverage Stores (NAICS # 445)
  - I14: Gasoline Stations (NAICS # 447)

NAICS #	Class Description	Insurable Earnings 5 years (\$B)	Claims Costs 5 years (\$M)	Subclass Risk Profile	Class I Risk Profile	Difference
441	Motor Vehicle and Parts Dealers	7.689	21.781	0.283	0.186	52.4%
444	Building Material and Garden Equipment and Supplies Dealers	8.414	26.762	0.318	0.186	71.1%
445	Food and Beverage Stores	21.477	52.725	0.245	0.186	32.1%
447	Gasoline Stations	1.187	2.180	0.184	0.186	-1.2%
	<b>Total</b>	38.766	103.448	0.267		

- Subclasses I11, I112 and I113 meet the risk disparity rule (difference is greater than +/-20%), whereas subclass I14 does not. Except for subclass I14, subclasses I11, I12, and I13 meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar high risk disparity subclasses (I11, I12, I13, and I14) together to form a new Class I1 that has a higher risk profile (0.267), as compared to the original Class I risk profile (0.187), reduces the original risk disparity differences in most instances.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
441	0.283	0.267	6.2%
444	0.318	0.267	19.2%
445	0.245	0.267	-8.0%
447	0.184	0.267	-31.2%

Note: A further review of this class has shown that going to the next level of NAICS (i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

# Risk Disparity Analysis – I2 Furniture, Home & Clothing Retail

- Class **I2 Furniture, Home & Clothing Retail** (NAICS # 442-448) is based on the experience of:
  - I21: Furniture and Home Furnishing Stores (NAICS # 442)
  - I22: Clothing and Clothing Accessories Stores (NAICS # 448)

NAICS #	Class Description	Insurable Earnings 5 years (\$B)	Claims Costs 5 years (\$M)	Subclass Risk Profile	Class I Risk Profile	Difference
442	Furniture and Home Furnishings Stores	6.116	11.650	0.190	0.186	2.5%
448	Clothing and Clothing Accessories Stores	9.620	10.086	0.105	0.186	-43.6%
	<b>Total</b>	15.736	21.737	0.138		

- Subclass I22 meets the risk disparity rule (difference is greater than +/-20%), whereas subclass I21 does not meet this rule.
- All of the subclasses do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar low risk disparity subclasses (I21 and I22) together to form a new Class I2 that has a lower risk profile (0.138), as compared to the original Class I risk profile (0.186), reduces the original risk disparity differences in most instances.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
442	0.190	0.138	37.9%
448	0.105	0.138	-24.1%

Note: A further review of this class has shown that going to the next level of NAICS (i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.



## Risk Disparity Analysis – I3 Electronics, Appliances & Personal Care Retail

- Class **I3 Electronics, Appliances & Personal Care Retail** (NAICS # 443-446) is based on the experience of:
  - I31: Electronics and Appliance Stores (NAICS # 443)
  - I32: Health and Personal Care Stores (NAICS # 446)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class I Risk Profile	Difference
443	Electronics and Appliance Stores	9.572	2.541	0.027	0.186	-85.7%
446	Health and Personal Care Stores	8.363	6.912	0.083	0.186	-55.5%
	<b>Total</b>	17.935	9.453	0.053		

- All of the subclasses meet the risk disparity rule (difference is greater than +/-20%).
- As well, all of the subclasses do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, merging the similar low risk disparity subclasses (I31 and I32) together to form a new Class I3 that has a lower risk profile (0.053), as compared to the original Class I risk profile (0.186), reduces the original risk disparity differences in most instances.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
443	0.027	0.053	-49.6%
446	0.083	0.053	56.8%

Note: A further review of this class has shown that going to the next level of NAICS (i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

# Risk Disparity Analysis – J Specialized Retail & Department Stores

- Class **J Specialized Retail & Department Stores** (NAICS # 45) is based on the experience of:
  - J1: Sporting Goods, Hobby, Book and Music Stores (NAICS # 451)
  - J2: General Merchandise Stores (NAICS # 452)
  - J3: Miscellaneous Store Retailers (NAICS # 453)
  - J4: Non-Store Retailers (NAICS # 454)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class J Risk Profile	Difference
451	Sporting Goods, Hobby, Book and Music Stores	4.869	4.078	0.084	0.172	-51.3%
452	General Merchandise Stores	16.701	30.506	0.183	0.172	6.3%
453	Miscellaneous Store Retailers	4.195	9.606	0.229	0.172	33.3%
454	Non-Store Retailers	0.522	0.976	0.187	0.172	8.9%
	<b>Total</b>	26.288	45.166	0.172		

- Subclasses J1 and J3 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses J2 and J4 do not. Except for subclass J2, subclasses J1, J3 and J4 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- In addition, separating out the low risk disparity subclass (J1) to form a new subclass (total IE of \$4.869B and CC of \$4.078M), or separating out the high risk disparity subclass (J3) to form a new subclass (total IE of \$4.195B and CC of \$9.606M) does not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC.
- Consequently, this Class should not be expanded into further subclasses.

## Risk Disparity Analysis – K1 Rail, Water, Truck & Postal Service Transportation

- Class **K1 Rail, Water, Truck & Postal Service Transportation** (NAICS # 482-483-484-491) is based on the experience of:
  - K11: Rail Transportation(NAICS # 482)
  - K12: Water Transportation (NAICS # 483)
  - K13: Truck Transportation (NAICS # 484)
  - K14: Postal Service (NAICS # 491)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class K Risk Profile	Difference
482	Rail Transportation	0.113	1.107	0.980	0.563	74.0%
483	Water Transportation	0.218	4.475	2.056	0.563	265.1%
484	Truck Transportation	15.134	131.963	0.872	0.563	54.8%
491	Postal Service	0.037	0.715	1.951	0.563	246.5%
	<b>Total</b>	15.501	138.260	0.892		

- All the subclasses meet the risk disparity rule (difference is greater than +/-20%). Except for subclass K13, subclasses K11, K12 and K14 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC to set a reliable premium rate.
- However, merging the similar high risk disparity subclasses (K11, K12, K13 and K14) together to form a new Class K1 that has a higher risk profile (0.892), as compared to the original Class K risk profile (0.563), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
482	0.980	0.892	9.8%
483	2.056	0.892	130.5%
484	0.872	0.892	-2.2%
491	1.951	0.892	118.8%

Note: A further review of this class has shown that going to the next level of NAICS(i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

## Risk Disparity Analysis – K2 Air, Ground, Pipeline, Courier Transportation & Warehousing

- Class **K2 Air, Ground, Pipeline, Courier Transportation & Warehousing** (NAICS # 481-485-486-487-488-492-493) is based on the experience of:
  - K21: Air Transportation (NAICS # 481)
  - K22: Transit and Ground Passenger Transportation (NAICS # 485)
  - K23: Pipeline Transportation (NAICS # 486)
  - K24: Scenic and Sightseeing Transportation (NAICS # 487)
  - K25: Support Activities for Transportation (NAICS # 488)
  - K26: Couriers and Messengers (NAICS # 492)
  - K27: Warehousing and Storage (NAICS # 493)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class K Risk Profile	Difference
481	Air Transportation	2.852	12.876	0.452	0.563	-19.8%
485	Transit and Ground Passenger Transportation	3.863	17.275	0.447	0.563	-20.6%
486	Pipeline Transportation	1.115	1.791	0.161	0.563	-71.5%
487	Scenic and Sightseeing Transportation	0.068	0.192	0.284	0.563	-49.6%
488	Support Activities for Transportation	6.956	16.196	0.233	0.563	-58.7%
492	Couriers and Messengers	4.734	21.643	0.457	0.563	-18.8%
493	Warehousing and Storage	3.882	11.243	0.290	0.563	-48.6%
	<b>Total</b>	23.471	81.217	0.346		

- Subclasses K22, K23, K24, K25 and K27 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses K21 and K26 do not. Except for subclass K25, subclasses K21, K22, K23, K24, K26 and K27 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC to set a reliable premium rate.
- However, merging the similar low risk disparity subclasses (K21, K22, K23, K24, K25, K26 and K27) together to form a new Class K2 that has a lower risk profile (0.346), as compared to the original Class K risk profile (0.563), reduces the original risk disparity differences in most instances.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
481	0.452	0.346	30.5%
485	0.447	0.346	29.2%
486	0.161	0.346	-53.6%
487	0.284	0.346	-18.0%
488	0.233	0.346	-32.7%
492	0.457	0.346	32.1%
493	0.290	0.346	-16.3%

Note: A further review of this class has shown that going to the next level of NAICS (i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

# Risk Disparity Analysis – L Information & Culture

- Class **L Information & Culture** (NAICS # 511-512-515-517-518-519) is based on the experience of:
  - L1: Publishing Industries (except Internet) (NAICS # 511)
  - L2: Motion Picture and Sound Recording Industries (NAICS # 512)
  - L3: Broadcasting (except Internet) (NAICS # 515)
  - L4: Telecommunications (NAICS # 517)
  - L5: Data Processing, Hosting and Related Services (NAICS # 518)
  - L6: Other Information Services (NAICS # 519)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class L Risk Profile	Difference
511	Publishing Industries (except Internet)	7.230	4.366	0.060	0.053	13.3%
512	Motion Picture and Sound Recording Industries	2.079	2.224	0.107	0.053	100.8%
515	Broadcasting (except Internet)	0.410	0.072	0.018	0.053	-67.1%
517	Telecommunications	8.142	2.774	0.034	0.053	-36.1%
518	Data Processing, Hosting, and Related Services	0.000	0.000	N/A	0.053	-
519	Other Information Services	0.669	0.440	0.066	0.053	23.2%
	<b>Total</b>	18.529	9.876	0.053		

- Subclasses L2 , L3 , L4 and L6 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses L1 and L5 do not.
- All of the subclasses do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC to set a reliable premium rate.
- In addition, merging the similar low risk disparity subclasses (L3 and L4) together to form a subclass (total IE of \$8.552B and CC of \$2.846M), or merging the similar high risk disparity subclasses (L1, L2 and L6) together to form a subclass (total IE of \$9.978B and CC of \$7.030M), does not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC.
- Consequently, this Class should not be expanded into further subclasses.

# Risk Disparity Analysis – M Finance

- Class **M Finance** (NAICS # 52-53-55) is based on the experience of:
  - M1: Monetary Authorities - Central Bank (NAICS # 521)
  - M2: Credit Intermediation and Related Activities (NAICS # 522)
  - M3: Securities, Commodity Contracts (NAICS # 523)
  - M4: Insurance Carriers and Related Activities (NAICS # 524)
  - M5: Funds and Other Financial Vehicles (NAICS # 526)
  - M6: Real Estate (NAICS # 531)
  - M7: Rental and Leasing Services (NAICS # 532)
  - M8: Lessors of Non-Financial Intangible Assets (NAICS # 533)
  - M9: Mgmt. of Companies and Enterprises (NAICS # 551)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class M Risk Profile	Difference
521	Monetary Authorities - Central Bank	0.000	0.000	N/A	0.158	-
522	Credit Intermediation and Related Activities	2.111	1.174	0.056	0.158	-64.8%
523	Securities, Commodity Contracts, & Other Financial Investment & Related Activities	0.541	0.013	0.002	0.158	-98.5%
524	Insurance Carriers and Related Activities	0.508	0.594	0.117	0.158	-25.9%
526	Funds and Other Financial Vehicles	0.339	0.020	0.006	0.158	-96.2%
531	Real Estate	10.459	15.896	0.152	0.158	-3.8%
532	Rental and Leasing Services	4.466	11.817	0.265	0.158	67.4%
533	Lessors of Non-Financial Intangible Assets (Except Copyrighted Works)	0.379	0.257	0.068	0.158	-57.0%
551	Management of Companies and Enterprises	0.053	0.026	0.049	0.158	-69.1%
	<b>Total</b>	18.855	29.799	0.158		

- Subclasses M2, M3, M4, M5, M7, M8 and M9 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses M1 and M6 do not. Except for subclass M6, subclasses M1, M2, M3, M4, M5, M7, M8 and M9 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC to set a reliable premium rate.
- In addition, merging the similar low risk disparity subclasses (M2, M3, M4, M5, M8 and M9) together to form a subclass (total IE of \$3.930B and CC of \$2.085M), does not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC.
- Consequently, this Class should not be expanded into further subclasses.

# Risk Disparity Analysis – N Professional, Scientific & Technical

- Class **N Professional, Scientific & Technical** (NAICS # 54) is based on the experience of:
  - N1: Legal Services (NAICS # 5411)
  - N2: Accounting, Tax Preparation, Bookkeeping (NAICS # 5412)
  - N3: Architectural, Engineering and Related Services (NAICS # 5413)
  - N4: Specialized Design Services (NAICS # 5414)
  - N5: Computer Systems Design & Related (NAICS # 5415)
  - N6: Management, Scientific and Technical Services (NAICS # 5416)
  - N7: Science Research (NAICS # 5417)
  - N8: Advertising, Public Relations (NAICS # 5418)
  - N9: Other Professional, Scientific (NAICS # 5419)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class N Risk Profile	Difference
5411	Legal Services	0.438	0.089	0.020	0.053	-62.2%
5412	Accounting, Tax Preparation, Bookkeeping and Payroll Services	9.372	0.992	0.011	0.053	-80.2%
5413	Architectural, Engineering and Related Services	22.950	14.083	0.061	0.053	14.8%
5414	Specialized Design Services	1.702	1.680	0.099	0.053	84.7%
5415	Computer Systems Design and Related Services	12.552	1.656	0.013	0.053	-75.3%
5416	Management, Scientific and Technical Consulting Services	2.974	1.096	0.037	0.053	-31.1%
5417	Scientific Research and Development Services	2.749	2.068	0.075	0.053	40.7%
5418	Advertising, Public Relations, and Related Services	0.383	0.077	0.020	0.053	-62.5%
5419	Other Professional, Scientific and Technical Services	0.259	6.796	2.626	0.053	4811.4%
	<b>Total</b>	53.378	28.537	0.053		

- Subclasses N1, N2, N4, N5, N6, N7, N8 and N9 meet the risk disparity rule (difference is greater than +/-20%), whereas subclass N3 does not.
- Except for subclasses N3 and N5 subclasses N1, N2, N4, N6, N7, N8 and N9 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC to set a reliable premium rate.
- Recent history has shown that expanding the subclasses further (especially those with low insurable earnings) would change the makeup of the current class structure on an ongoing basis. Keeping Class N together absorbs the annual fluctuations that could occur at a more detailed level.
- Consequently, this Class should not be expanded into further subclasses.



# Risk Disparity Analysis – O Administrative, Waste & Remediation

- Class **O Administrative, Waste & Remediation** (NAICS # 54) is based on the experience of:
  - O1: Office Administrative Services (NAICS # 5611)
  - O2: Facilities Support Services (NAICS # 5612)
  - O3: Employment Services (NAICS # 5613)
  - O4: Business Support Services (NAICS # 5614)
  - O5: Travel Arrangement and Reservation Services (NAICS # 5615)
  - O6: Investigation and Security Services (NAICS # 5616)
  - O7: Services to Buildings and Dwellings (NAICS # 5617)
  - O8: Other Support Services (NAICS # 5619)
  - O9: Waste Collection (NAICS # 5621)
  - O10: Waste Treatment and Disposal (NAICS # 5622)
  - O11: Remediation and Other Waste Management Services (NAICS # 5629)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class O Risk Profile	Difference
5611	Office Administrative Services	0.000	0.000	N/A	0.316	-
5612	Facilities Support Services	0.000	0.000	N/A	0.316	-
5613	Employment Services (excluding TEA's)	0.812	0.000	0.043	0.316	-86.4%
5614	Business Support Services	4.769	5.130	0.108	0.316	-65.9%
5615	Travel Arrangement and Reservation Services	0.154	0.105	0.068	0.316	-78.5%
5616	Investigation and Security Services	6.857	11.924	0.174	0.316	-44.9%
5617	Services to Buildings and Dwellings	10.444	48.856	0.468	0.316	48.1%
5619	Other Support Services	1.309	5.613	0.429	0.316	35.7%
5621	Waste Collection	2.704	21.268	0.786	0.316	149.0%
5622	Waste Treatment and Disposal	0.321	2.138	0.665	0.316	110.6%
5629	Remediation and Other Waste Management Services	0.174	1.936	1.110	0.316	251.4%

- Subclasses O3 ,O4, O5, O6, O7, O8, O9, O10 and O11 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses O1 and O2 do not.
- Subclass O7 meets the actuarial predictability threshold, whereas subclasses O1, O2, O3, O4, O5, O6, O8, O9, O10 and O11 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Consequently, this Class should not be expanded into further subclasses.



# Risk Disparity Analysis – P Hospitals

- Class **P Hospitals** (NAICS # 622) is based on the experience of:
  - P1: General Medical and Surgical Hospitals (NAICS # 6221)
  - P2: Psychiatric and Substance Abuse Hospitals (NAICS # 6222)
  - P3: Specialty(except Psychiatric and Substance Abuse) Hospitals (NAICS # 6223)

NAICS #	Class Description	Insurable Earnings 5 years (\$B)	Claims Costs 5 years (\$M)	Subclass Risk Profile	Class P Risk Profile	Difference
6221	General Medical and Surgical Hospitals	62.441	68.194	0.109	0.115	-5.0%
6222	Psychiatric and Substance Abuse Hospitals	2.770	6.276	0.227	0.115	97.0%
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	3.496	4.542	0.130	0.115	13.0%
	<b>Total</b>	68.707	79.012	0.115		

- Subclass P2 meets the risk disparity rule (difference is greater than +/-20%), whereas subclasses P1 and P3 do not.
- Subclass P1 meets the actuarial predictability threshold, whereas subclasses P2 and P3 do not meet the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Consequently, this Class should not be expanded into further subclasses.

# Risk Disparity Analysis – Q1 Nursing & Residential Care Facilities

- Class **Q1 Nursing & Residential Care Facilities** (NAICS # 623) is based on the experience of:
  - Q1: Nursing and Residential Care Facilities (NAICS # 623)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class Q Risk Profile	Difference
623	Nursing and Residential Care Facilities	21.361	77.573	0.363	0.256	41.9%
	<b>Total</b>	21.361	77.573	0.363		

- Subclass Q1 meets the risk disparity rule (difference is greater than +/- 20%) and meets the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, separating Class Q1 from Class Q to form a new class that has a higher risk profile (0.363), as compared to the original Class Q risk profile (0.256), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
623	0.363	0.363	0.0%

Note: A further review of this class has shown that going to the next level of NAICS (i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

## Risk Disparity Analysis – Q21 Ambulatory Health Care

- Class **Q21 Ambulatory Health Care** (NAICS # 621) is based on the experience of:
  - Q21: Ambulatory Health Care Services (NAICS # 621)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class Q Risk Profile	Difference
621	Ambulatory Health Care Services	19.189	38.996	0.203	0.256	-20.6%
	<b>Total</b>	19.189	38.996	0.203		

- Subclass Q21 meets the risk disparity rule (difference is greater than +/- 20%) and meets the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, separating Class Q21 from Class Q to form a new class that has a lower risk profile (0.203), as compared to the original Class Q risk profile (0.256), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
621	0.203	0.203	0.0%

Note: A further review of this class has shown that going to the next level of NAICS (i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

## Risk Disparity Analysis – Q22 Social Assistance

- Class **Q22 Social Assistance** (NAICS # 624) is based on the experience of:
  - Q22: Social Assistance (NAICS # 624)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class Q Risk Profile	Difference
624	Social Assistance	13.957	22.880	0.164	0.256	-35.9%
	<b>Total</b>	13.957	22.880	0.164		

- Subclass Q22 meets the risk disparity rule (difference is greater than +/- 20%) and meets the actuarial predictability threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- However, separating Class Q22 from Class Q to form a new class that has a lower risk profile (0.164), as compared to the original Class Q risk profile (0.256), reduces the original risk disparity differences.

NAICS #	Subclass Risk Profile	Revised Class Risk Profile	Difference
624	0.164	0.164	0.0%

Note: A further review of this class has shown that going to the next level of NAICS(i.e. to the 4 digit level) is not possible, since it will not meet the actuarial predictability threshold necessary to form a distinct industry class.

# Risk Disparity Analysis – R Leisure & Hospitality

- Class **R Leisure & Hospitality** (NAICS # 71-72) is based on the experience of:
  - R1: Performing Arts, Spectator Sports and Related Industries (NAICS # 711)
  - R2: Heritage Institutions (NAICS # 712)
  - R3: Amusement, Gambling and Recreation Industries (NAICS # 713)
  - R4: Accommodation Services (NAICS # 721)
  - R5: Food Services and Drinking Places (NAICS # 722)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class R Risk Profile	Difference
711	Performing Arts, Spectator Sports and Related Industries	0.848	1.833	0.216	0.190	13.8%
712	Heritage Institutions	0.735	1.379	0.188	0.190	-1.2%
713	Amusement, Gambling and Recreation Industries	4.942	10.789	0.218	0.190	14.9%
721	Accommodation Services	4.422	14.271	0.323	0.190	69.9%
722	Food Services and Drinking Places	36.336	61.548	0.169	0.190	-10.8%
	<b>Total</b>	47.282	89.820	0.190		

- Subclass R4 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses R1, R2, R3 and R5 do not.
- Subclass R5 meets the actuarial predictability threshold, whereas subclasses R1, R2, R3 and R4 do not meet the threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Consequently, this Class should not be expanded into further subclasses.

# Risk Disparity Analysis – S Other Services

- Class **S Other Services** (NAICS # 81) is based on the experience of:
  - S1: Repair and Maintenance (NAICS # 811)
  - S2: Personal and Laundry Services (NAICS # 812)
  - S3: Religious, Grant-Making, Civic and Professional and Similar Organizations (NAICS # 813)
  - S4: Private Households (NAICS # 814)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class S Risk Profile	Difference
811	Repair and Maintenance	18.538	58.530	0.316	0.259	22.1%
812	Personal and Laundry Services	2.761	8.480	0.307	0.259	18.8%
813	Religious, Grant-Making, Civic, and Professional and Similar Orgs.	7.881	7.959	0.101	0.259	-60.9%
814	Private Households	0.954	2.952	0.309	0.259	19.7%
	Total	30.134	77.921	0.259		

- Subclasses S1 and S3 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses S2 and S4 do not.
- Subclass S1 meets the actuarial predictability threshold, whereas subclasses S2, S3 and S4 do not meet the threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Consequently, this Class should not be expanded into further subclasses.

# Risk Disparity Analysis – T Education

- Class **T Education** (NAICS # 61) is based on the experience of:
  - T1: Elementary and Secondary Schools (NAICS # 6111)
  - T2: Community Colleges and C.E.G.E.P.s (NAICS # 6112)
  - T3: Universities (NAICS # 6113)
  - T4: Business Schools and Computer and Management Training (NAICS # 6114)
  - T5: Technical and Trade Schools (NAICS # 6115)
  - T6: Other Schools and Instruction (NAICS # 6116)
  - T7: Educational Support Services (NAICS # 6117)

NAICS #	Class Description	Insurable Earnings 6 years (\$B)	Claims Costs 6 years (\$M)	Subclass Risk Profile	Class T Risk Profile	Difference
6111	Elementary and Secondary Schools	4.112	3.606	0.088	0.042	108.4%
6112	Community Colleges and C.E.G.E.P.s	5.017	1.434	0.029	0.042	-32.1%
6113	Universities	25.910	9.670	0.037	0.042	-11.3%
6114	Business Schools and Computer and Management Training	0.000	0.000	N/A	0.042	-
6115	Technical and Trade Schools	0.000	0.000	N/A	0.042	-
6116	Other Schools and Instruction	1.368	0.611	0.045	0.042	6.2%
6117	Educational Support Services	0.000	0.000	N/A	0.042	-
	<b>Total</b>	36.406	15.321	0.042		

- Subclasses T1 and T2 meet the risk disparity rule (difference is greater than +/-20%), whereas subclasses T3, T4, T5, T6 and T7 do not.
- Subclass T3 meets the actuarial predictability threshold, whereas subclasses T1, T2, T4, T5, T6 and T7 do not meet the threshold of \$12.0B in IE or \$6.0B in IE and \$15.0M in CC in order to set a reliable premium rate.
- Consequently, this Class should not be expanded into further subclasses.

# Next Steps

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- The WSIB will continue to update stakeholders on the risk disparity of the Rate Framework's Industry Classes in order to assure each group of the appropriateness of the structure.
- As noted at our stakeholder session on December 1st 2015, this Risk Disparity Analysis is a continuous monitoring item that would help determine when or if any further changes to the classification structure would be required.
- This will ensure that the structure evolves with any changing risk and experience within a particular industry, rather than holding to a firm number of classes.
- As the implementation of the Rate Framework approaches, the WSIB will consider making amendments to the classification structure based on the information obtained from this analysis and other factors.