



Repeat workers' compensation claims

A prospective analysis in Ontario, Canada and Victoria, Australia

Etches J¹, Mustard CA^{1,2}, Ruseckaite R³ and Collie A^{3,4}

1. Institute for Work & Health, Toronto, Canada
2. Dalla Lana School of Public Health, University of Toronto
3. Institute for Safety, Compensation and Recovery Research, Melbourne
4. School of Public Health and Preventive Medicine, Monash University, Melbourne

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Conclusions

- A large fraction of lost-time claims are repeat claims
- Risk of second claim varies by industry, occupation as for first claims
- Risk of second claim varies little by nature of injury
- A large fraction of repeat claims are with the same employer
- A large fraction of repeat claims are for a different nature of injury
- Risk of repeat claim depends on age & duration of previous claim
- The pattern of repeat claims in Ontario, Victoria and Alberta are similar
- Long-duration claims have lower re-injury risk
- Long-duration claims followed by re-injury had lower wage replacement and medical costs





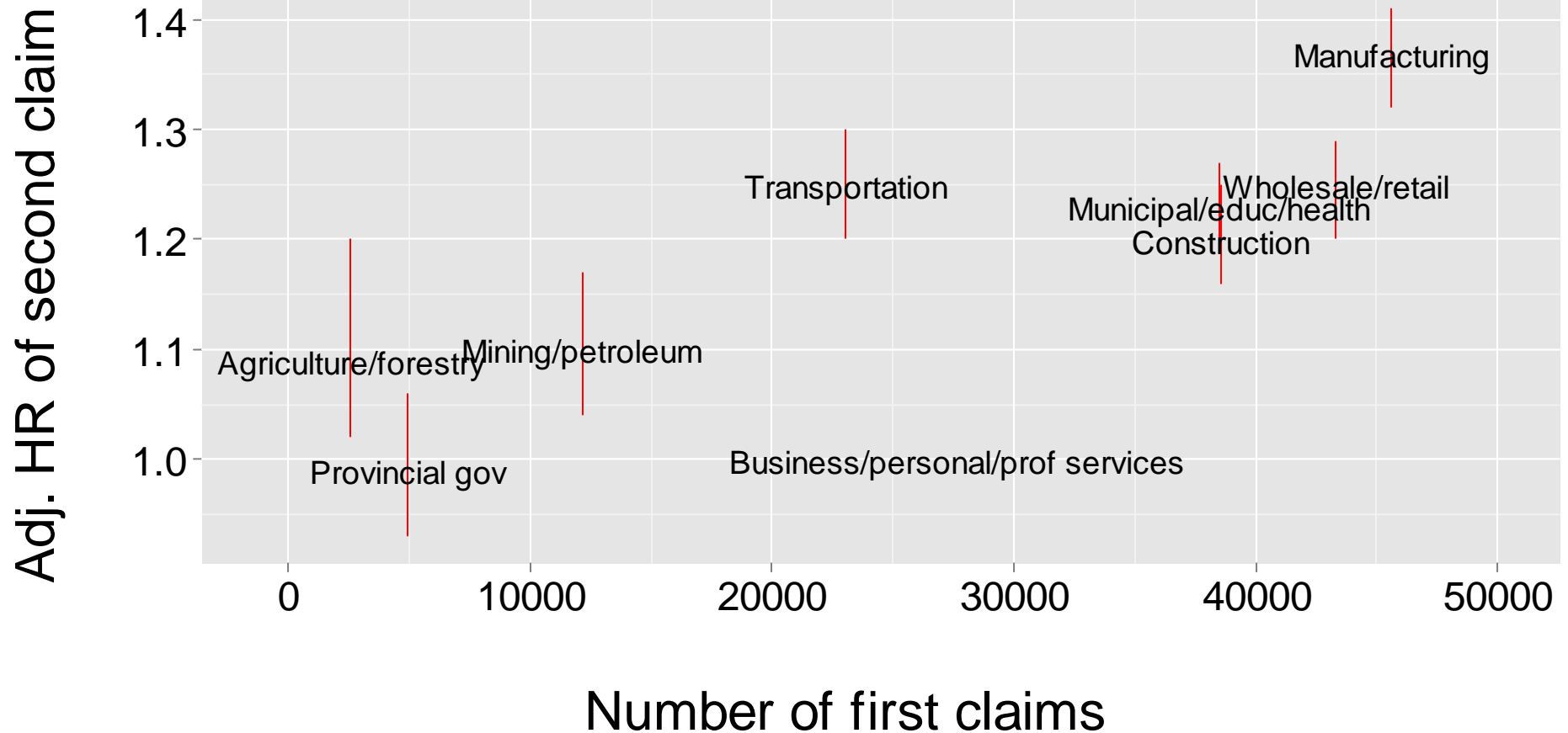
Introduction

- WC claims often assumed independent events
- Alberta
 - Claim = LT + NLT, injury + disease
 - 54.0% of men filed second claim within 0-10 years
 - 37.9% of women filed second claim within 0-10 years
 - 67.6% of 1995 claimants filed second claim by end of 2004
 - 241,000 second claims (not re-opens)
- Victoria
 - First claim = LT (>10 days) + NLT (>\$500), injury only
 - 40.5% of men filed second claim within 9-14 years
 - 31.3% of women filed second claim within 9-14 years
 - 63,000 second claims (often re-opens)





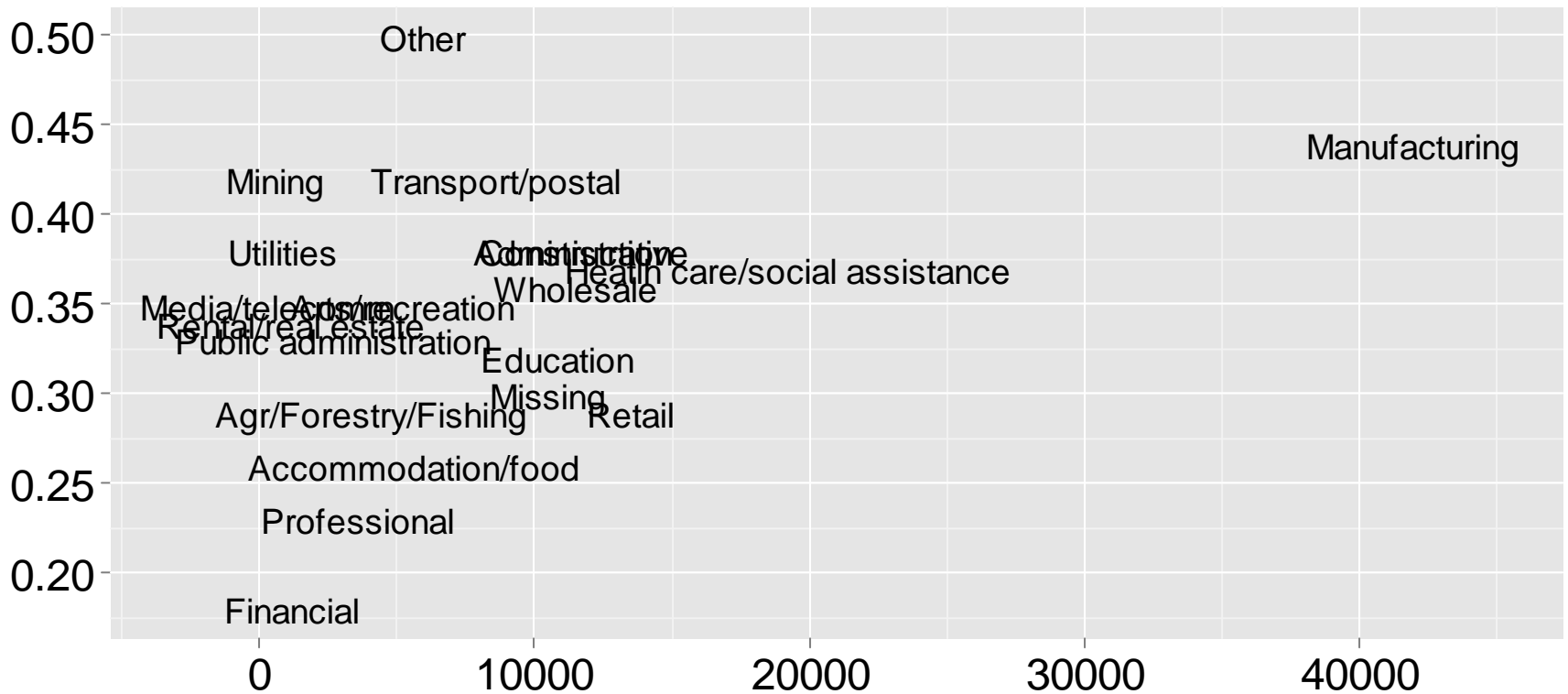
Risk of second claim by industry at first claim (Alberta)





Risk of second claim by industry at first claim (Victoria)

Probability of second claim

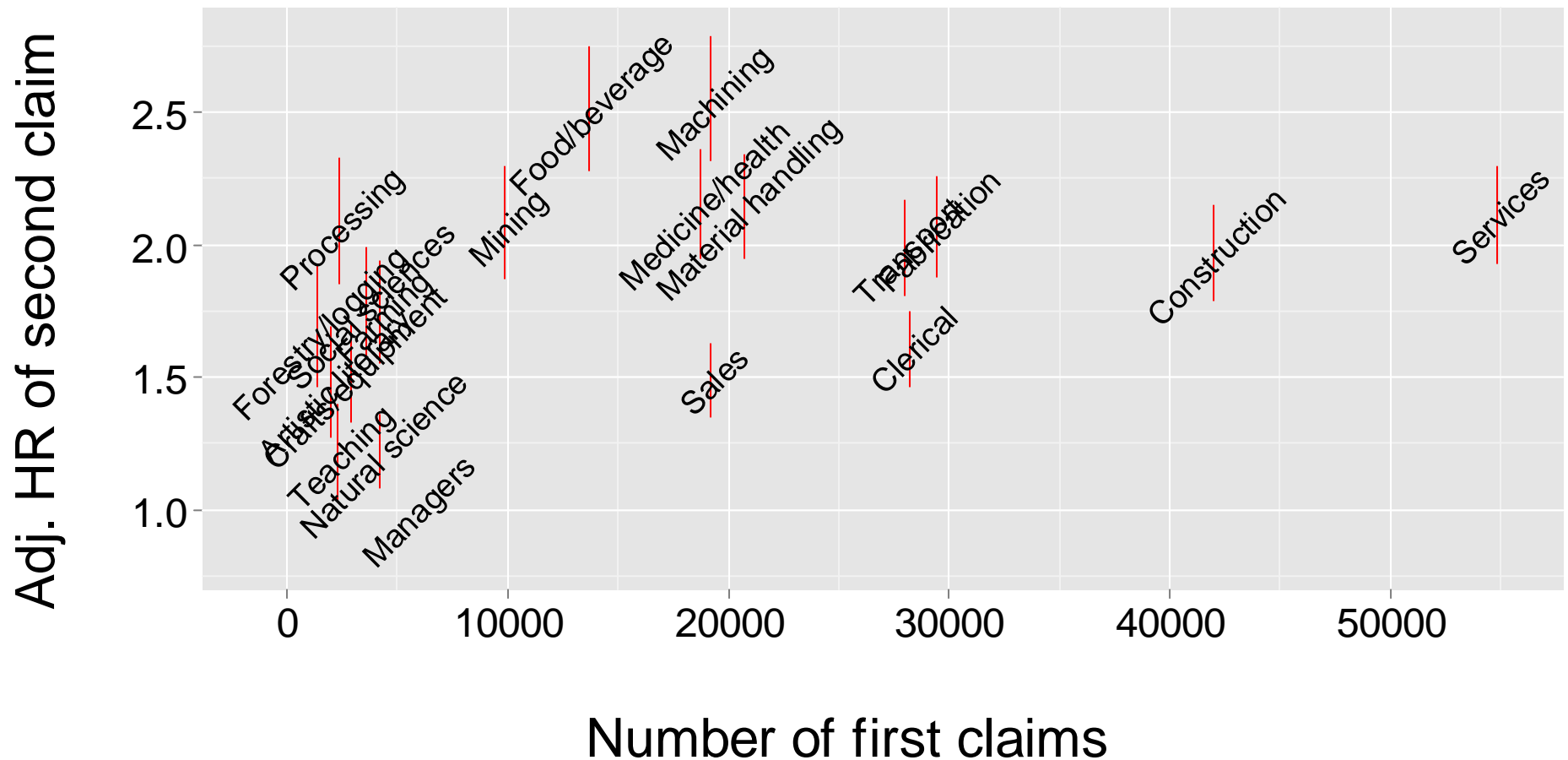


Number of first claims



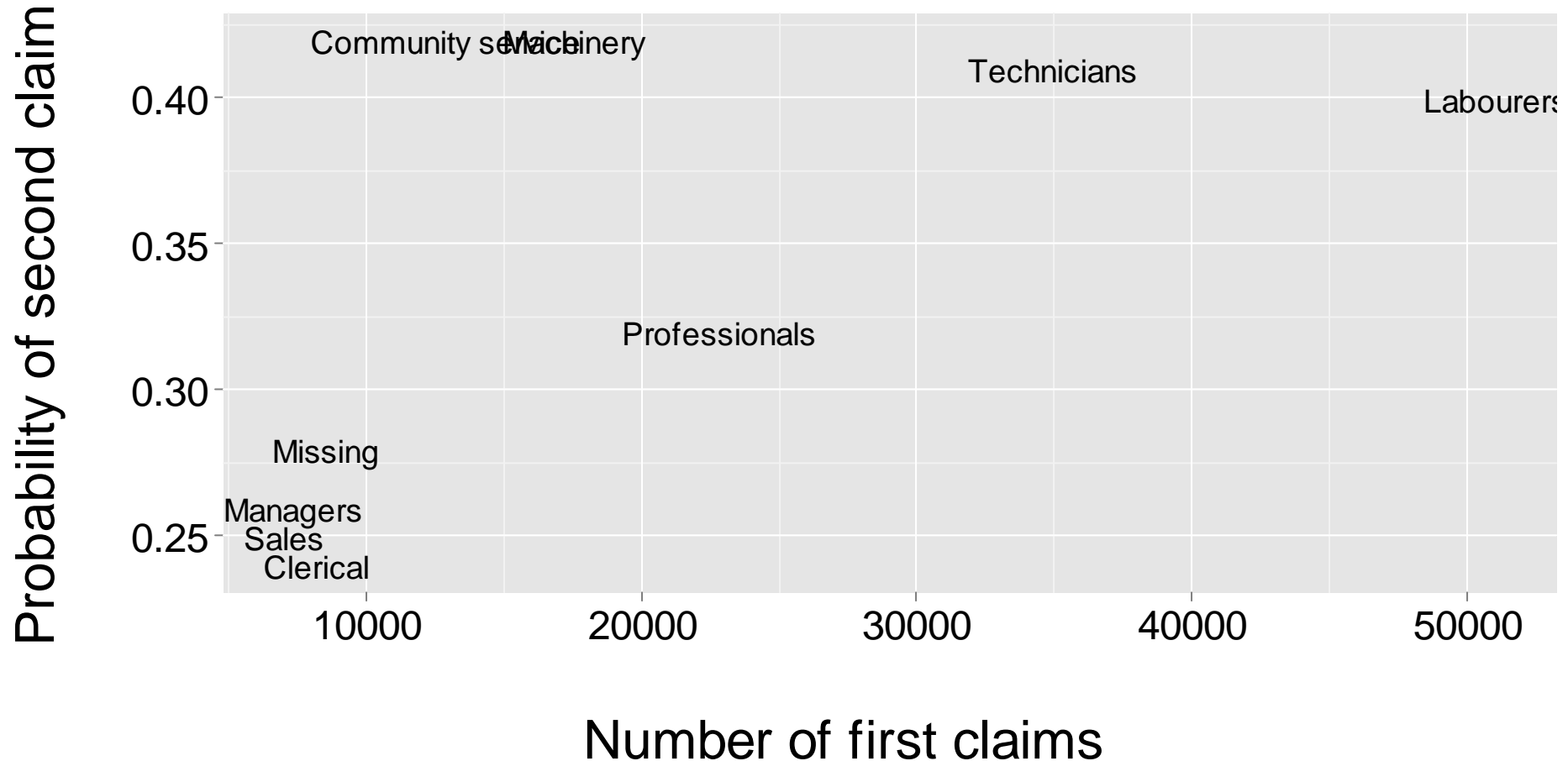


Risk of second claim by occupation at first claim (Alberta)





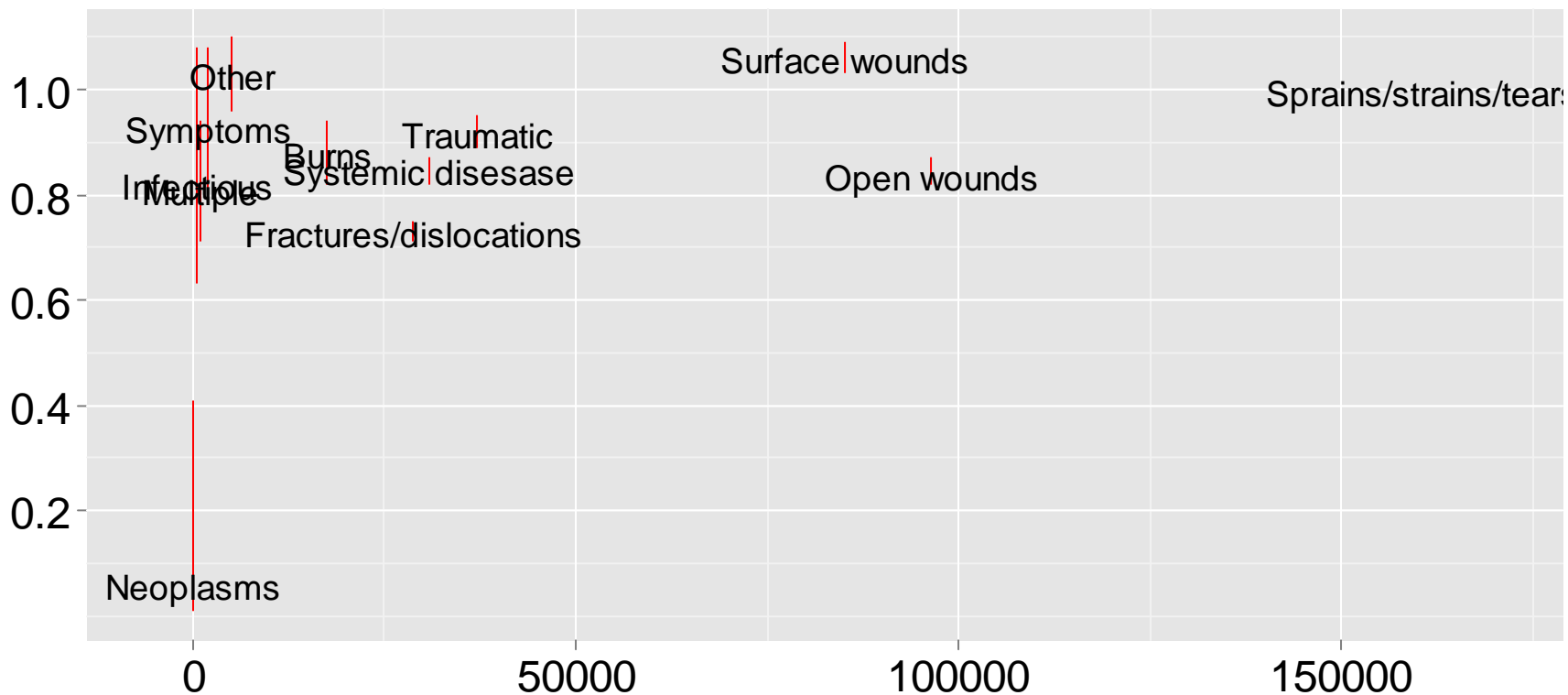
Risk of second claim by occupation at first claim (Victoria)





Risk of second claim by injury type of first claim (Alberta)

Adj. HR of second claim

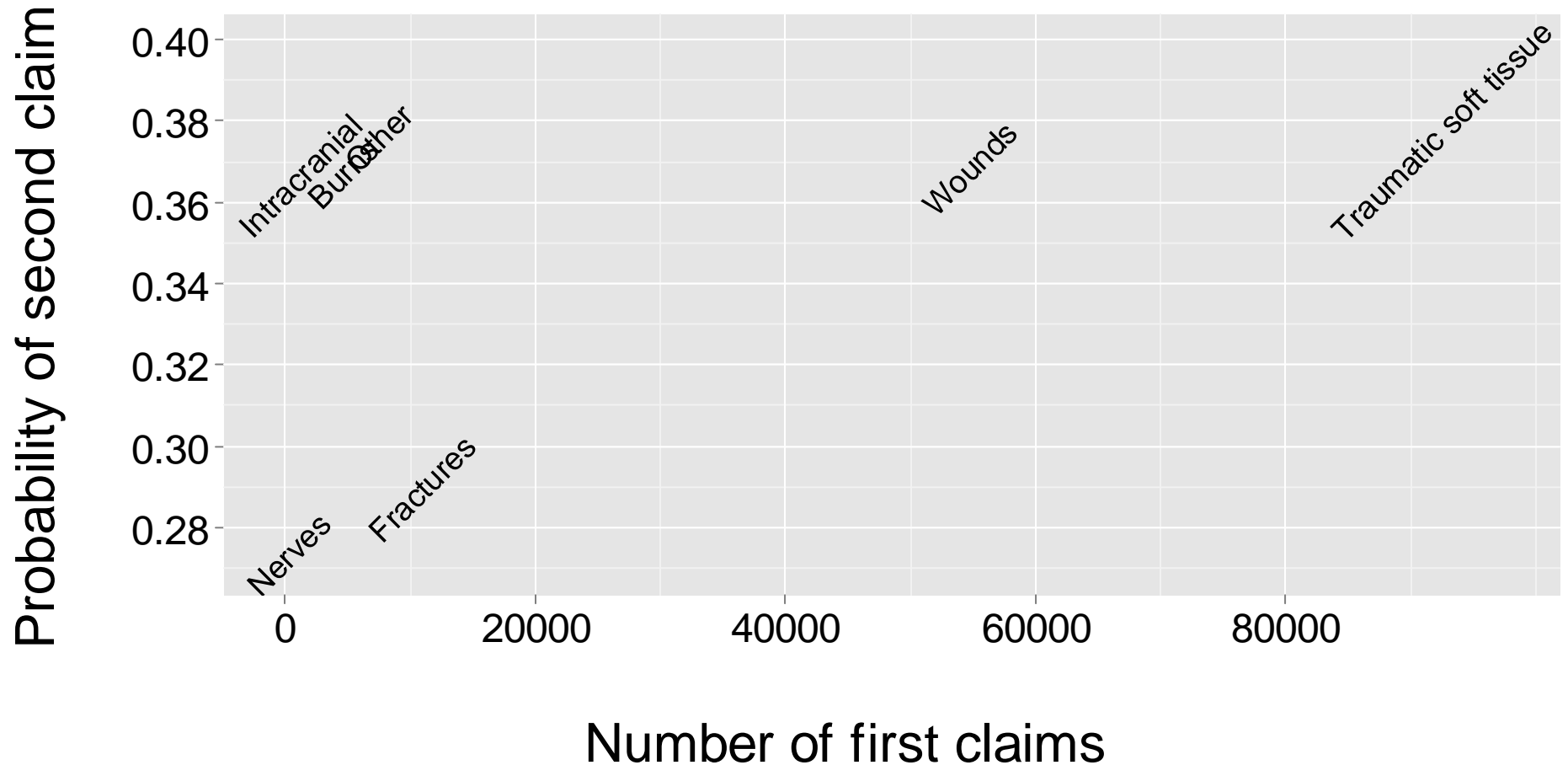


Number of first claims





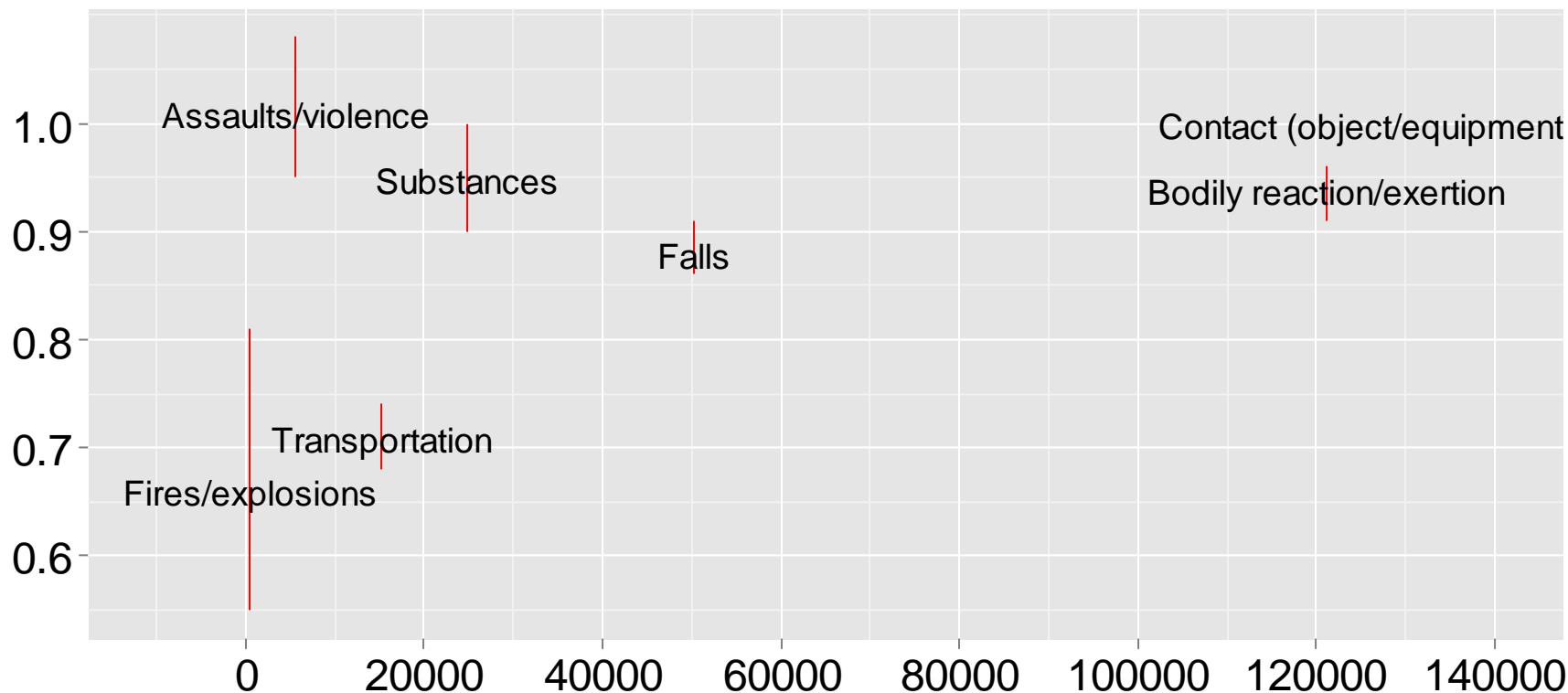
Risk of second claim by affliction at first claim (Victoria)





Risk of second claim by accident type of first claim (Alberta)

Adj. HR of second claim

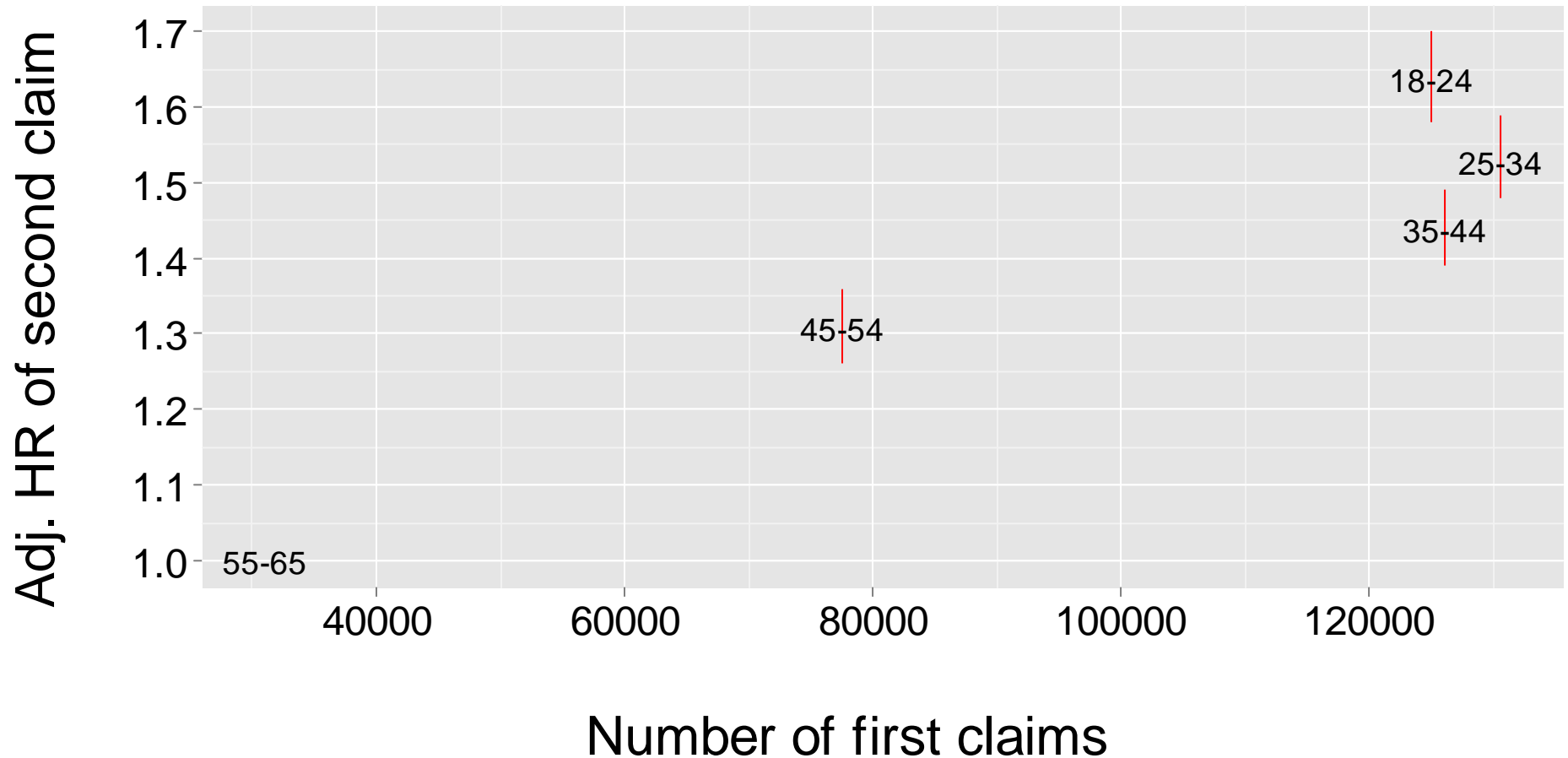


Number of first claims





Risk of second claim by age at first claim (Alberta)





First and second claims of repeat claimants (Victoria)

- Different affliction + different bodily location: 45.5%
- Same industry: 74.8%
- Same occupation: 45.6%
- Same employer: 65.6%
 - Dates of changes unknown





Claim costs and duration (Victoria)

Impact	Single		First		Second	
	Mean	Std	Mean	Std	Mean	Std
Total cost	\$16,731	\$87,011	\$8,813	\$50,938	\$13,147	\$65,100
Total wage replacement	\$5,249	\$30,877	\$2,631	\$18,501	\$4,875	\$27,204
Total medical	\$3,447	\$29,128	\$2,034	\$9,996	\$2,886	\$13,025
Days lost	67	278	42	196	66	244

- Why are the durations and costs so much less for the first claims of repeat claimants?





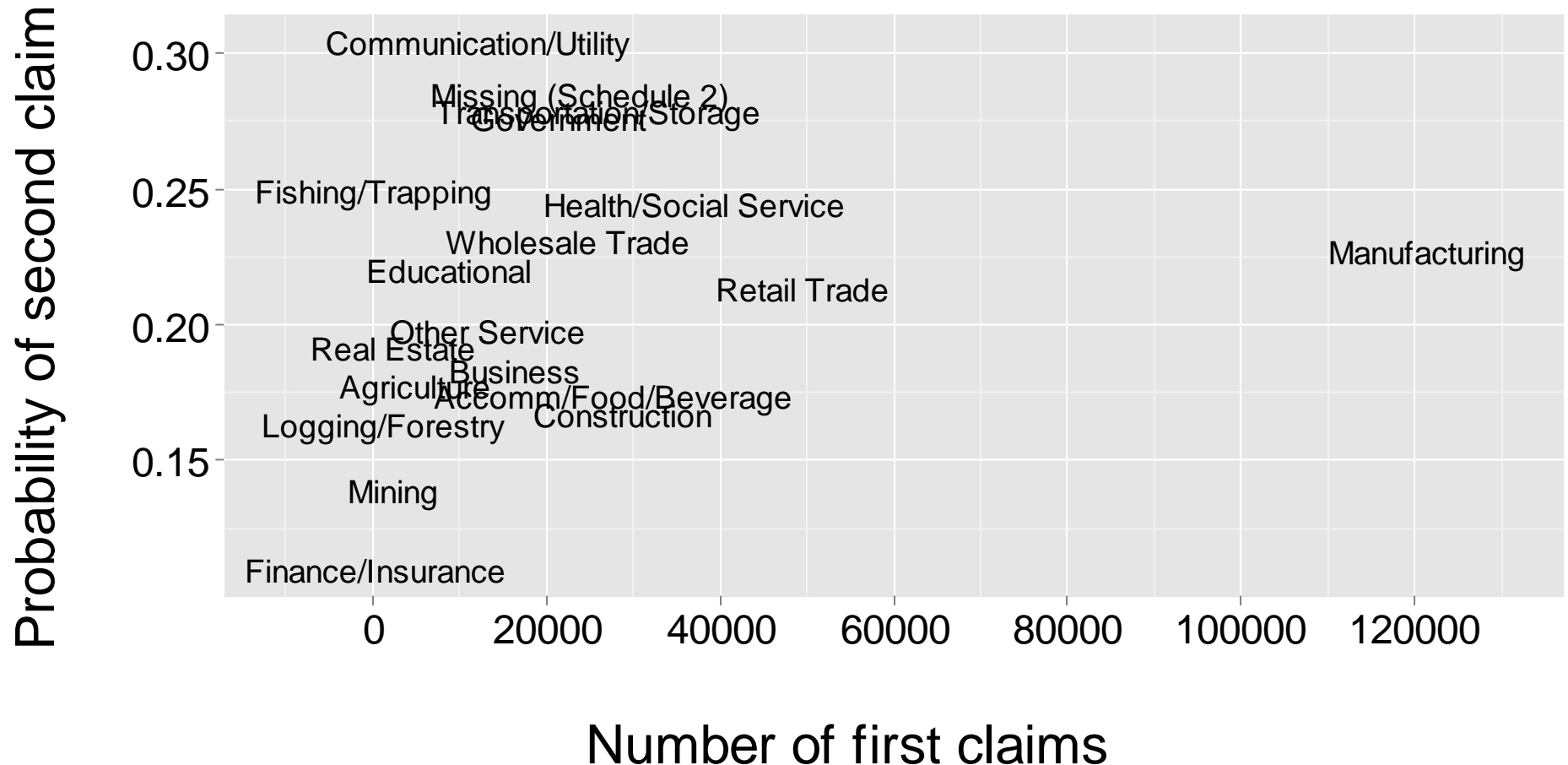
Ontario

- All lost-time claims 2000-01-01 through 2009-12-31
- Injury + disease
- Design 1:
 - 5 year inception cohort 2000-2004, 5 year follow-up from first accident date
 - Similar to Victoria study: Ruseckaite & Collie (2011)
 - 23.6% of men filed second claim within 5 years
 - 21.0% of women filed second claim within 5 years
 - 96,000 second claims (mostly not re-opens)
 - Mostly trivial difference between post-accident date and post-benefit definition of 5 year follow-up



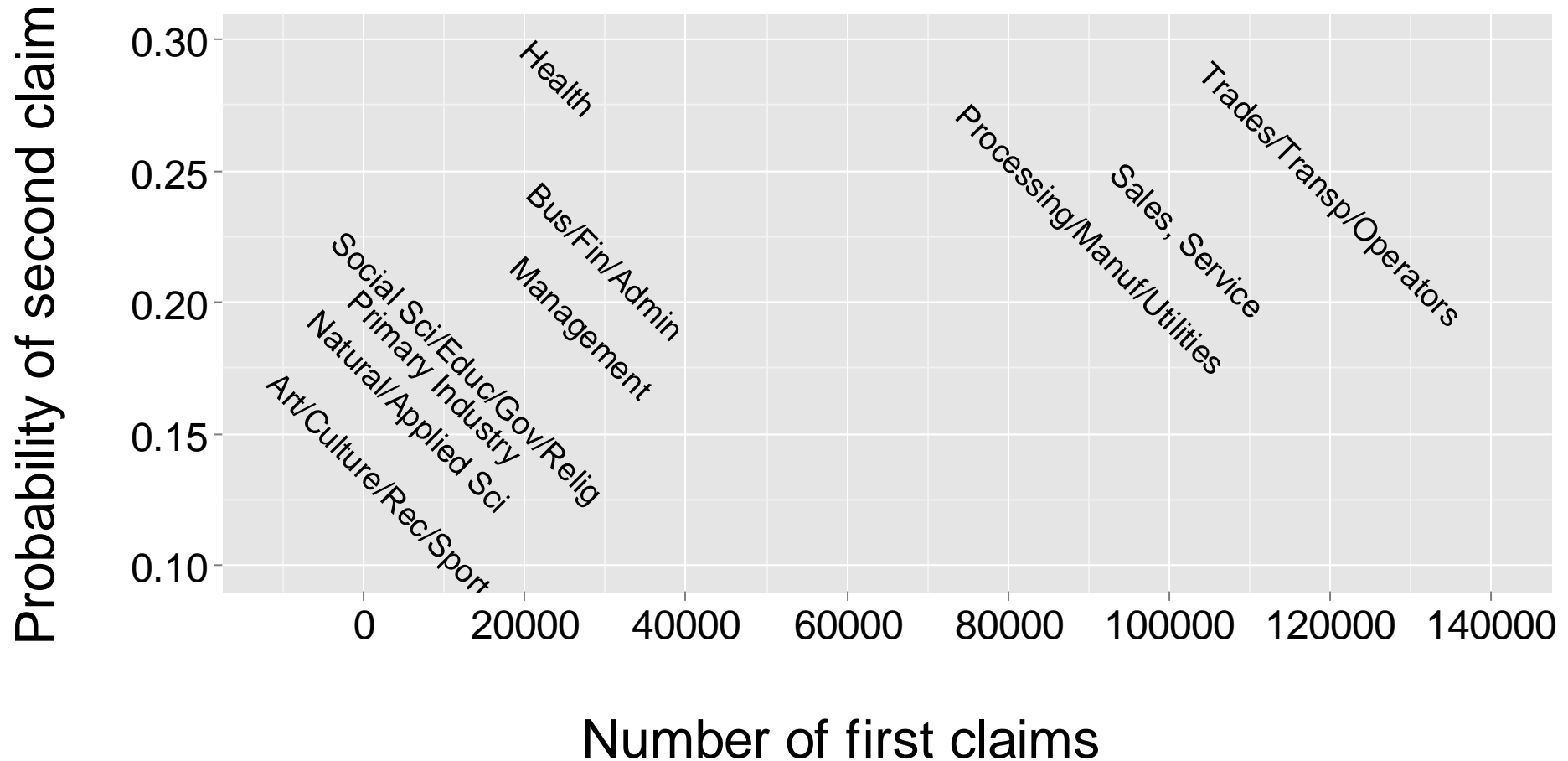


Risk of second claim by industry at first claim (Ontario)



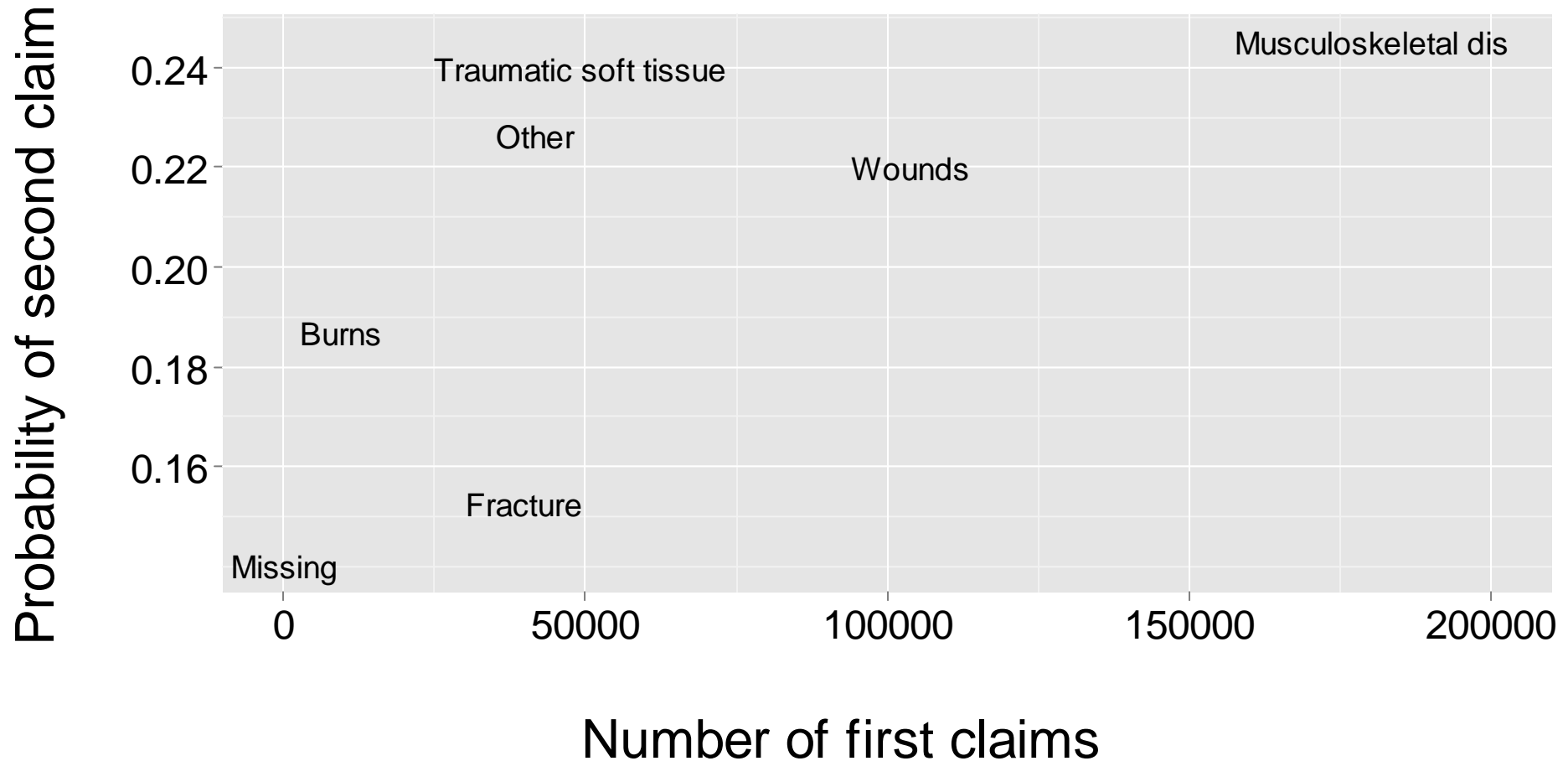


Risk of second claim by occupation at first claim (Ontario)





Risk of second claim by affliction at first claim (Ontario)





First and second claims of repeat claimants (Ontario)

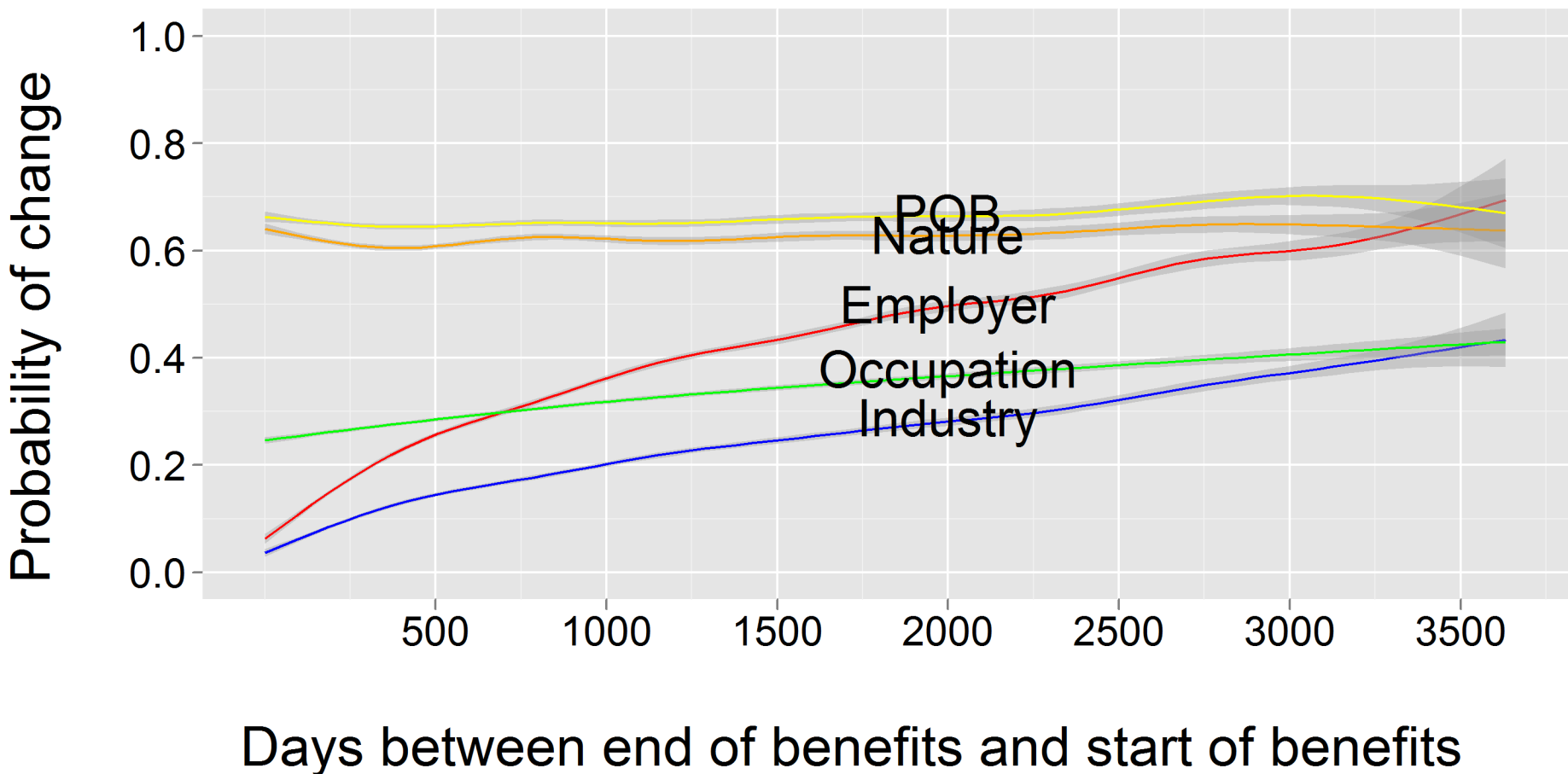
	Ontario	Victoria
Different nature + different bodily location	47.1%	45.5%
Same industry	83.9%	74.8%
Same occupation	69.7%	45.6%
Same employer	71.3%	65.6%

- Dates of changes unknown
- Ontario: 5 year follow-up
- Victoria: 9-14 year follow-up





Probability of second claim being different from first (Ontario)



Measures of agreement between Part of Body codes on first and second claims (Ontario)

Kappa: 0.11 (0.10,0.11)

Test	Chi-square	DF	p
Independence	4095	36	< 0.0001
Quasi-independence	285	29	< 0.0001
Symmetry	241	21	< 0.0001
Quasi-symmetry	34	15	0.003
Marginal homogeneity	207	6	< 0.0001

Number of claim pairs = 96,000





Measures of agreement between Nature of Injury codes on first and second claims (Ontario)

Kappa: 0.11 (0.10,0.11)

Test	Chi-square	DF	P
Independence	3825	25	< 0.0001
Quasi-independence	313	19	< 0.0001
Symmetry	523	15	< 0.0001
Quasi-symmetry	34	10	0.0002
Marginal homogeneity	489	5	< 0.0001

Number of claim pairs = 96,000





Claim costs and duration (Ontario)

Impact	Years*	Single		First		Second	
		Mean	Std	Mean	Std	Mean	Std
Wage replacement (\$)	5	8,523	26,401	2,641	9,821	7,499	23,628
	1	3,164	6,373	1,770	3,794	3,127	6,352
Medical benefits (\$)	5	2,125	16,893	715	2,286	1,810	10,003
	1	1,171	6,411	545	1,424	1,081	4,843
Days of benefits (days)	5	176	452	73	247	150	397
	1	70	117	43	85	66	113

* Dollar amounts accrued during the first year or first 5 years of the claim.





Why are first claims far shorter for repeat claimants?

1. Immortal time bias
 - No, bias is small
2. Labour-force exit
 - Maybe, we don't have the data to test this
3. Effect of prior claim history
 - No, Victoria saw the same pattern using true "first" claims
4. Long-duration claims have lower repeat claim risk
 - Yes, costs and durations for claims < 365 days similar for repeat and non-repeat claimants
 - Labour force exit?
 - Changed occupation/task?





First year claim costs and duration (Ontario)

		Single			First		
		Median	Mean	Std	Median	Mean	Std
Duration < 365	Benefit days	8	33.6	59.1	8	29.7	53.5
	Wage replacement	418	1,611	3,136	413	1,431	2,775
	Medical	143	562	2,071	138	443	1,023
Duration > 365	Benefit days	365	365	0	365	365	0
	Wage replacement	15,380	15,964	10,607	8,335	11,074	9,901
	Medical	3,176	6,249	18,049	2,223	3,227	4,609

- Probability of second claim within 5 years:
 - Duration < 365 = 0.23
 - Duration > 365 = 0.12





Ontario

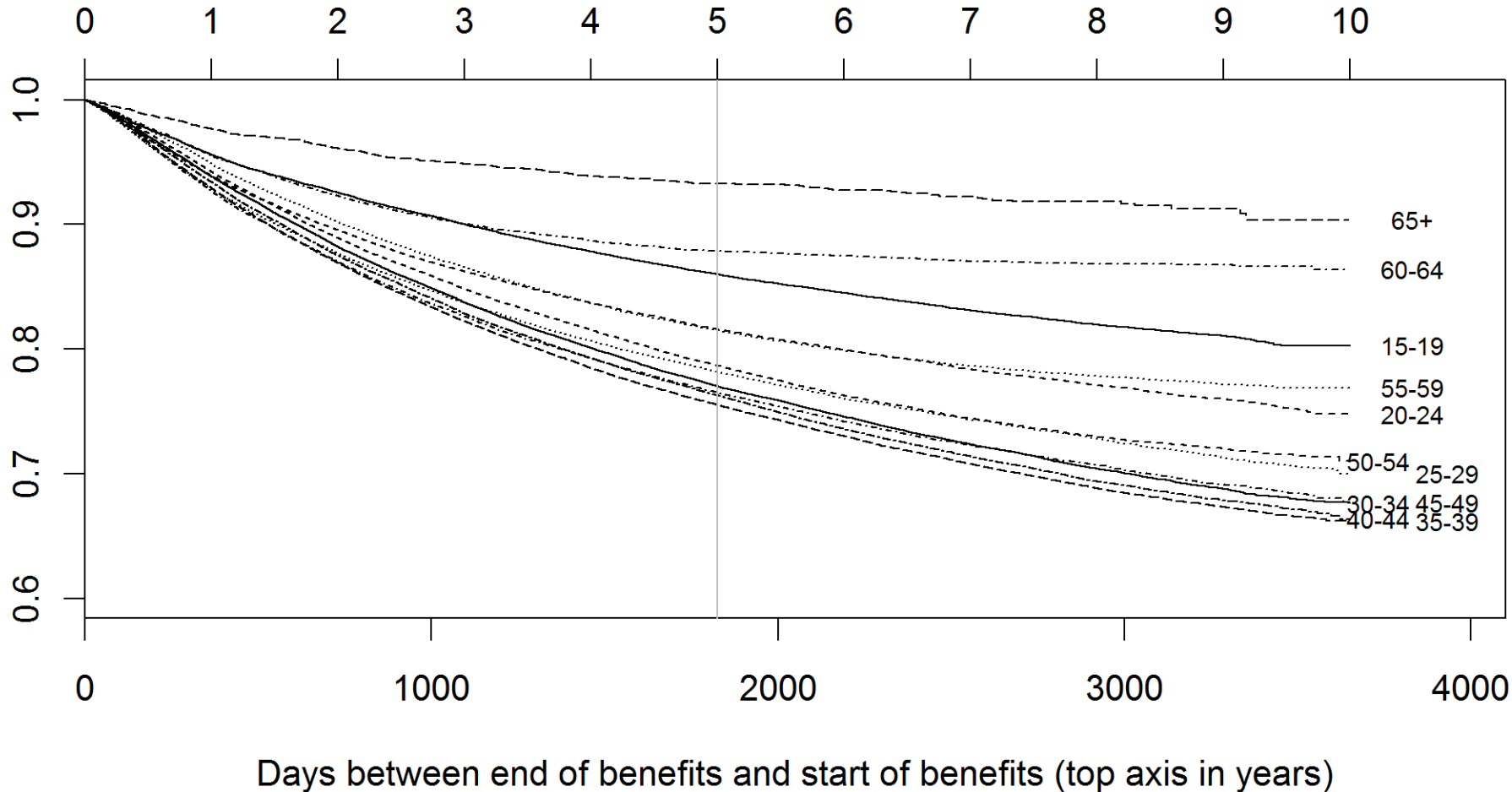
- Design 2:
 - 10 years of time-to-event data
 - Two alternating time-to-event processes
 - Time-to-RTW
 - Time-to-next-claim
 - Unmeasured competing risk: insured labour market exit
 - School
 - Home keeping
 - Non-WC disability benefit
 - Retirement
 - Self-employment
 - Emigration
 - Similar to Alberta study: Cherry et al. (2011)





Reinjury by age at first claim

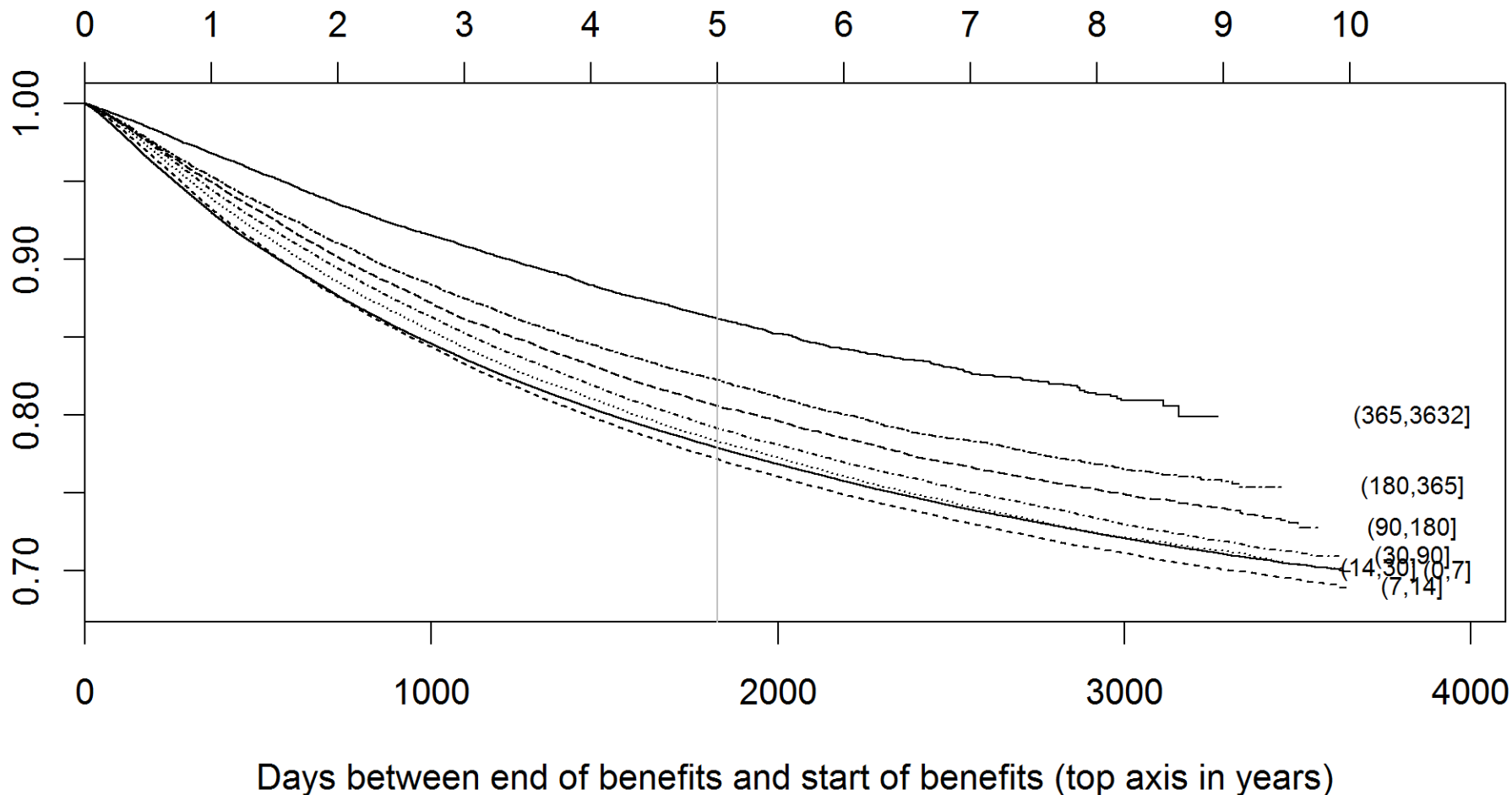
$S(t)$ = Probability of not being reinjured at time t





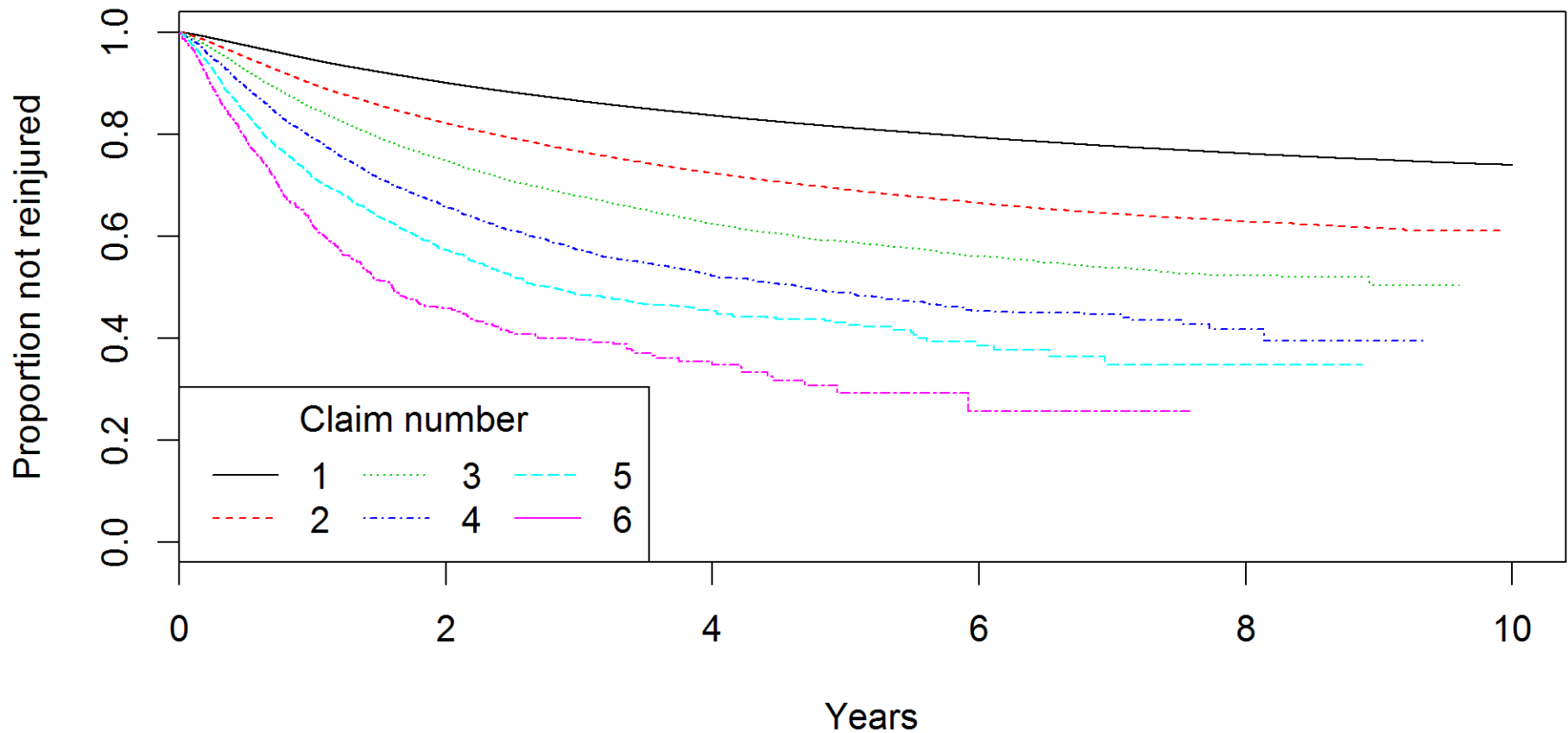
Reinjury by duration of first claim

$S(t)$ = Probability of not being reinjured at time t



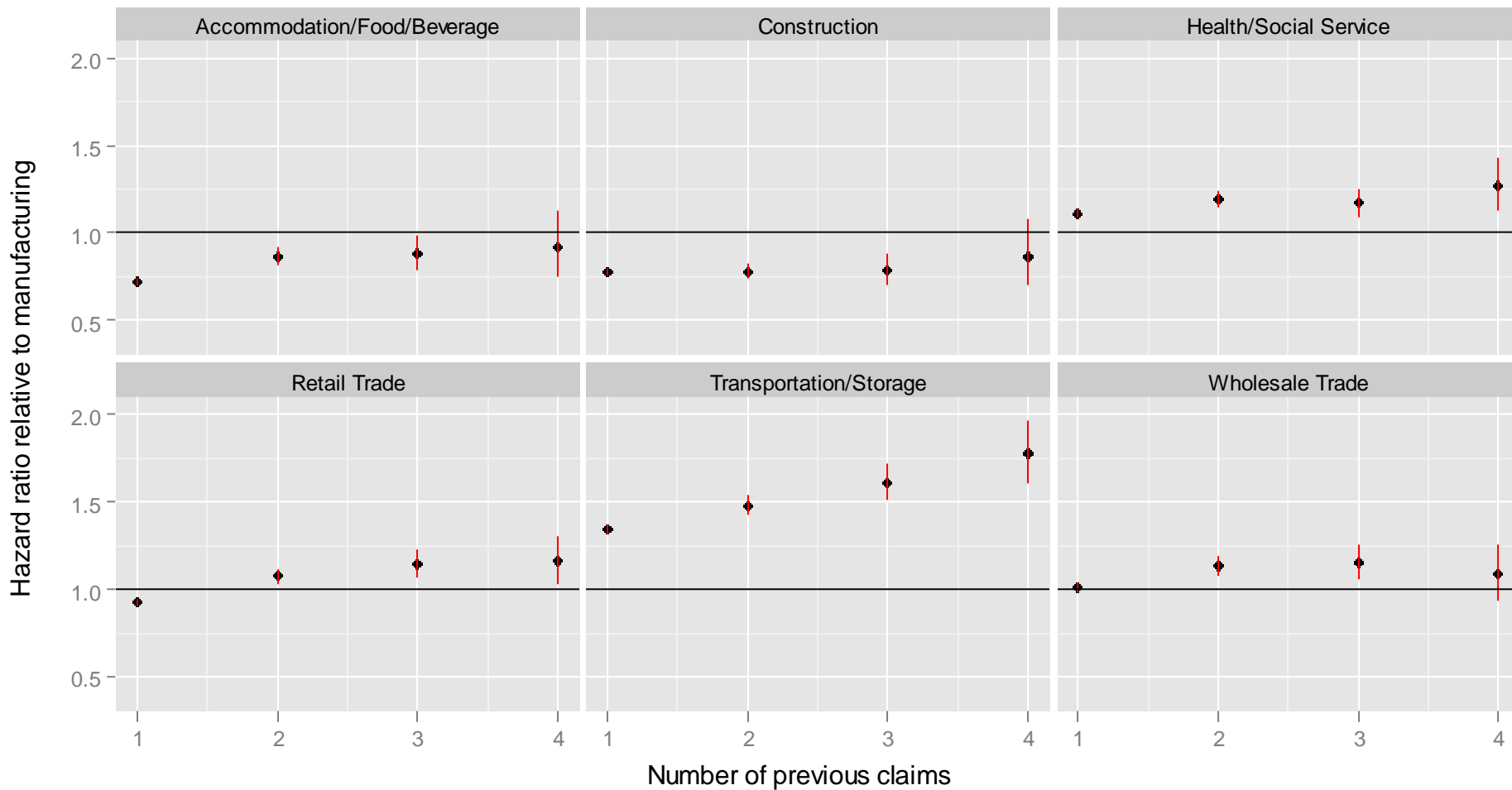


Reinjury by number of previous claims



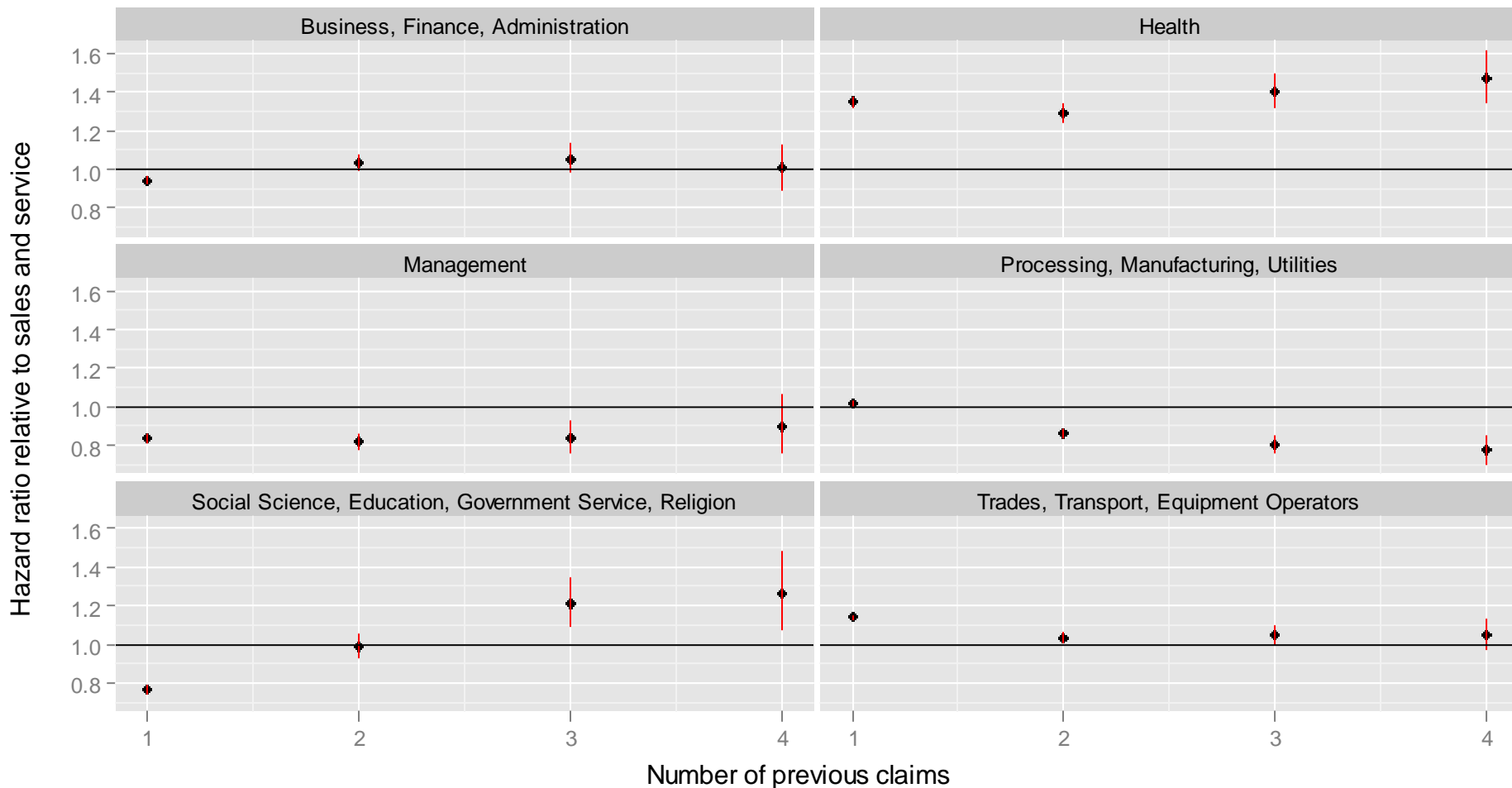


Risk of lost-time claim by industry of previous claim and number of previous claims (Ontario; 2000-2009)





Risk of lost-time claim by occupation of previous claim and number of previous claims (Ontario; 2000-2009)





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www.iwh.on.ca

Jacob Etches
jetches@iwh.on.ca





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