

Determinants of Claim Frequency in CTP Schemes

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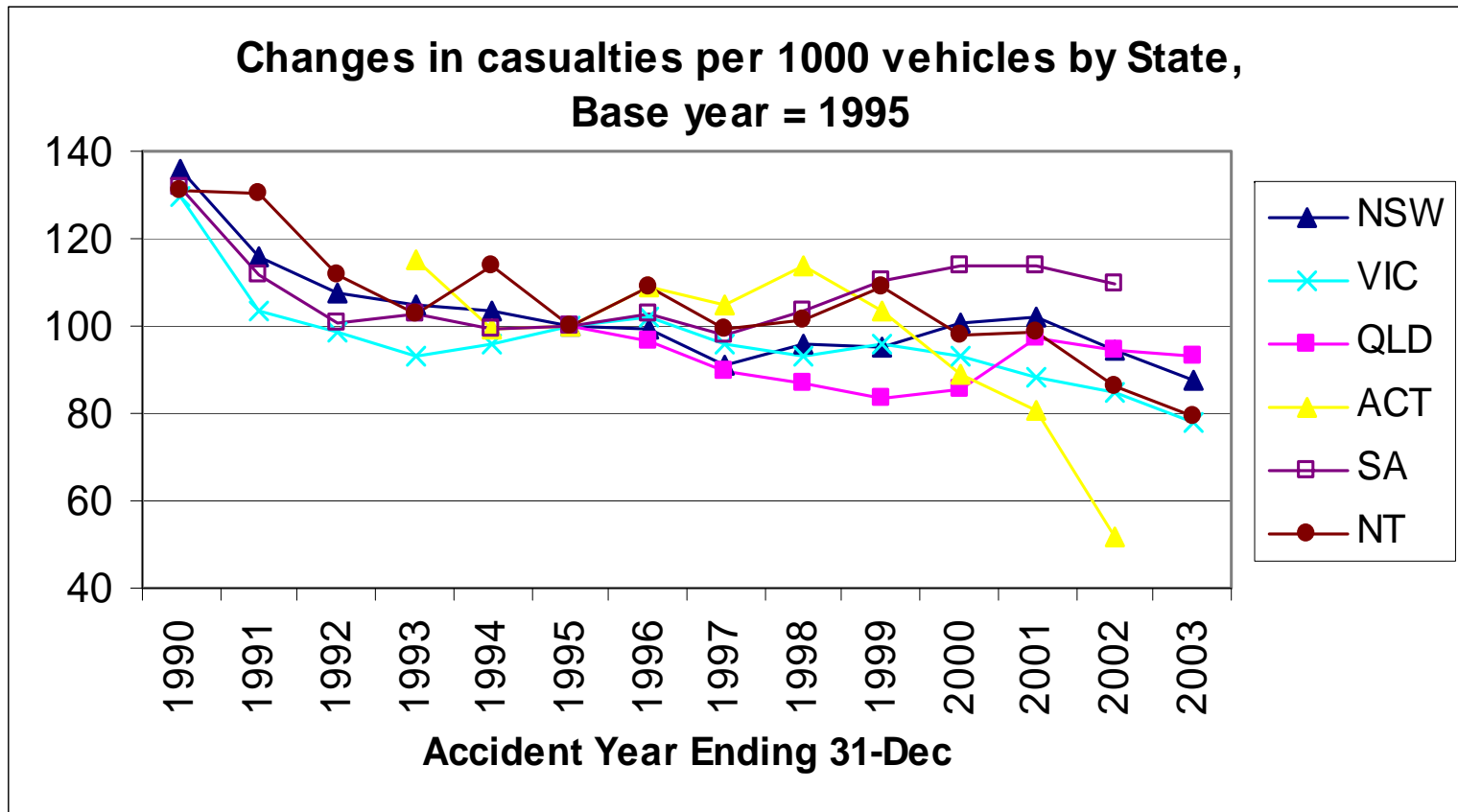


Background

- A reducing trend in casualty rates for most states and territories over the past decade
- This contributes reduction in CTP claims for most states
- Developed a framework to analysis the 'drivers' of reductions in both casualty rates and claim frequency

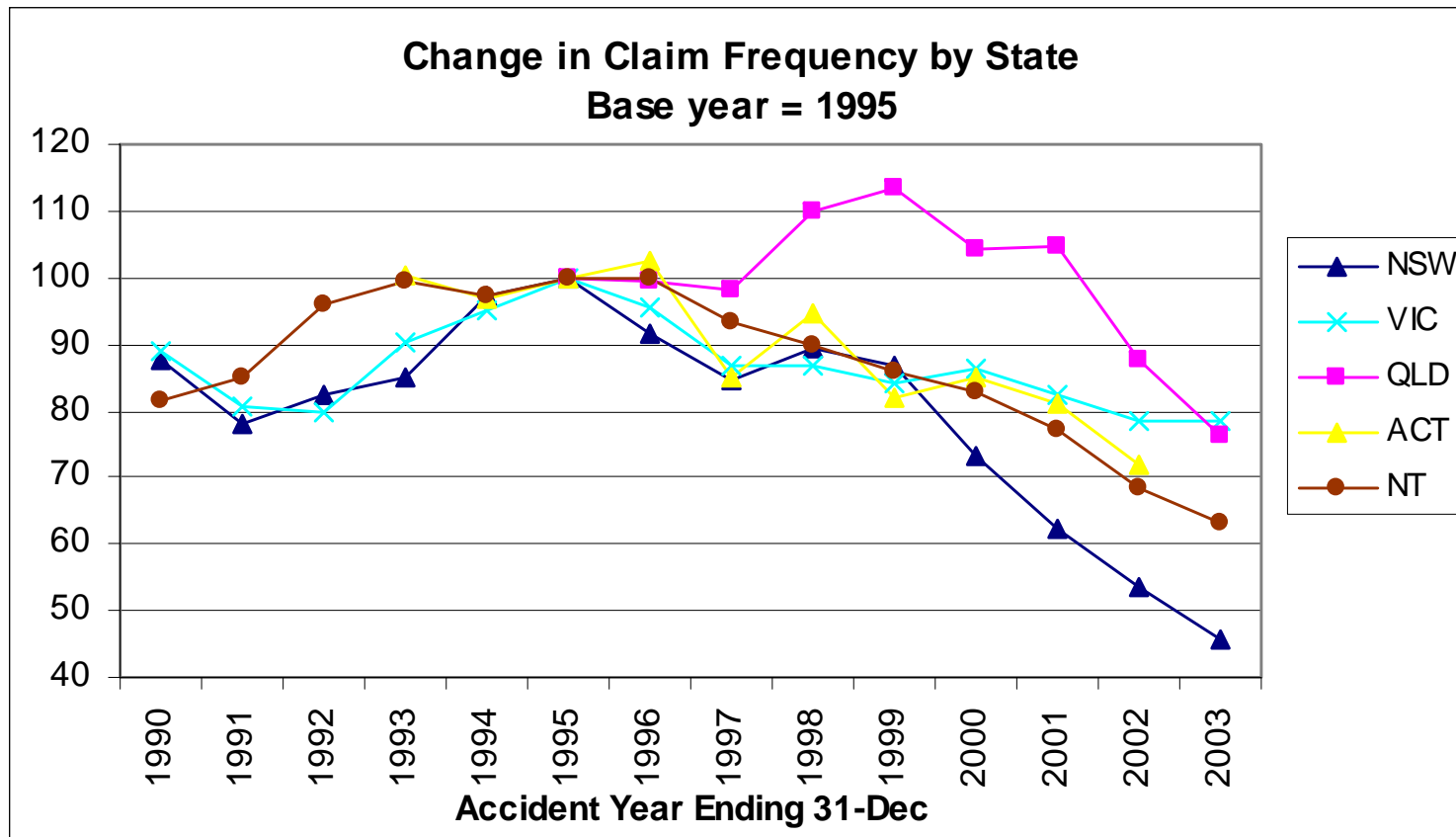


Casualties by State





Claim Frequency by State



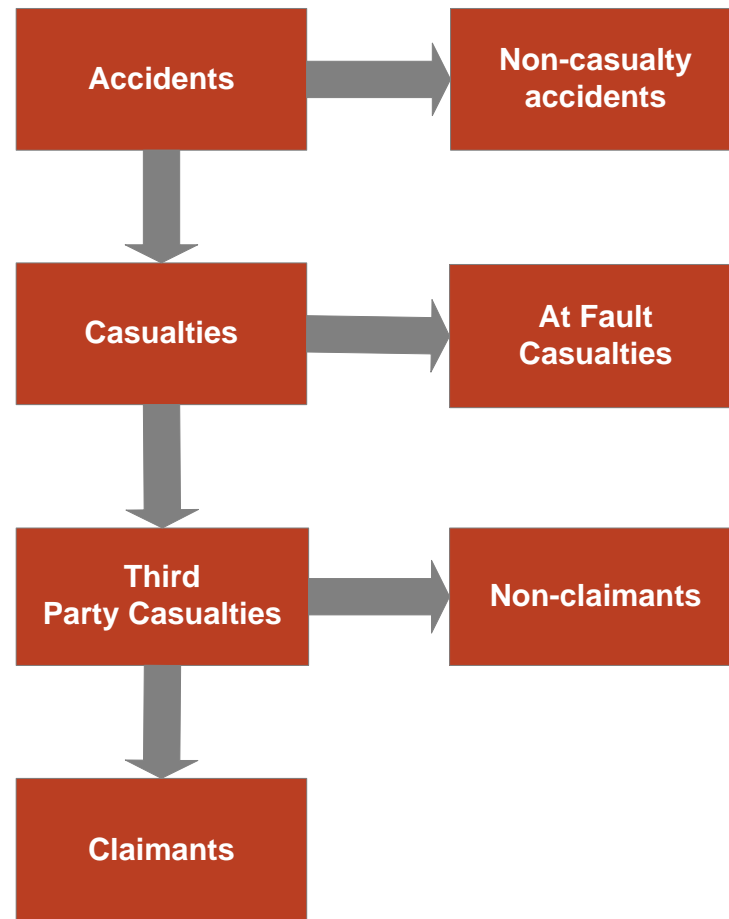


General Framework

- Development of a CTP claim
- Factors influencing transport accident claims



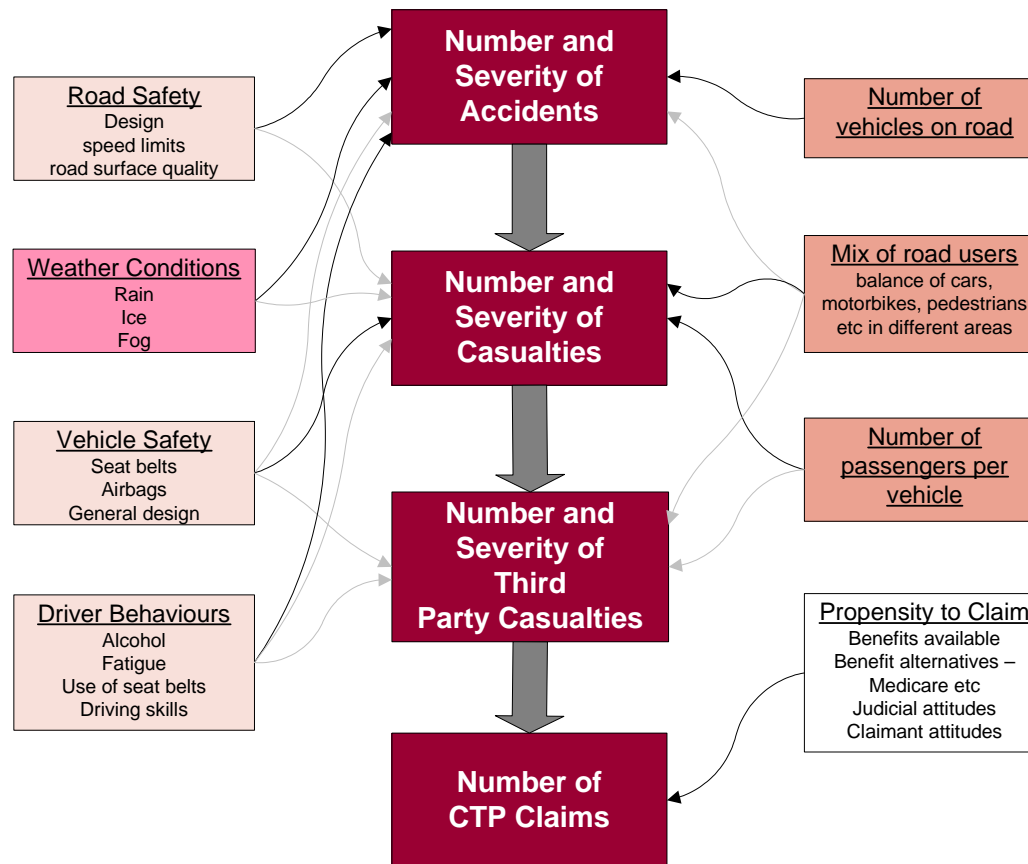
Development of a CTP claim



* Based on an at-fault scheme design

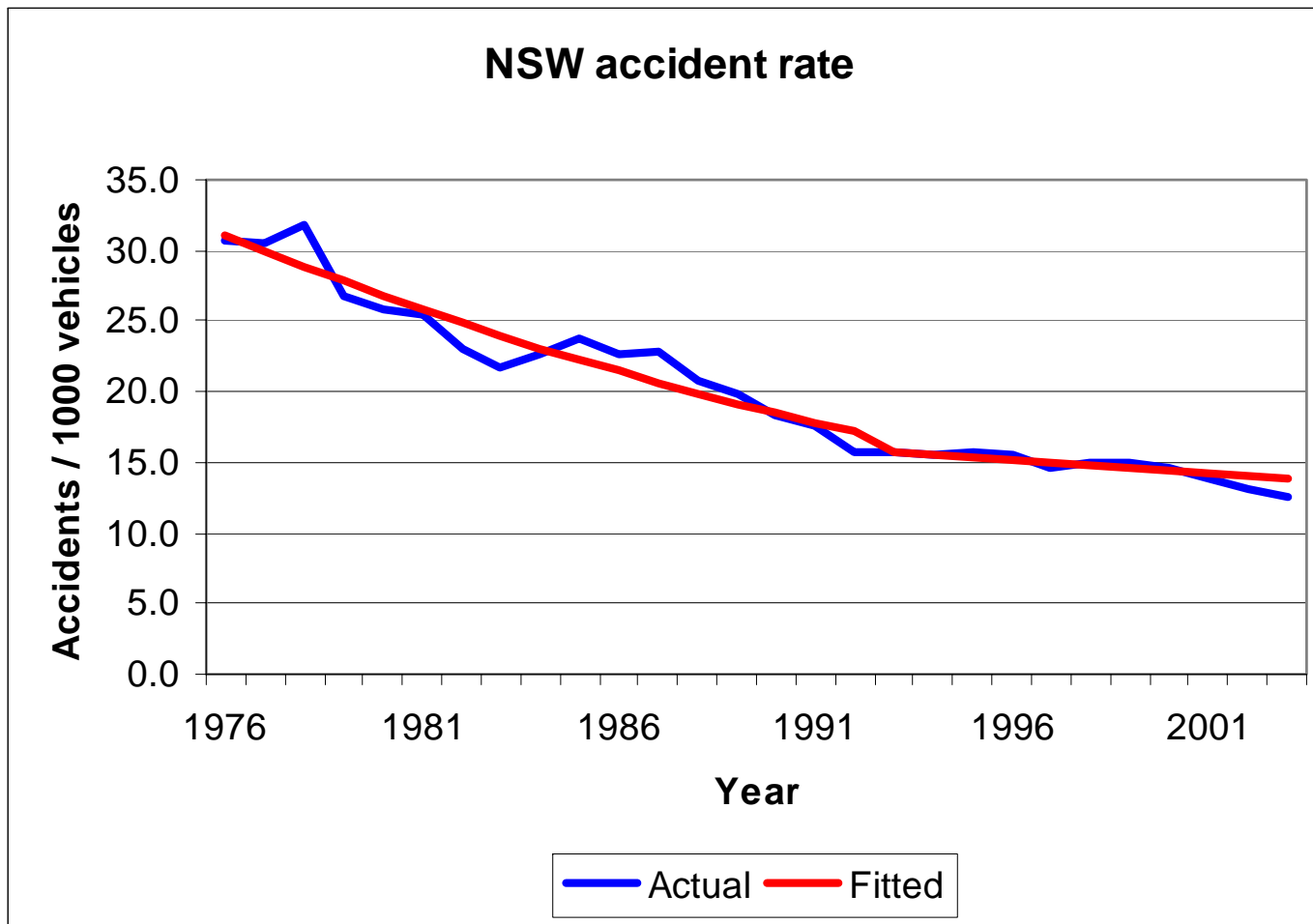


Main factors



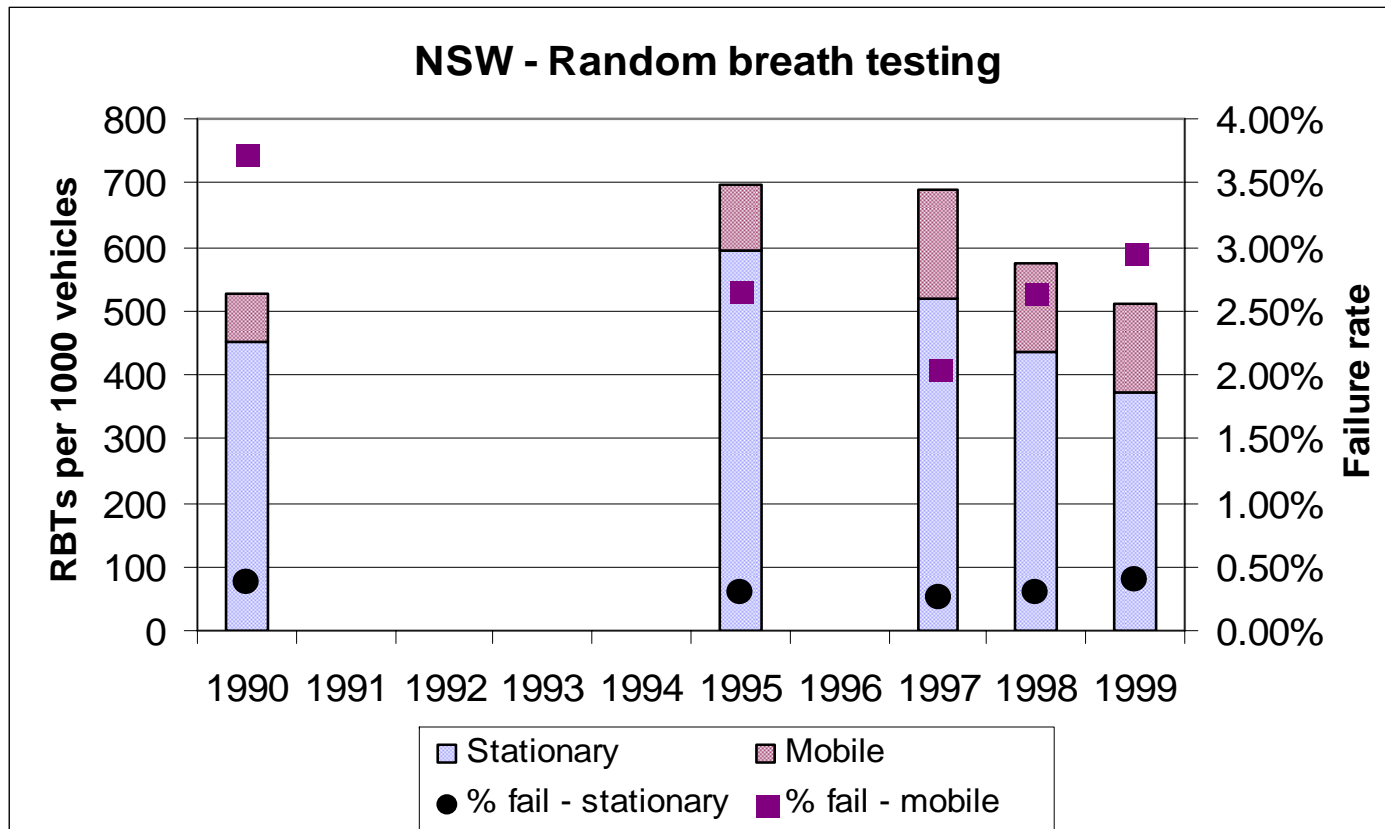


Accidents



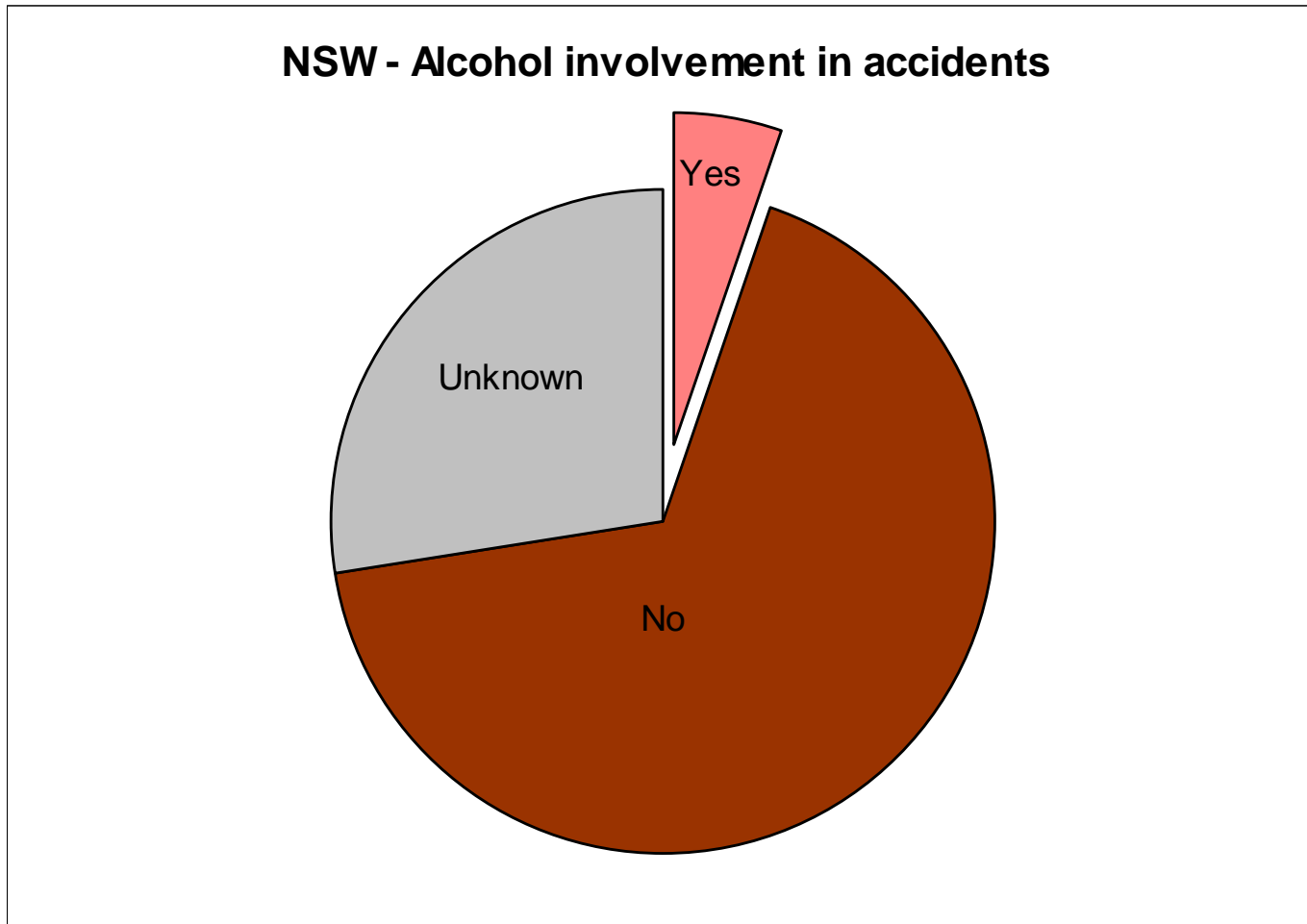


Influence of Alcohol



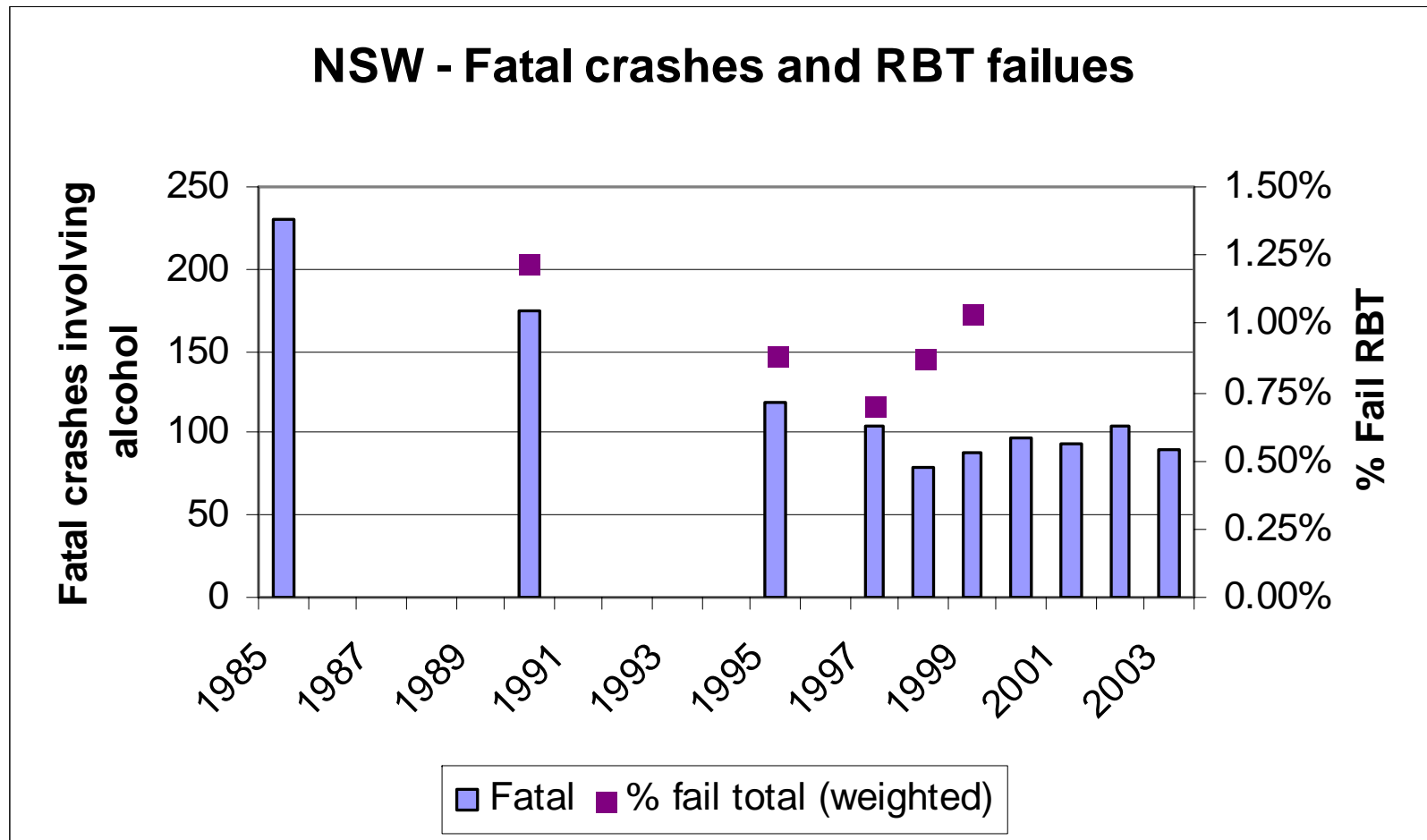


Influence of Alcohol



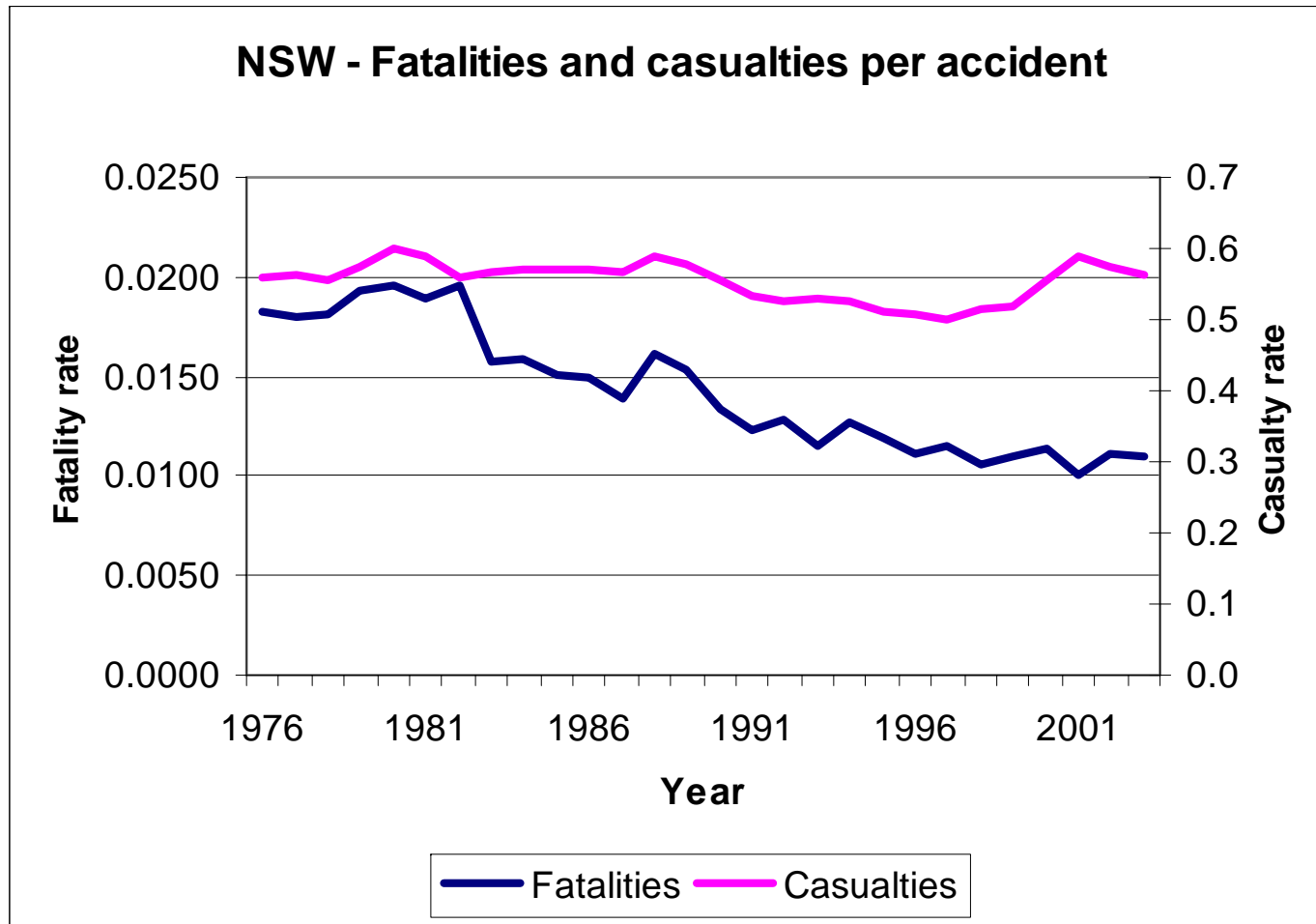


Influence of Alcohol





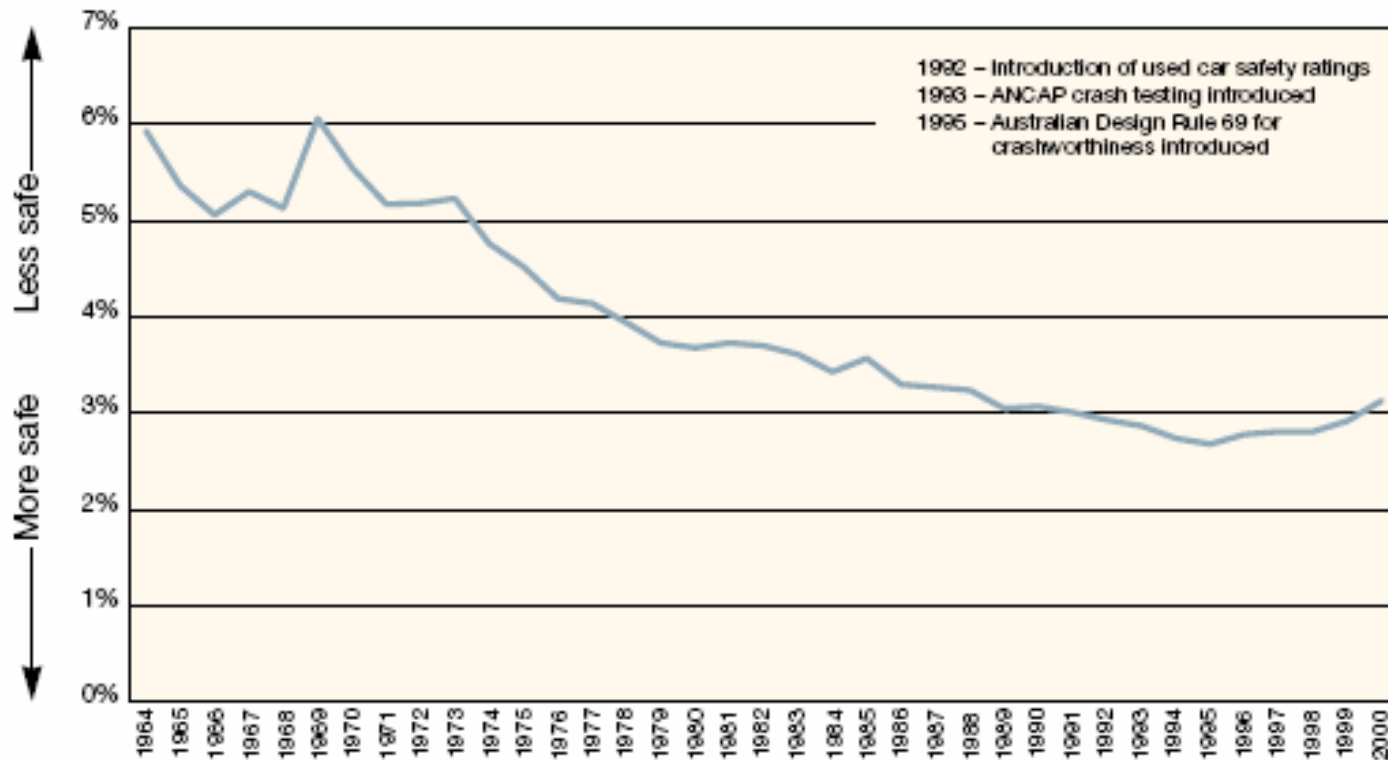
Casualties





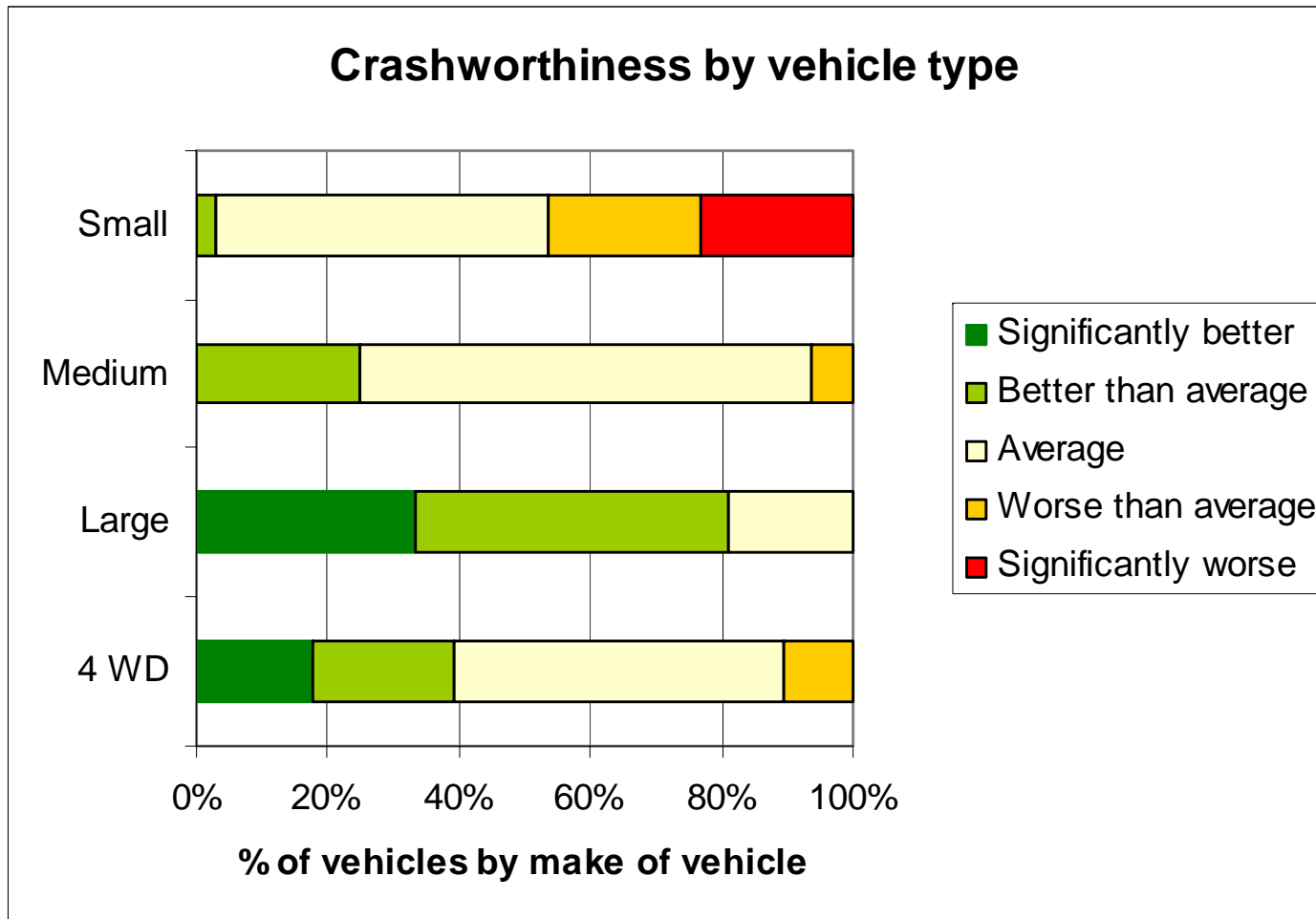
Car Safety Measures

Vehicle crashworthiness by year of manufacture



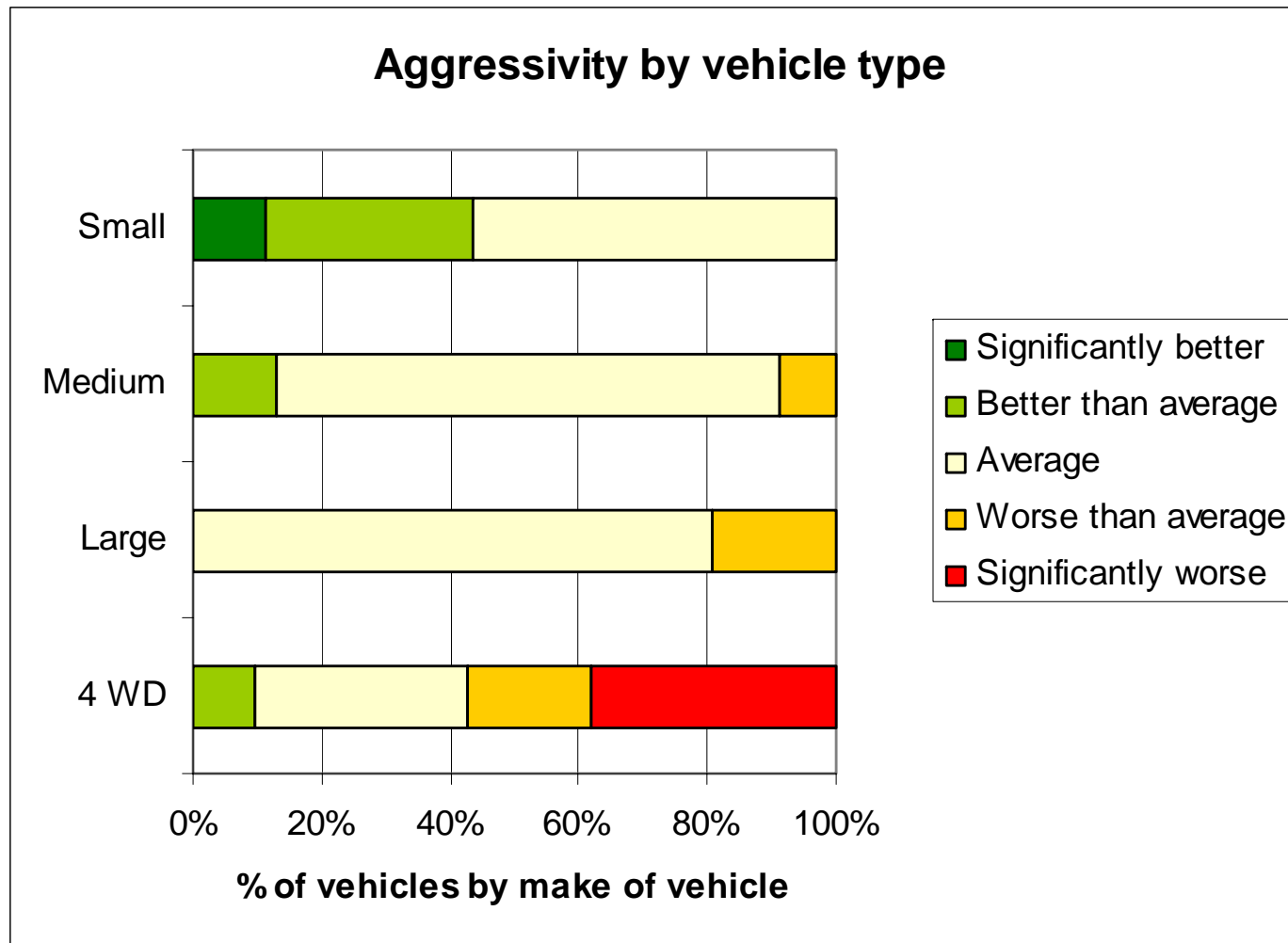


Car Safety Measures



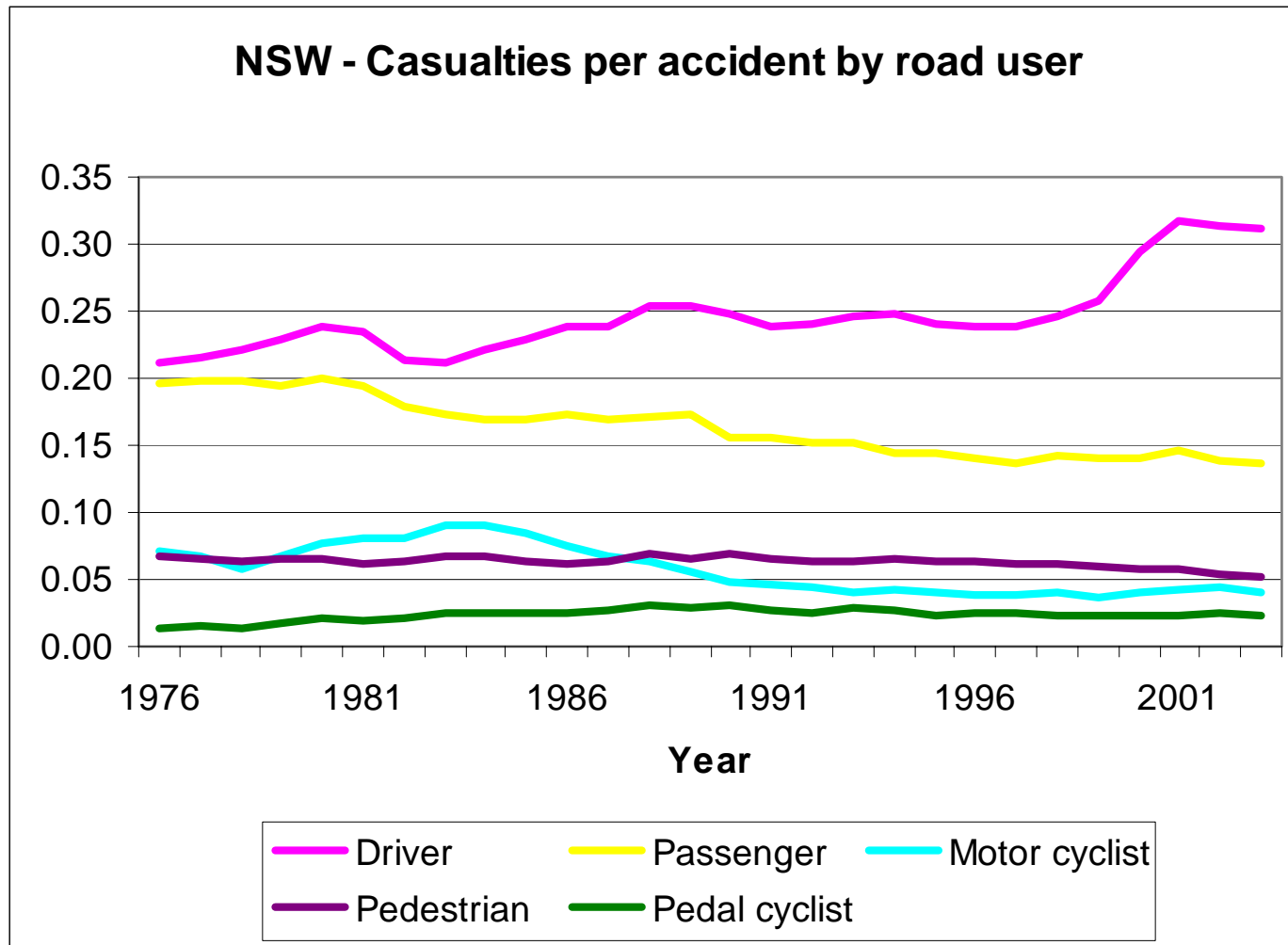


Car Safety Measures



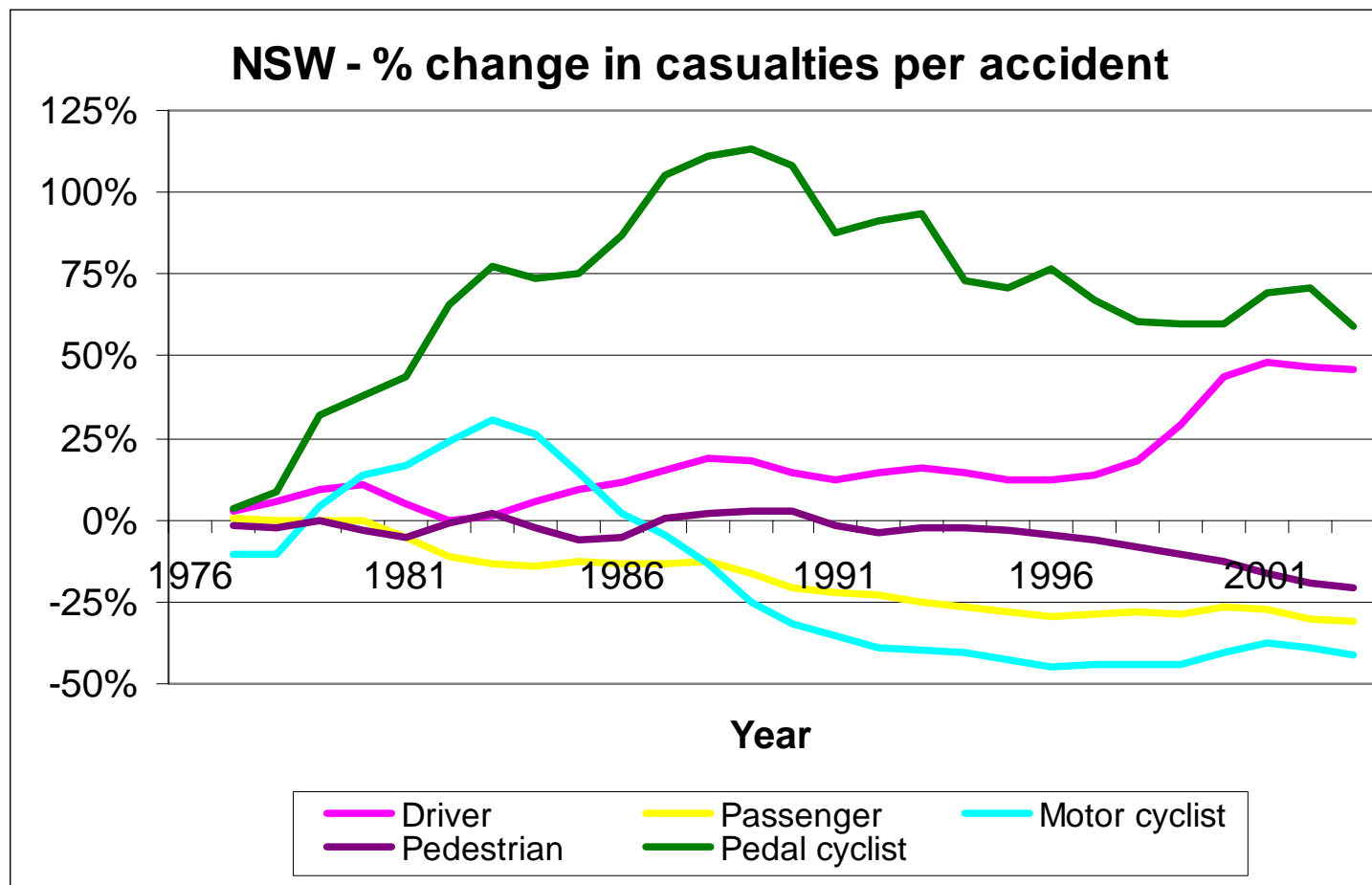


Casualties per accident by road user



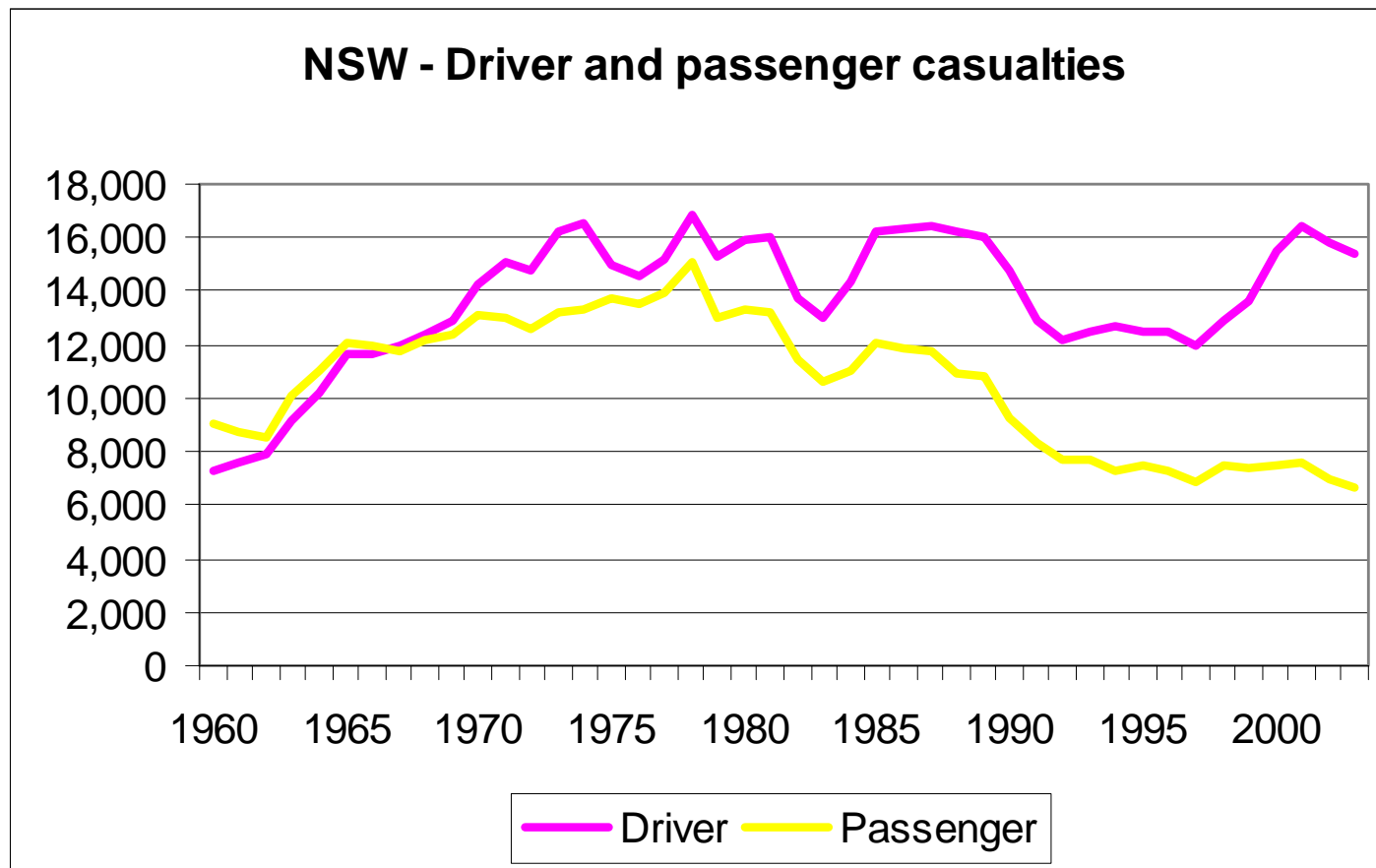


Casualties per accident by road user



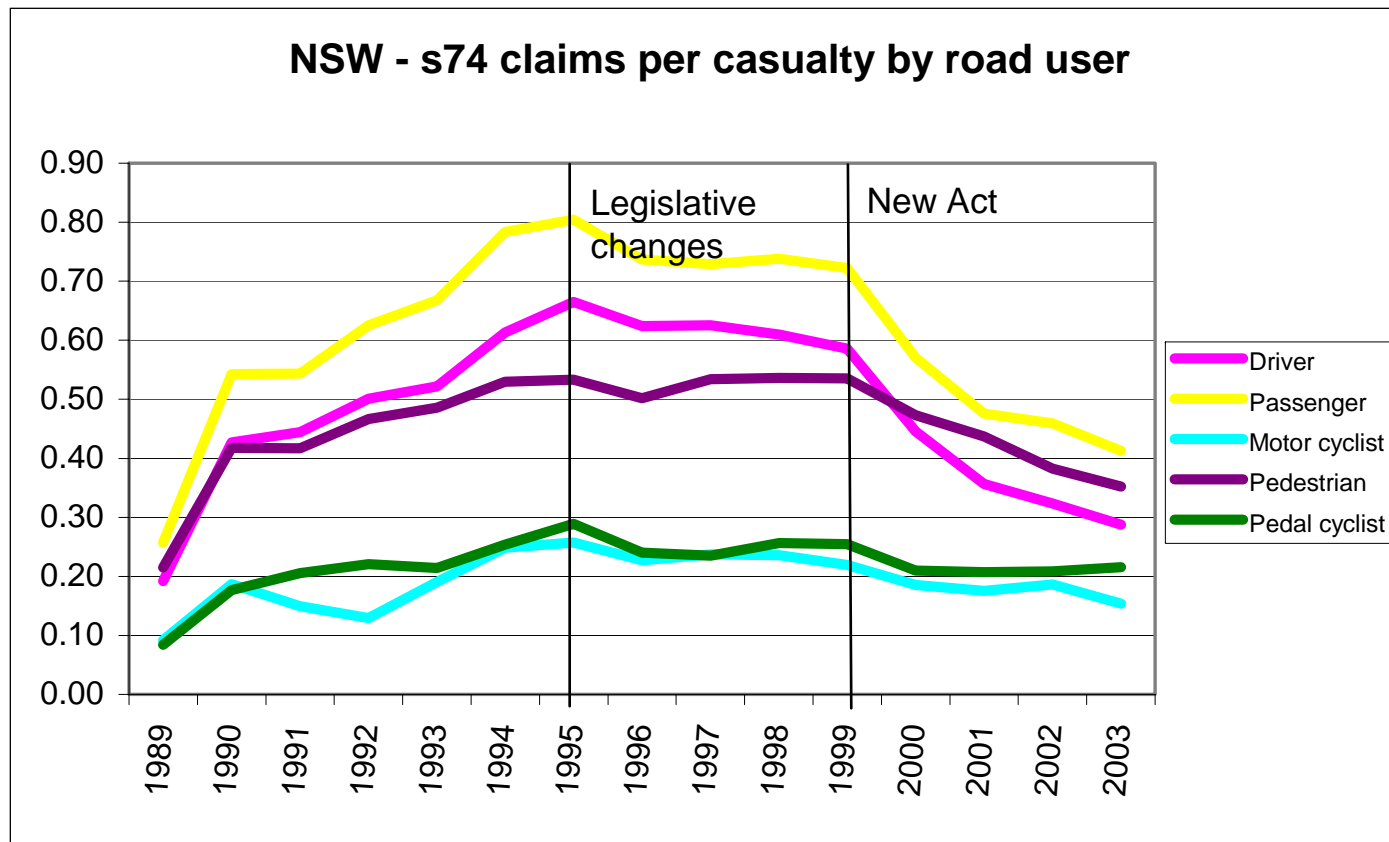


Casualties per accident by road user



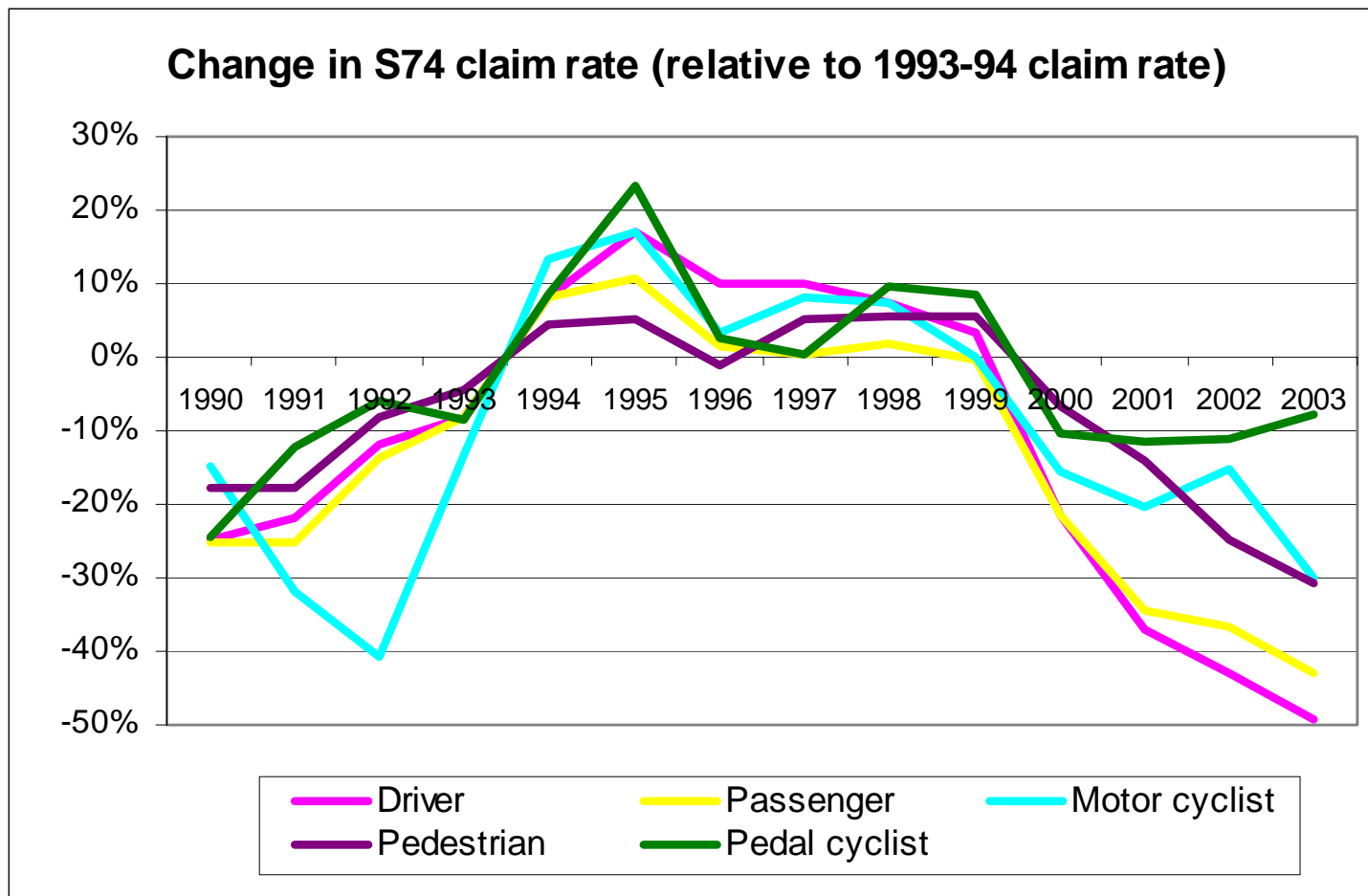


CTP Claims





CTP Claims



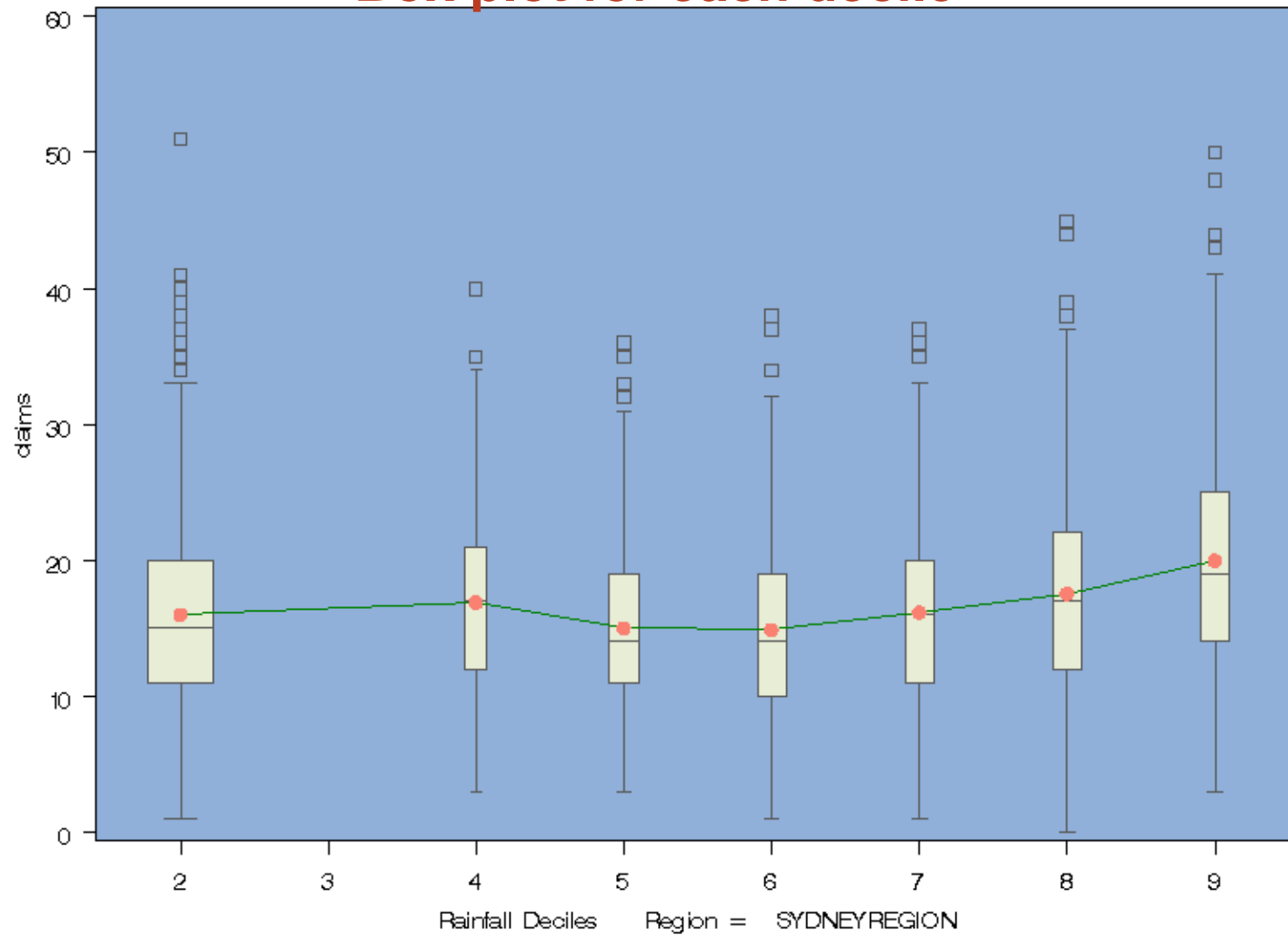


Influence of Rainfall

- Hypothesised recent drought may be contributing factor to low claim frequencies
- Created daily set of claim and rainfall data by region
- Covered period 1990 – 2003, NSW only
- Used data to do a number of analyses to understand effect of rainfall on claims

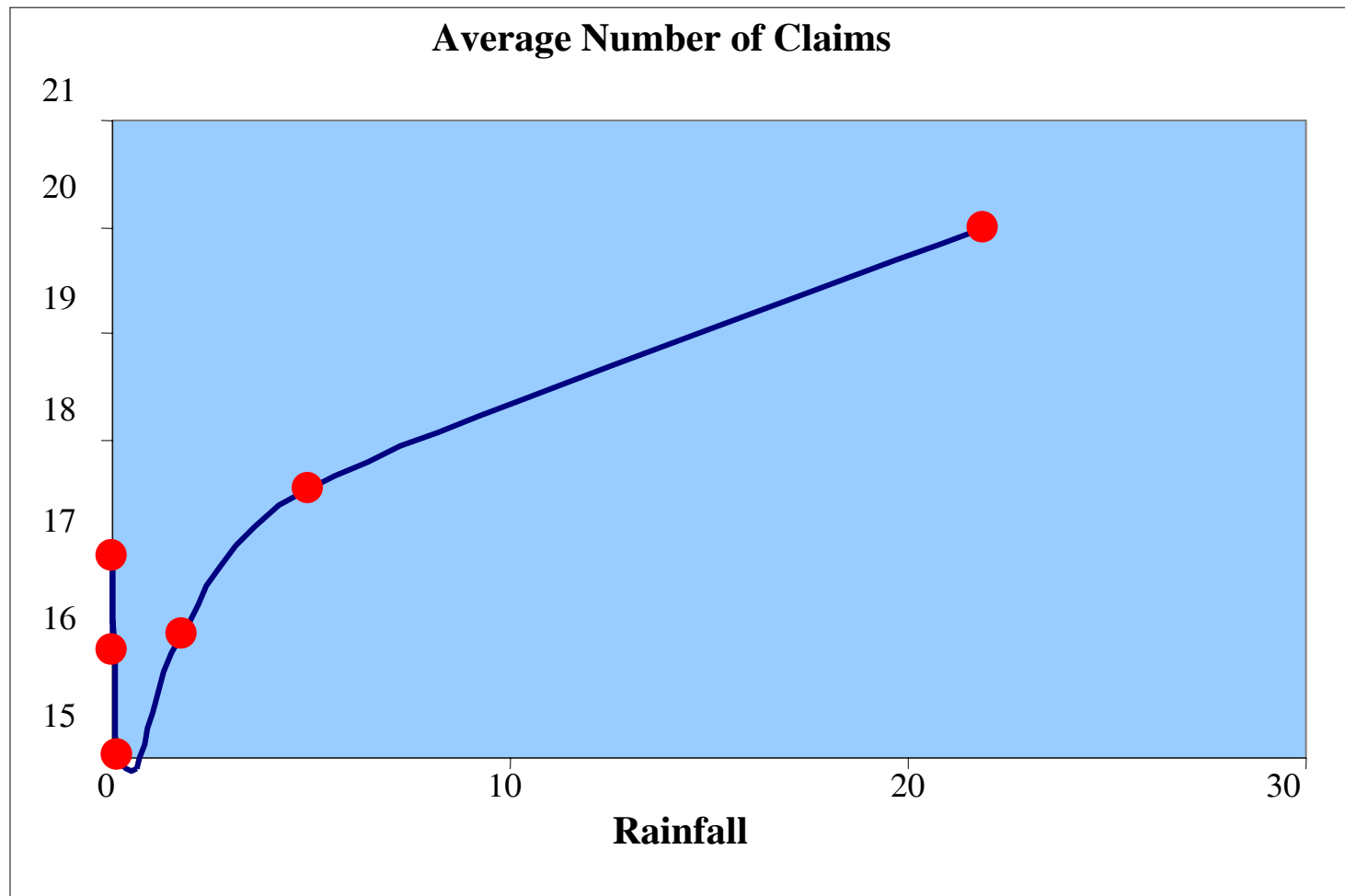


Sydney Region: Box plot for each decile





Sydney Region: Plot of Daily Claims vs Rainfall





Correlations

Variable	Daily Rainfall	Log (1+daily rainfall)
Sev 0 claims	0.057	0.049
Sev 1 claims	0.076	0.077
Sev 2 claims	0.061	0.056
Sev 3 claims	0.034	0.031
Sev 4 claims	0.017	0.022
Sev 5 claims	0.006	0.008
Sev 6 claims	0.018	0.016
All claims	0.077	0.074



Matched Sampling

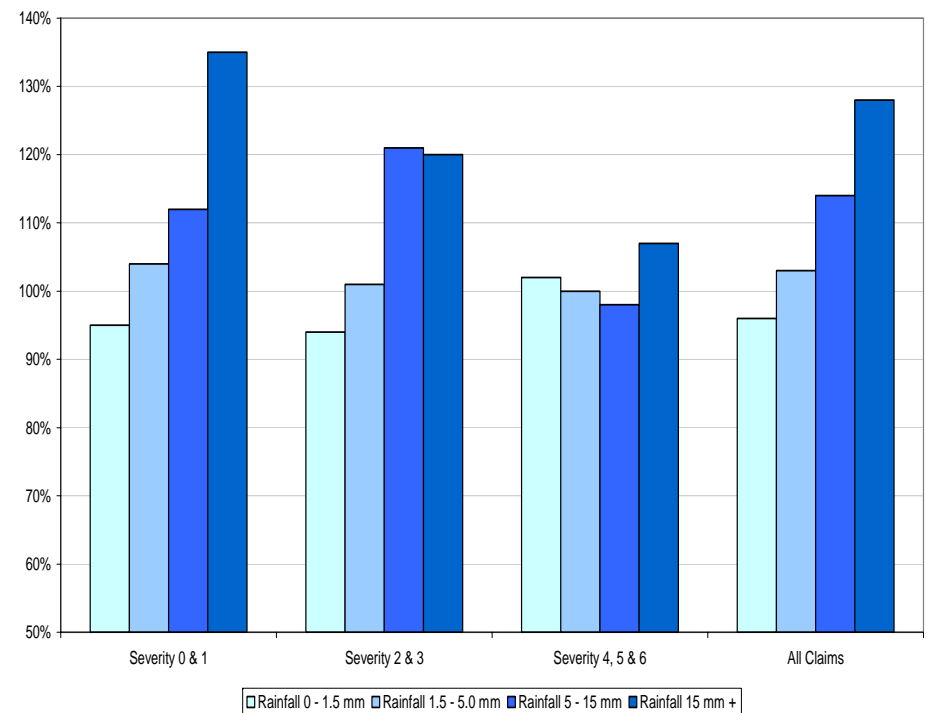
- Match data for cases of poor weather with suitable control event where weather was good
 - Eg match a rainy Monday in February with a dry Monday in that February to provide an “event control” pair
- Compare accident experiences for periods with adverse conditions with control periods
- The estimate of the effect of the adverse factor is based on the combined data from many event-control pairs



Matched Sampling Results Sydney

Sydney Region	Ratio of Event to Control Claim Numbers			
Severity	0 – 1.5 mm	1.5 – 5 mm	5 – 15 mm	15 – 30 mm
Severity 0 & 1	0.95	1.04	1.12	1.35
Severity 2 & 3	0.94	1.01	1.21	1.20
Severity 4, 5 & 6	1.02	1.00	0.98	1.07
All claims	0.96	1.03	1.14	1.28

Event-Control Ratio for Sydney Claims

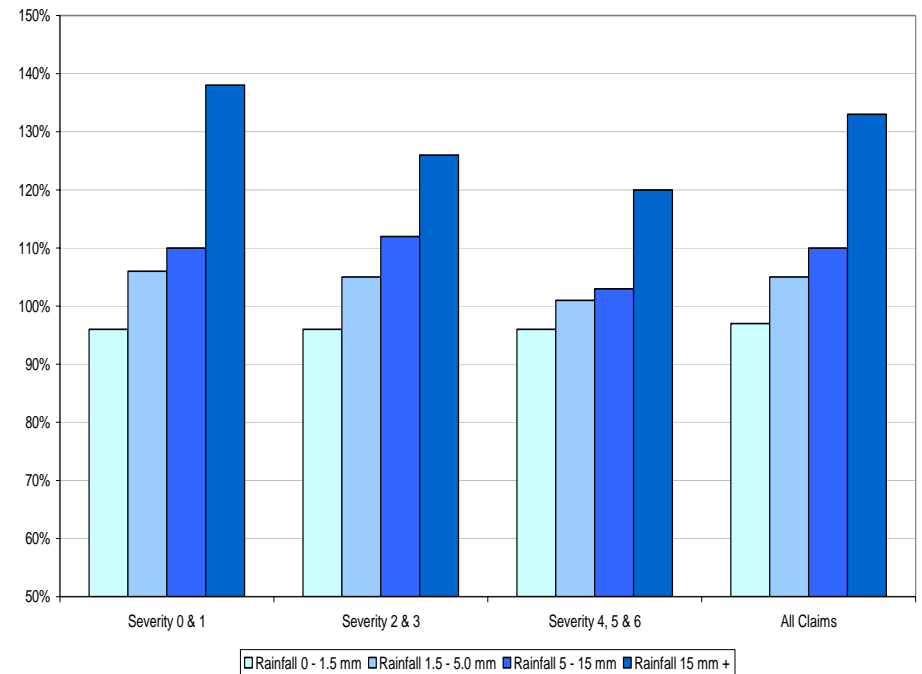




Matched Sampling Results All Regions in NSW

All Regions	Ratio of Event to Control Claim Numbers			
	Severity	0 – 1.5 mm	1.5 – 5 mm	5 – 15 mm
Severity 0 & 1	0.96	1.06	1.10	1.38
Severity 2 & 3	0.96	1.05	1.12	1.26
Severity 4, 5 & 6	0.96	1.01	1.03	1.20
All claims	0.97	1.05	1.10	1.33

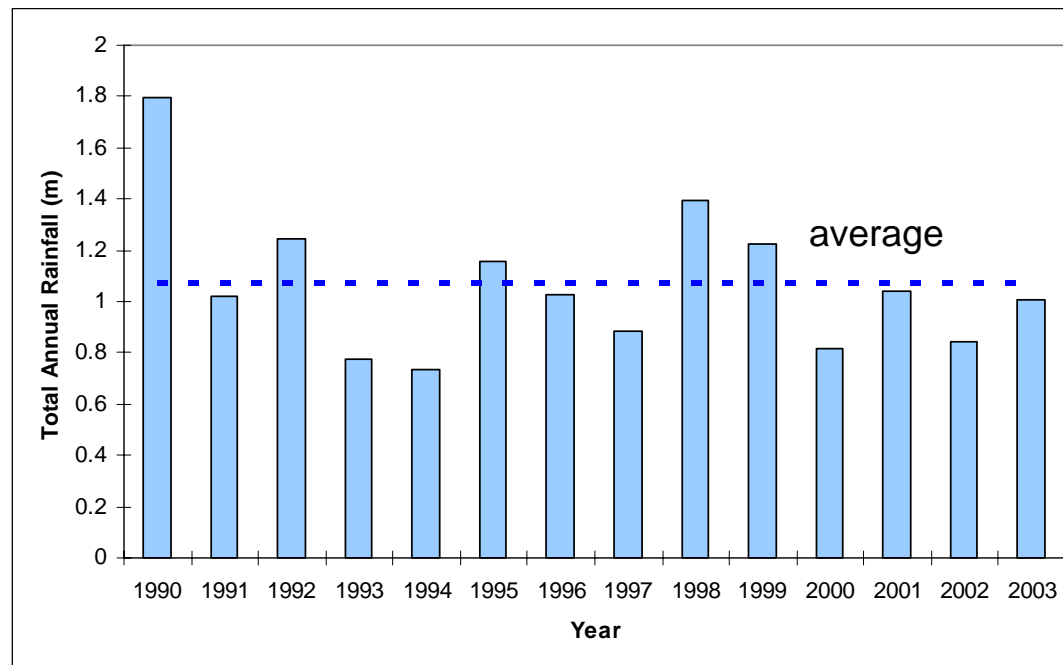
Event-Control Ratio for All Claims





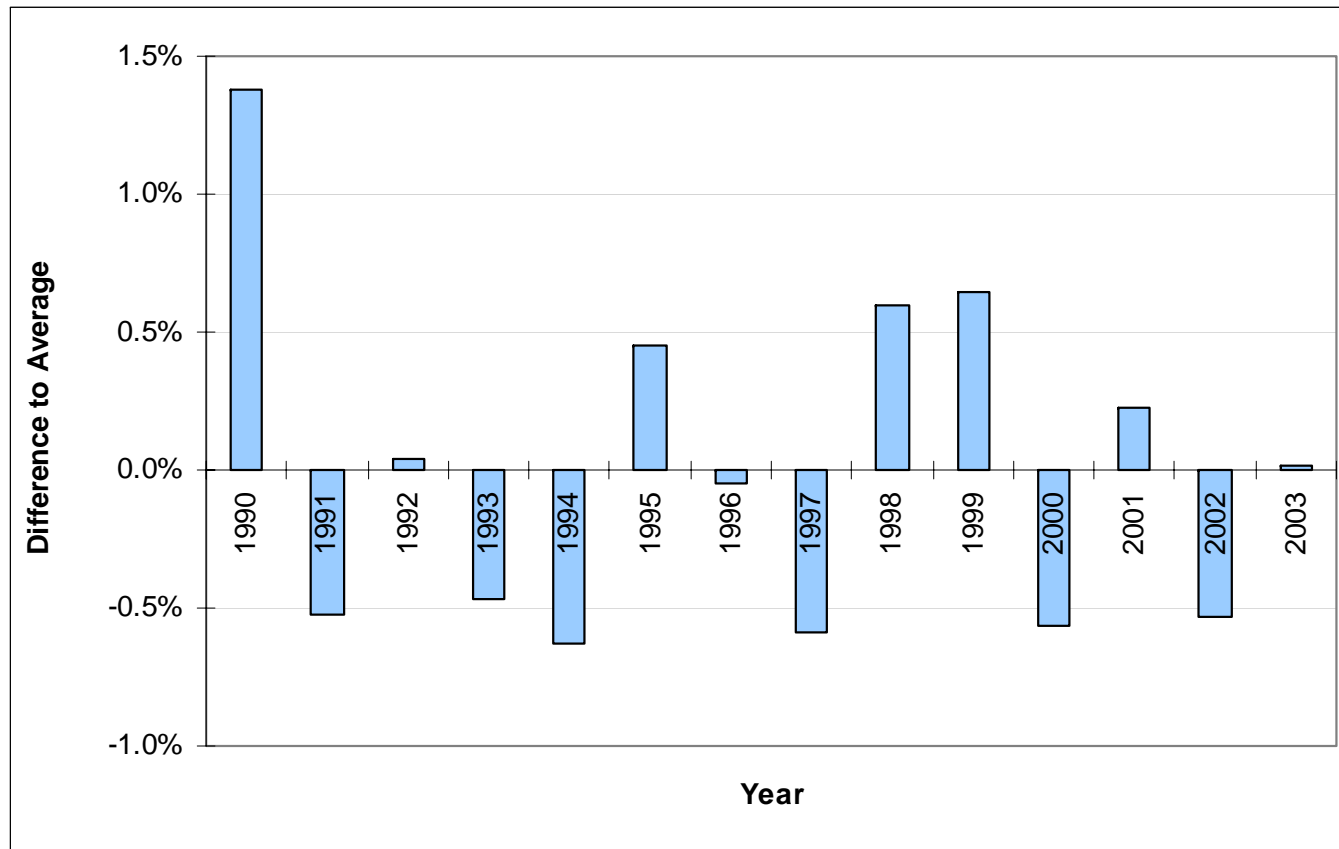
Impact on Claim Frequency

Has the level of rainfall had a significant impact on the claim frequency reductions that we have observed in recent years?





Frequency Variations





Summary

- Accidents dramatically reduced between 1975 and 1992
- Slower reduction in accidents since then
- Clear correlation between RBTs and fatal accidents
- Improvements in vehicle “crashworthiness” broadly consistent with declines in fatalities
 - Increases from late 1990s appears partially attributable to increased use of 4WDs
- Unable to explain divergence between casualty for drivers and passengers
- There is some correlation between daily claim numbers and rainfall but has relatively small impact over any year