

# Injury Schemes Seminar

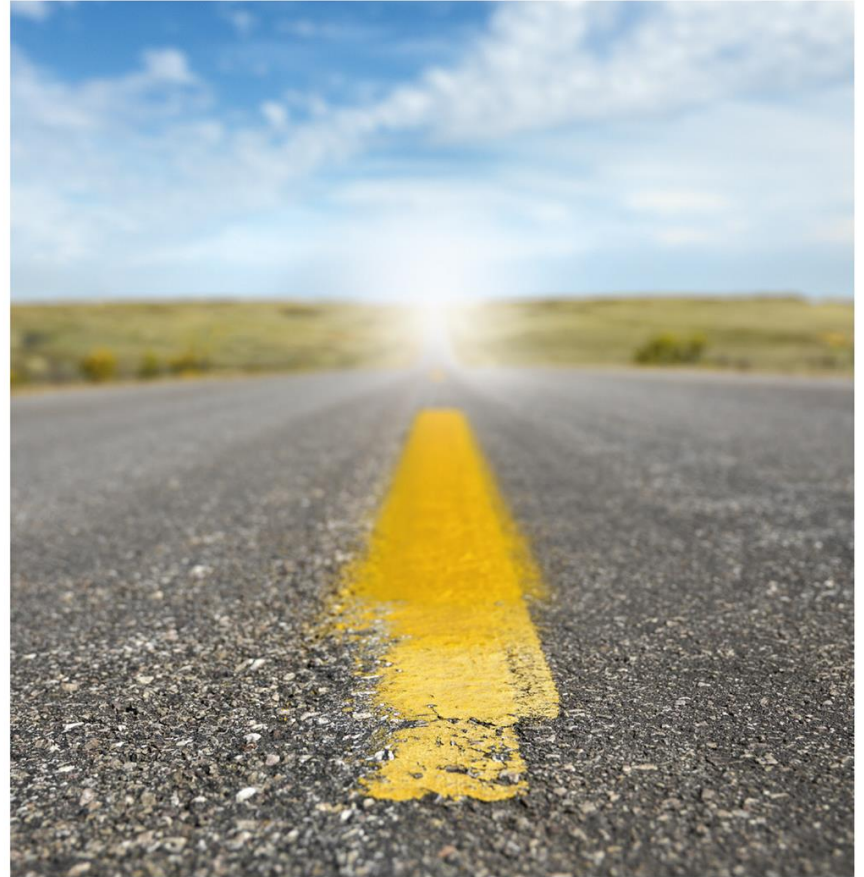
**Road to Recovery**



**Actuaries  
Institute**

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8-10 November 2015 • Hilton • Adelaide





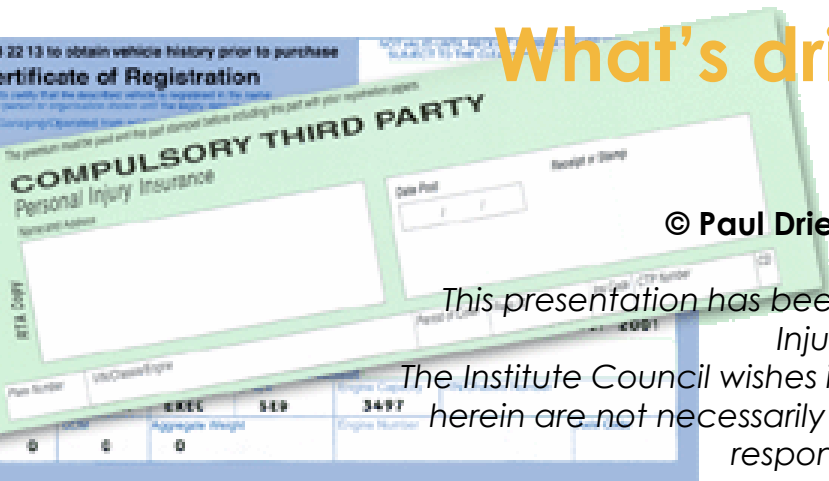
# Demand, competition and price sensitivity in the NSW CTP market

## What's driving the drivers?

© Paul Driessen & Ash Evans, Taylor Fry

*This presentation has been prepared for the Actuaries Institute 2015 Injury Schemes Seminar.*

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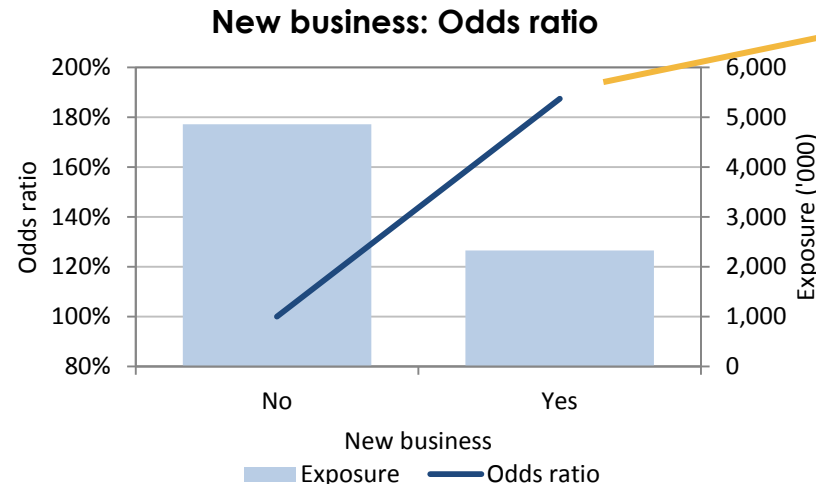
## NSW Compulsory Third Party Insurance

- \$2.2bn privately underwritten
- *Modified* at-fault scheme
  - Not-at-fault at the extremes
- Insurers submit pricing schedule to MAIR
- Price differentiation is permitted through use of a restricted bonus-malus system



## Who switches insurers?

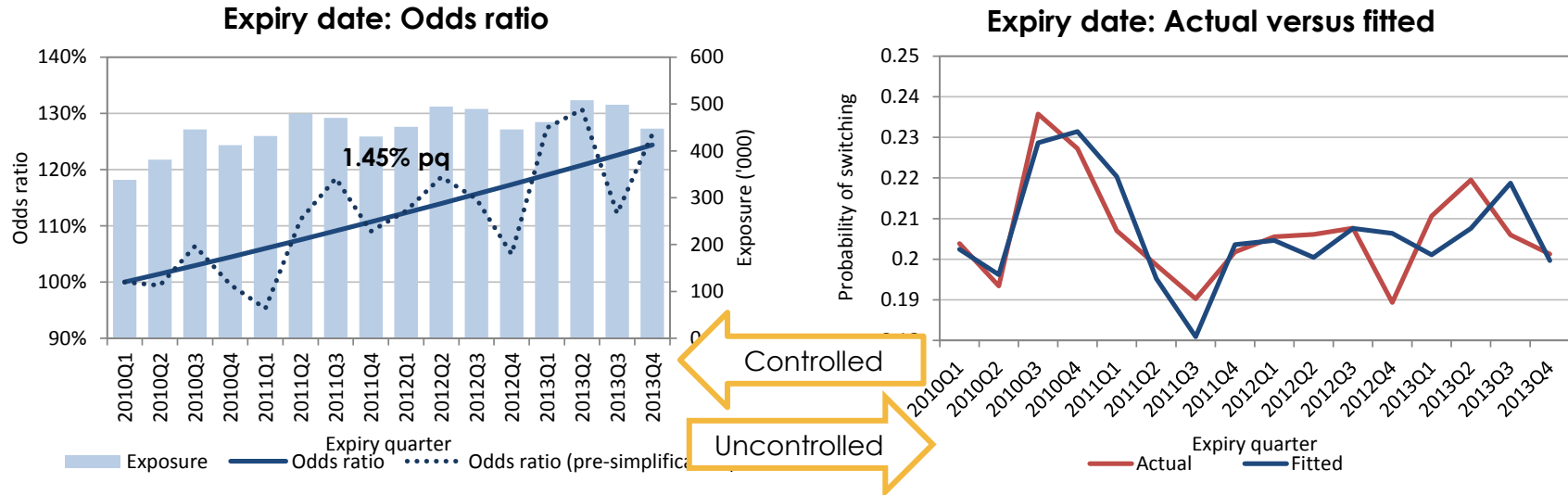
- We model the probability that a *vehicle* changes insurer at policy renewal
- We present our results as odds ratios



**187% odds ratio:**  
For the “median” policyholder, this translates to probabilities of switching of 16% and 26% for “no” and “yes” respectively

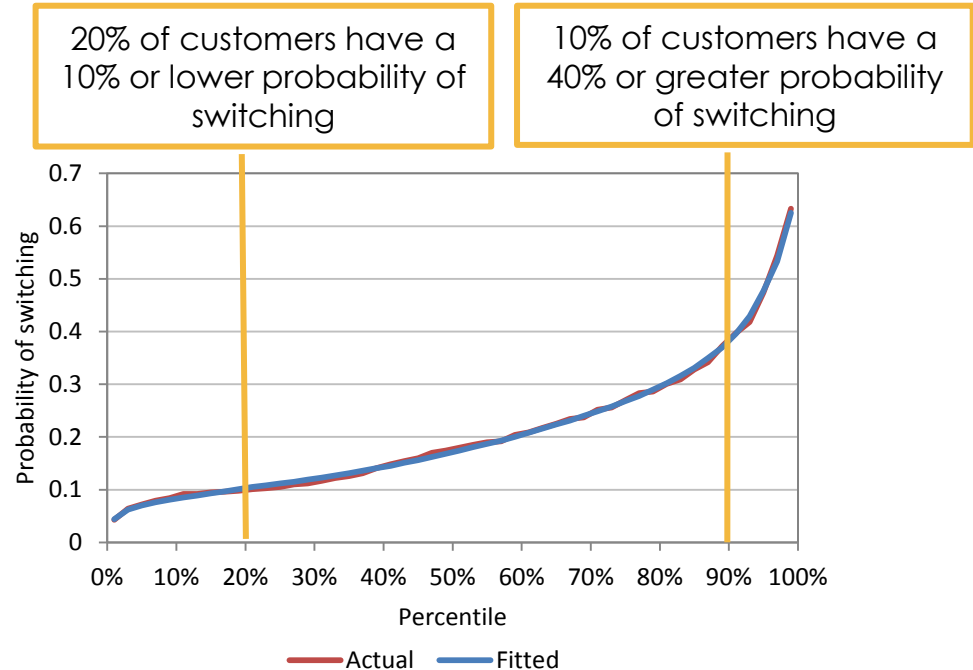
## Who switches insurers?

- After controlling for changes in customer characteristics, there is a residual increasing trend in “switchiness”



# Model summary

Variable	Relative importance
New business	100%
Insurer	83%
Distance to cheapest insurer	77%
Vehicle use	40%
Vehicle age	39%
Discount/loading	25%
Age of youngest driver	20%
Policy duration	16%
Vehicle value	14%
Distribution channel	13%
Expiry quarter	5%
Region	1%
Vehicle type	0.4%
At fault indicator	0.3%



## Are customers price sensitive?

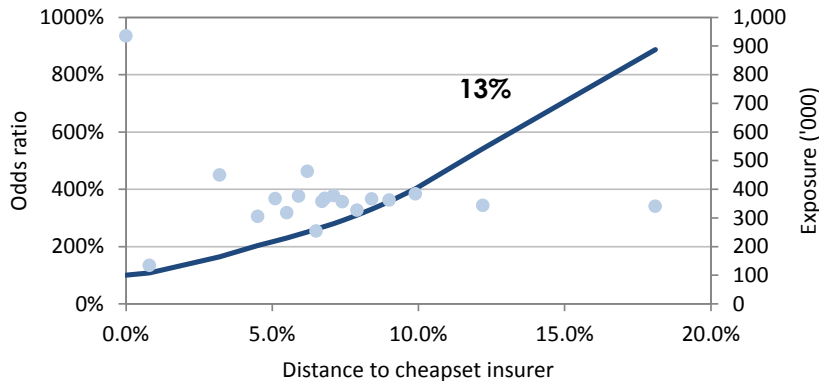
- Customers are relatively likely to switch from more expensive insurers: **policyholders are price sensitive.**
- We model two elements of price:
  - The difference between the average premium of the customer's current insurer and the cheapest insurer at the policy expiry date – “insurer competitiveness”
  - The discounting that the customer received on the expiring policy term



## Distance to cheapest insurer

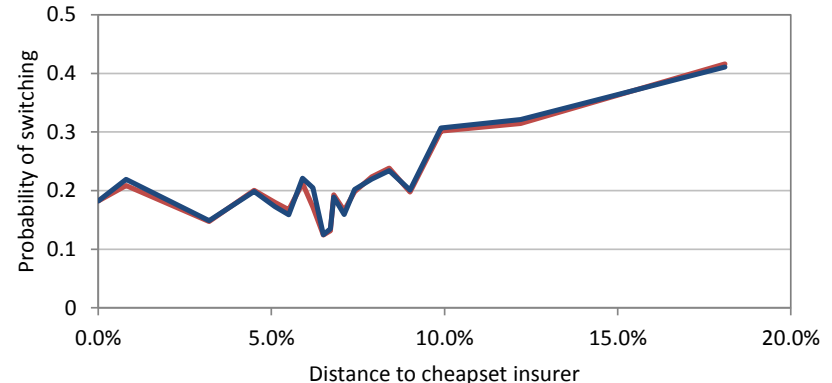
- Price sensitivity is very strong
- ... but tread very carefully because customers may have already sorted themselves out

**Price sensitivity: Odds ratio**



— Odds ratio    ● Exposure

**Price sensitivity: Actual versus fitted**



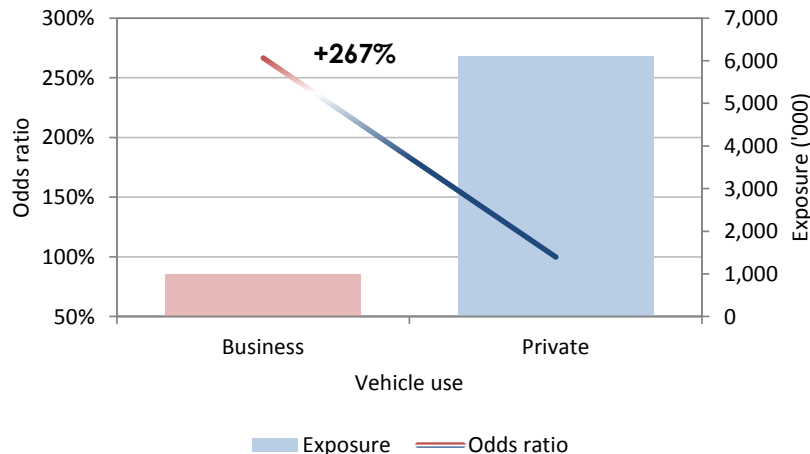
— Actual    — Fitted



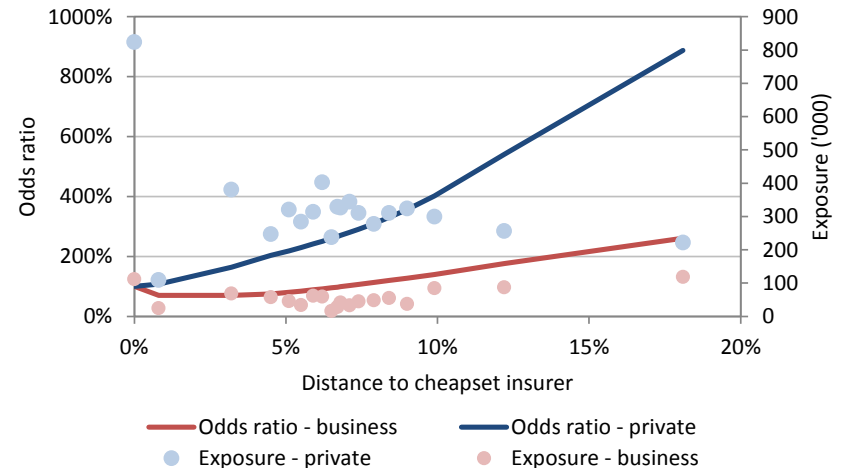
## Vehicle use and price sensitivity

- Business use vehicles have very high switchiness
- ... but they have relatively low price sensitivity

Vehicle use: Odds ratio



Price sensitivity × vehicle use: Odds ratio

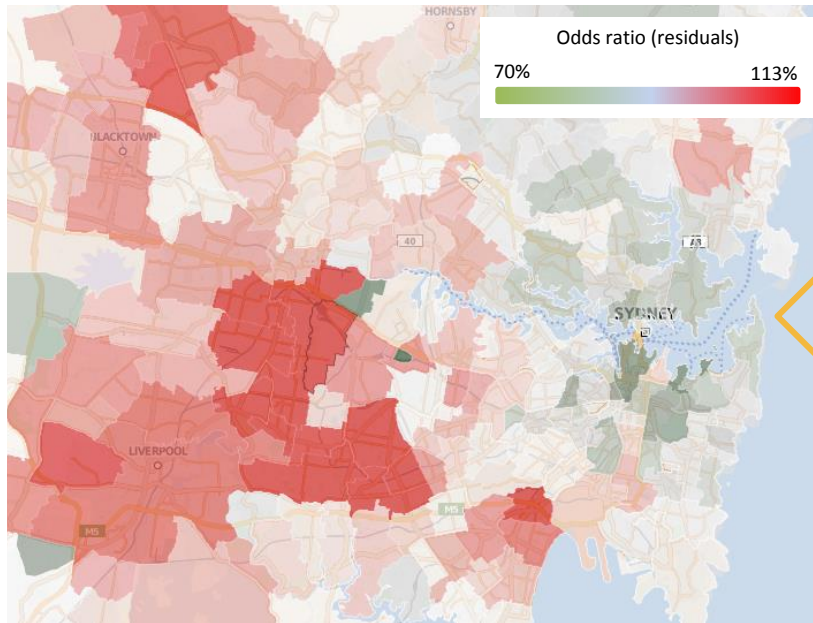


## So what drives the drivers?

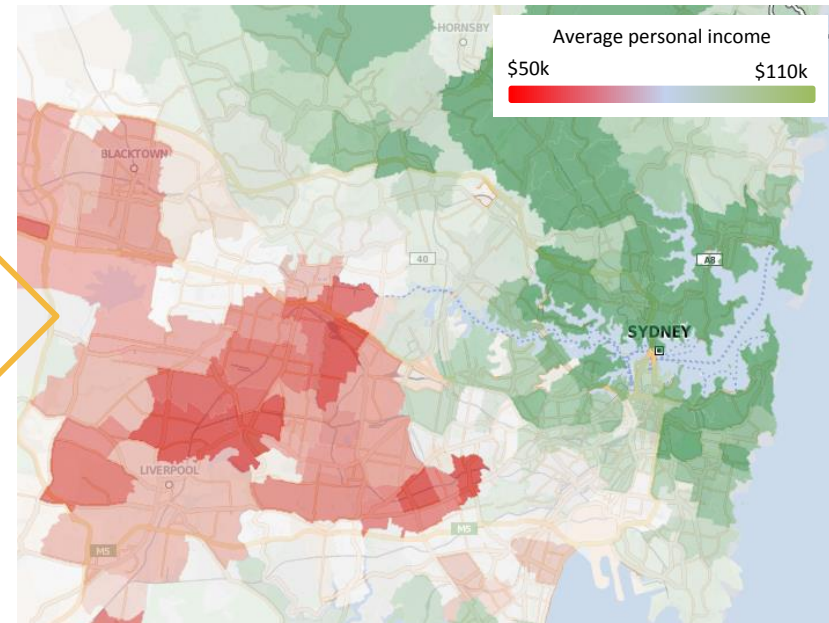
- The model accurately discriminates between those most likely and those least likely to switch insurers
  - New policies (first time customers) are most likely to switch
  - Business use has higher switch rate than private
- Customers are price sensitive
  - All else being equal, higher premiums relative to competitors means more switching
  - Business use vehicles are less price sensitive

## Further research: regions

- There is “signal” left in the postcodes after fitting regions



$\rho = -0.46$



# Questions?