Bruin Actuarial Society Seventh Annual Case Competition

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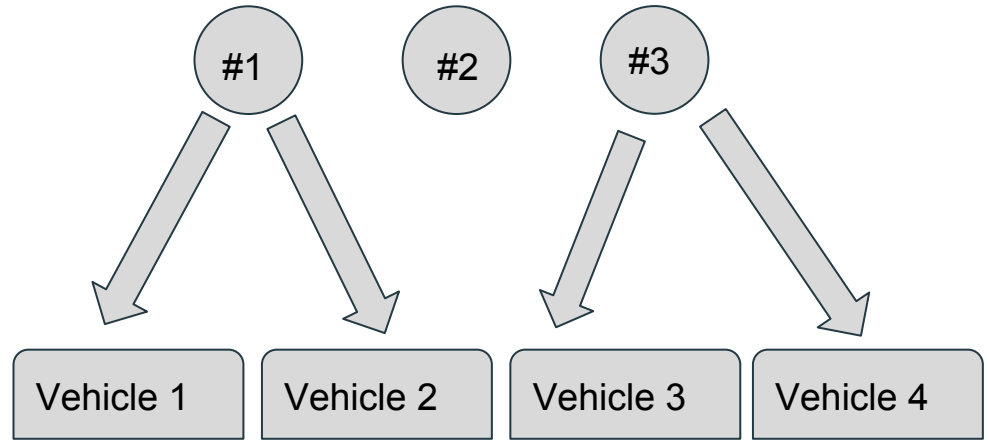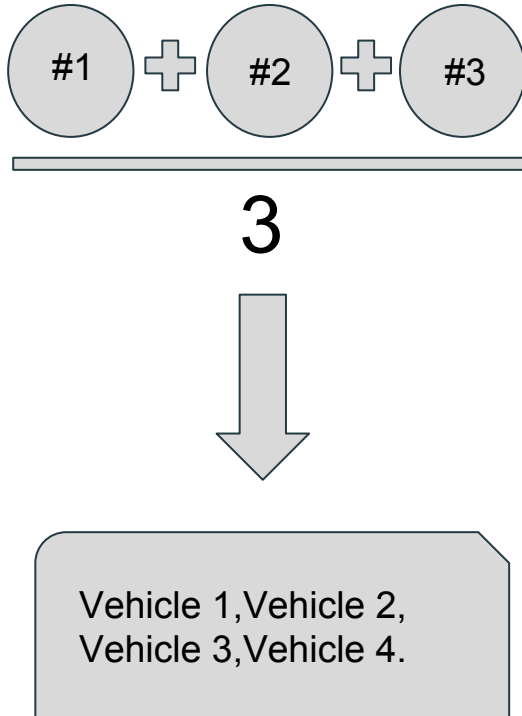University of California, Santa Barbara

Overview

- Background
- Driver Averaging VS. Driver Assignment
- GLM
- Data Issue and Adjustments
- Future Model Enhancement
- Challenges for the Company

Driver Averaging VS. Driver Assignments

Driver Averaging VS. Driver Assignment

Comparison

	Driver Averaging	Driver Assignment
Profile 1	**$3,132**	**$2,656**
Profile 2	**$3,878**	**$3,012**
Profile 3	**$1,068**	**$1,068**

Generalized Linear Model

What is a GLM?

- Generalized Linear Model
- Class of models that describe the relationship between response variable and predictors

GLM'S Advantages

1, Easy to interpret

2, Can handle more complicated situations

Premium=100-2*Years of Driving+4*Driver Point+...
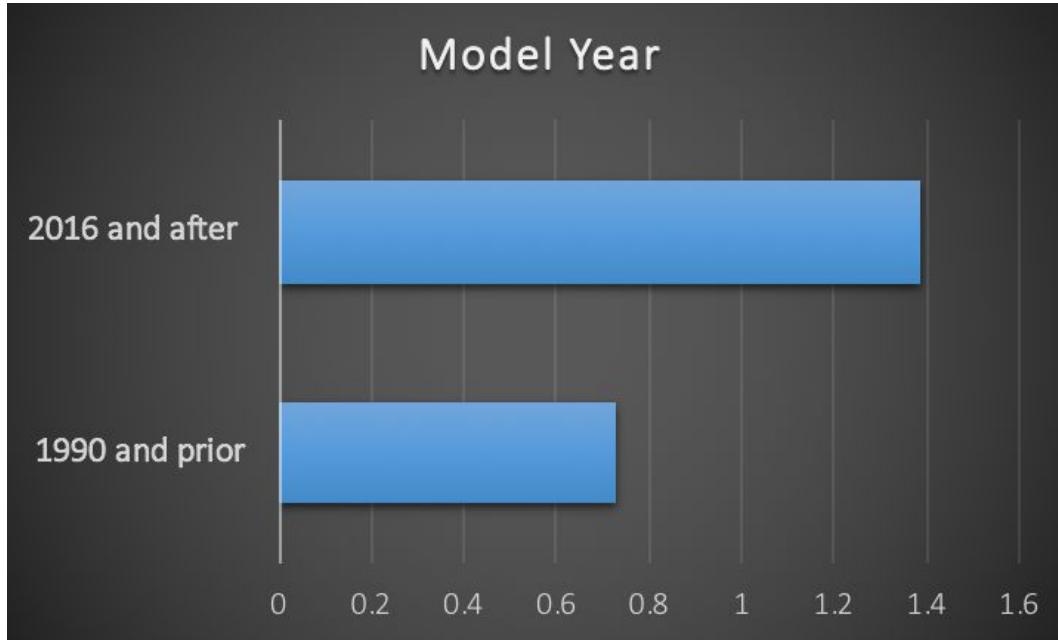
Response(Y) can follow exponential family distribution

Data Issue and Adjustments

Data Issue- Driver Point

Driver point	Factor
0	1
1	1.423
2	1.160 ERROR
3+	1.785

Model Year

Add a new variable "Model Price"

Vehicle Use

Risk of Anti-Selection

Vehicle Use		Factor
Pleasure		1
Commute	25%	0.923
Business		1.154
Others		1.086

Future Model Enhancement

Considerations of Selecting Time Period of the Data

- Use the latest data
  - Inflation
  - Advanced Technology
- Legislative changes
- Level of economic activities

Using One Countrywide Model
Pros & Cons

Pros:

- Easy to carry out
- Save human resources

Using One Countrywide Model
Pros & Cons

Cons:

- Differences between states ----> hard to form a unity
  - environments → levels of car damage
- Might not be competitive regionally

Challenges for the Company

- Retention dropped
- Close ratio for young drivers is low

How to Increase Retention?
- Adjust Variable Selection

- Decrease premium/cash benefit for safer drivers
- Install devices to track insured drivers
  - Driving behaviors
- Non-rating factor
  - Decrease expense ratio

How to Have More Young Driver as Policyholder?

- Psychology survey
  - Temper (anxiety/depression)
  - Decrease premium if the young driver has high achievement in the survey

Thank you !