



BAS Bruin Mutual Case Competition 2019

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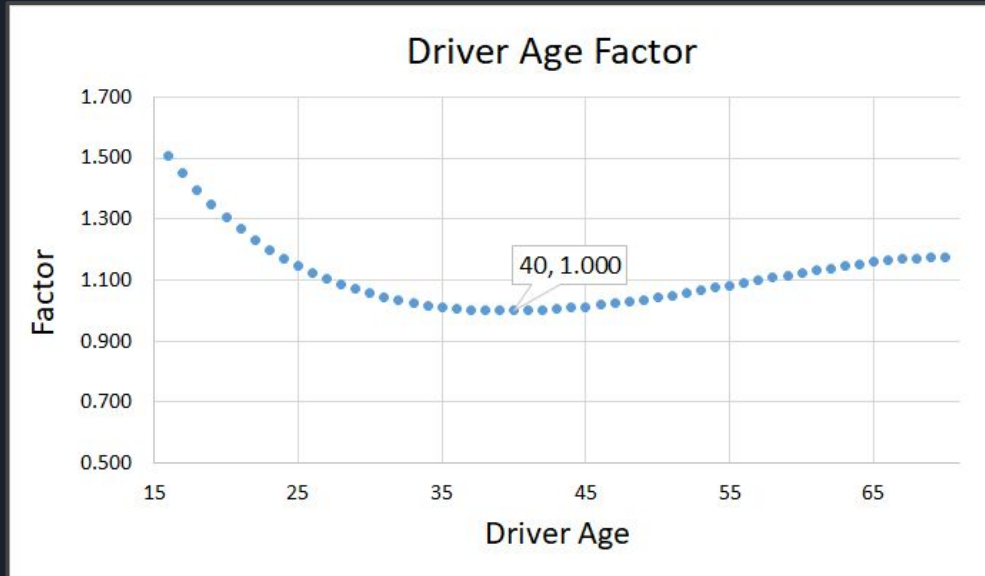
Agenda

1. Excel Rater
 - a. Driver Assignment vs. Averaging
 - b. Example Profiles
2. Collision Coverage Factors
 - a. Generalized Linear Model
 - b. Issues with current model
 - c. Possible suggestions



Creating Excel Raters

Driver Age Factor



Key Takeaways:

- Age 16 ~ Most risky
- Age 40 ~ Safest
- Age 70+ ~ More risky than 40



Factors to Consider

Policy Level

- Coverage Limits
- Household Composition
- Advanced Shopping Discount

Driver Level

- Years of Driving Experience
- Driver Age
- Driver Point

Vehicle Level

- Deductible
- Model Year
- Vehicle Symbol
- New Car Discount



Company Coverages

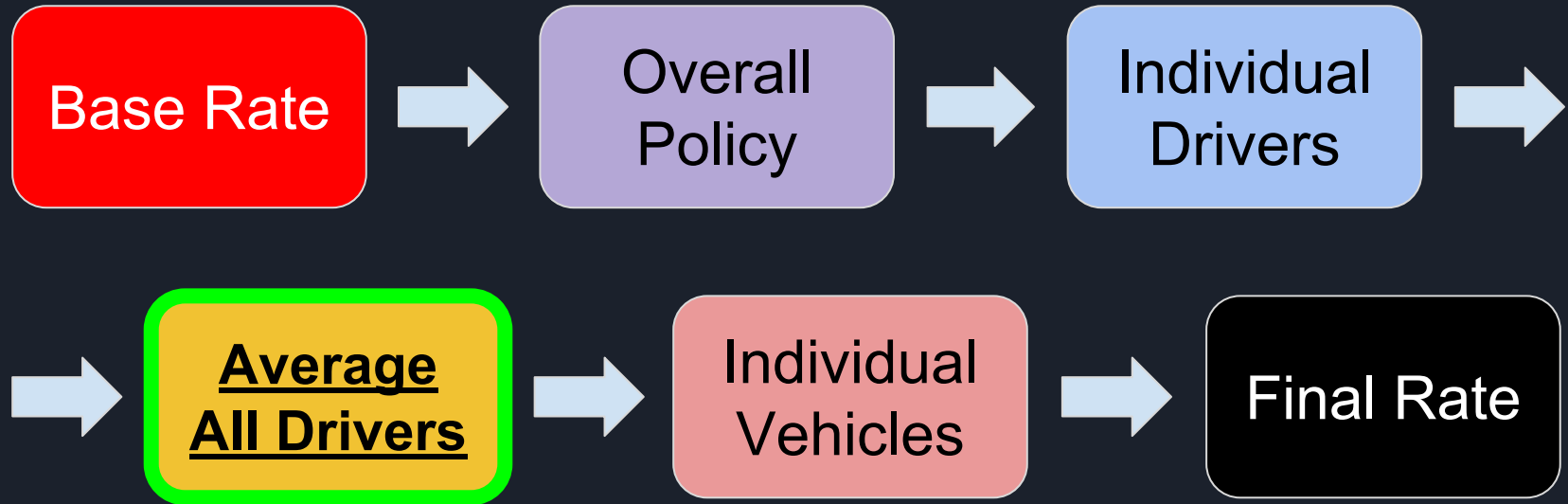
**Bodily Injury
Liability**

**Physical
Damage
Liability**

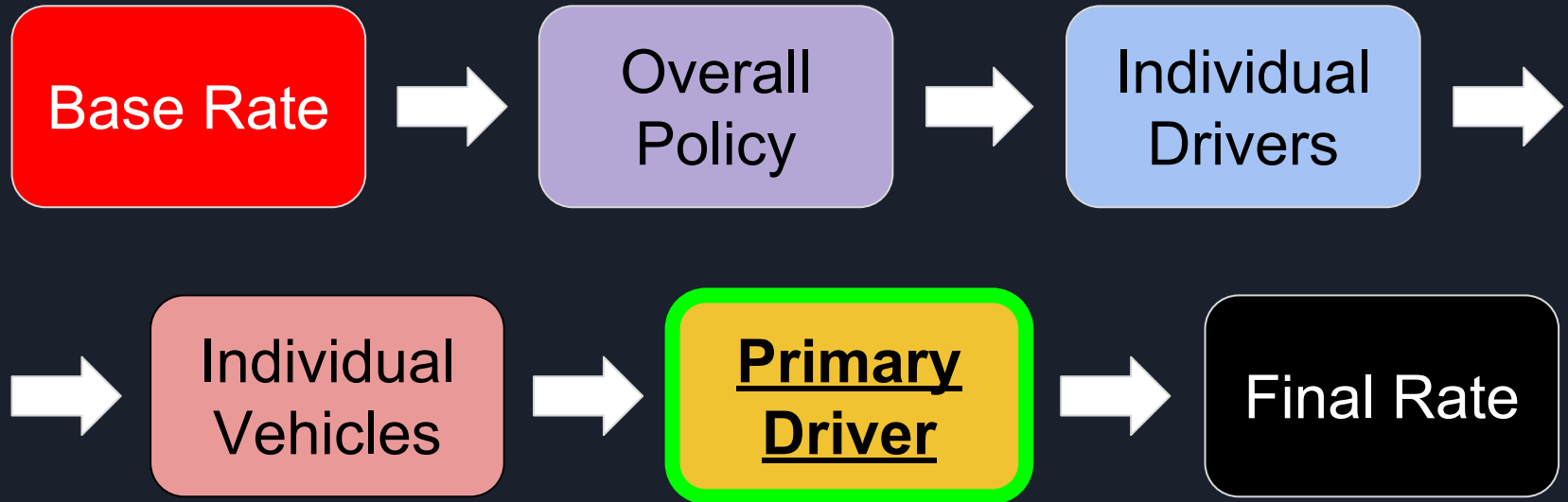
Comprehensive

Collision

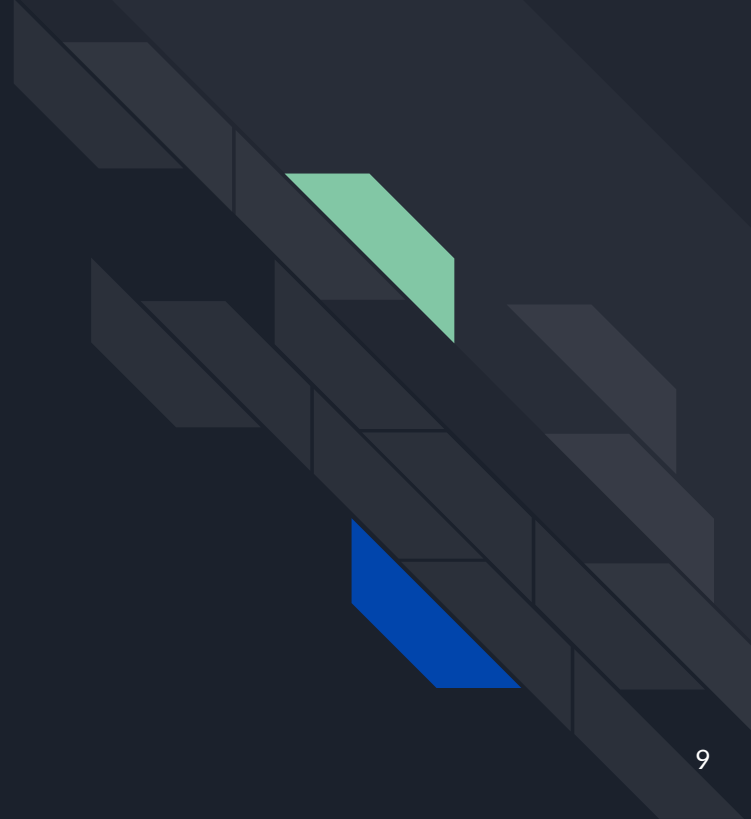
Driver Averaging



Driver Assignment



Example Profiles





Profile 1

2 Drivers (Age 52, 19)
3 Vehicles

Driver Averaging

- Vehicle 1: \$1,537.55
- Vehicle 2: \$463.13
- Vehicle 3: \$1,675.24
- **Total: \$3,695.92**

Driver Assignment

- **Vehicle 1:** \$1,255.48
- **Vehicle 2:** \$566.19
- **Vehicle 3:** \$1,322.89
- **Total: \$3,134.56**



Profile 2

3 Drivers (Age 46, 45, 21)
2 Vehicles

Driver Averaging

- Vehicle 1: \$2,366.15
- Vehicle 2: \$999.17

- **Total: \$3,395.32**
- Driver 2 Included

Driver Assignment

- **Vehicle 1:** \$1,697.23
- **Vehicle 2:** \$902.28

- **Total: \$2,629.51**
- Driver 2 Excluded



Profile 3

**1 Driver (Age 32)
1 Vehicle**

Driver Averaging & Driver Assignment

- Total: \$1,099.85 (Identical)
- **1 driver policy causes no difference**



Driver Averaging vs. Driver Assignment

Driver Assignment	Driver Averaging
Takes account of which drivers drive which cars	Takes account of every driver in the policy

Both methods should be considered for different situations

Collision Analysis with GLM

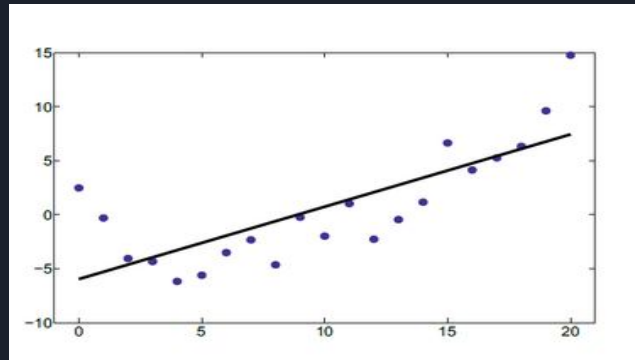
The background features a series of dark grey, three-dimensional rectangular planes that recede into the distance, creating a sense of depth. A light green parallelogram is positioned in the upper right, and a blue parallelogram is positioned below it, both appearing to be part of the geometric structure.

Generalized Linear Model (GLM)

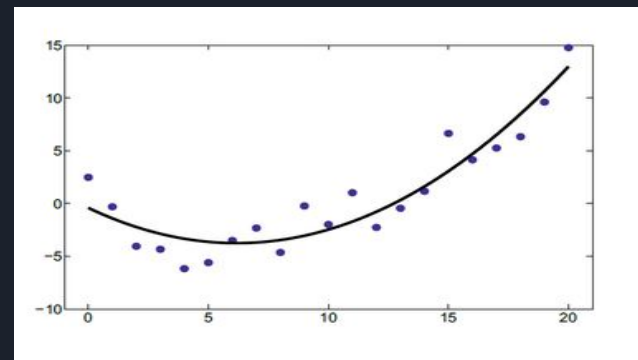
GLM - Enhanced Version of Simple Linear Model

- Flexible to different data patterns
- Works well with more types of variable

Simple Linear Model



GLM





Dataset for GLM

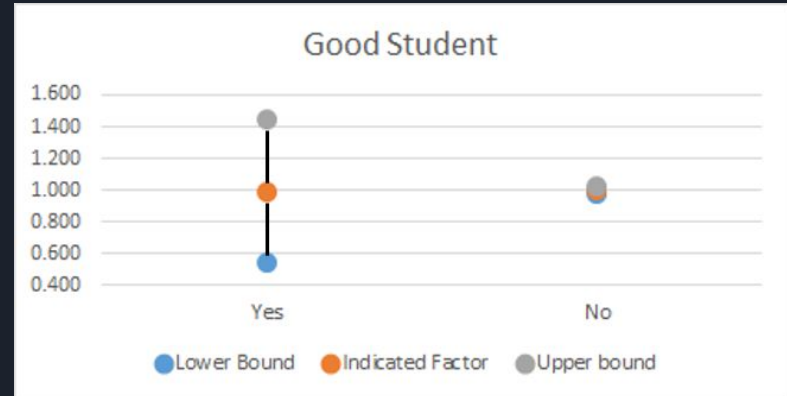
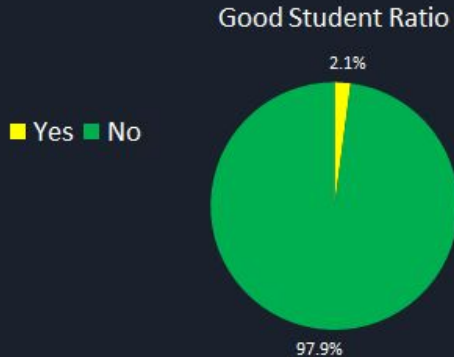
Collision
coverage
exclusive

Sample includes
all clients

Data from
2014 - 2018

Concerns with The Variables

- 2 Driver Points (1.160) vs. 1 Driver Point (1.423)
 - Possible Error With
 - Training Model
 - Insurance Point System
- “Good Student” variable





Methodology Suggestions

Selecting time Period

Consider major law changes

Model by individual states

State-specific factors

- Geography
- Regulations



Rater Enhancement

Adjust/Remove...

Model Year Factor
Years Driving Experience

Add...

Vehicle Use Factor
“New Driver” Factor



Challenges & Suggestions

Dropping Retentions



- Possibly from Adverse Selection
- Implement Verification Methods

Reaching out to Young Drivers



- A New “Good Student” Factor
- Advertisement on Group Discounts

Thank You!

