

Vehicle Insurance Claims

Visual Story, Insight Summary & Business Recommendations

PG-DSBA Project 8

Eric Green

Jun 27, 2021

Context & Objectives

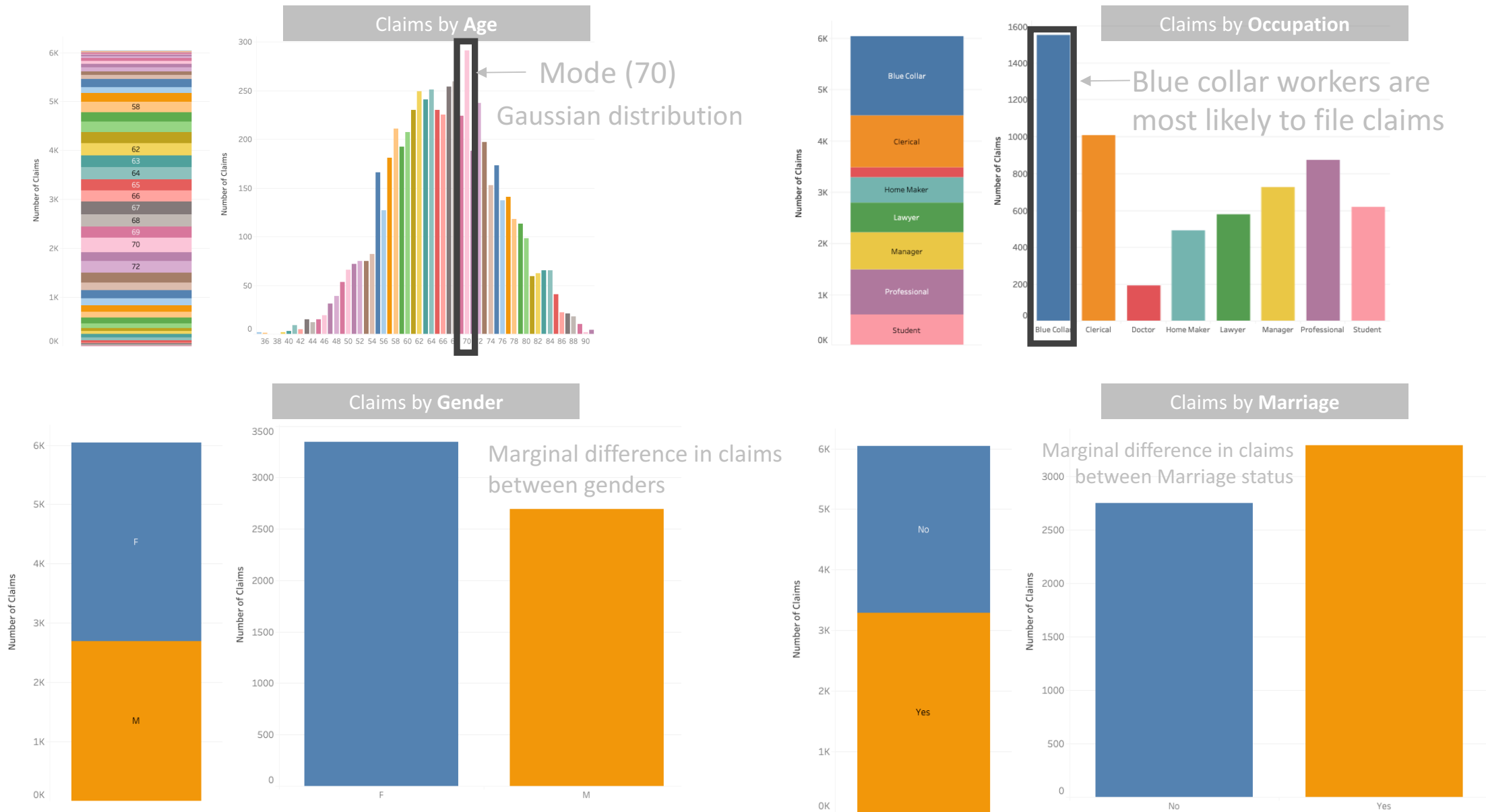
- Data is given for vehicle insurance customers which indicate the number of times and amounts of insurance claims they have had – this data allows us to understand risk to the business
- By understanding this data, we can use it to improve business performance of the insurance company

Objectives

- To explore the data set using Tableau and to create an analysis tool (visual story) for company managers and leaders to understand the drivers of claims liability and risk
- Provide summary of insights & business recommendations to increase *fitness-for-purpose* of the insurance company

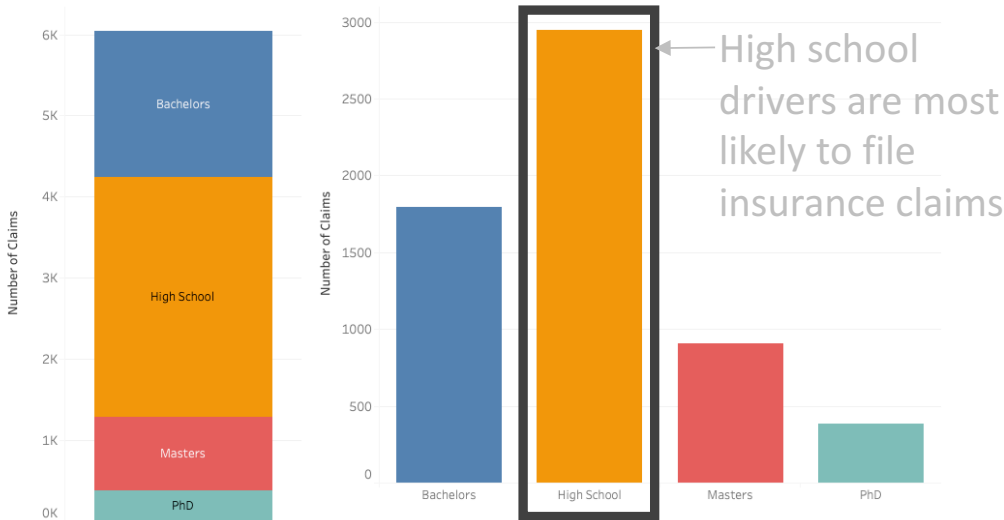
Claims by **Customer Attributes**

Number of Claims by Customer Attributes (1)

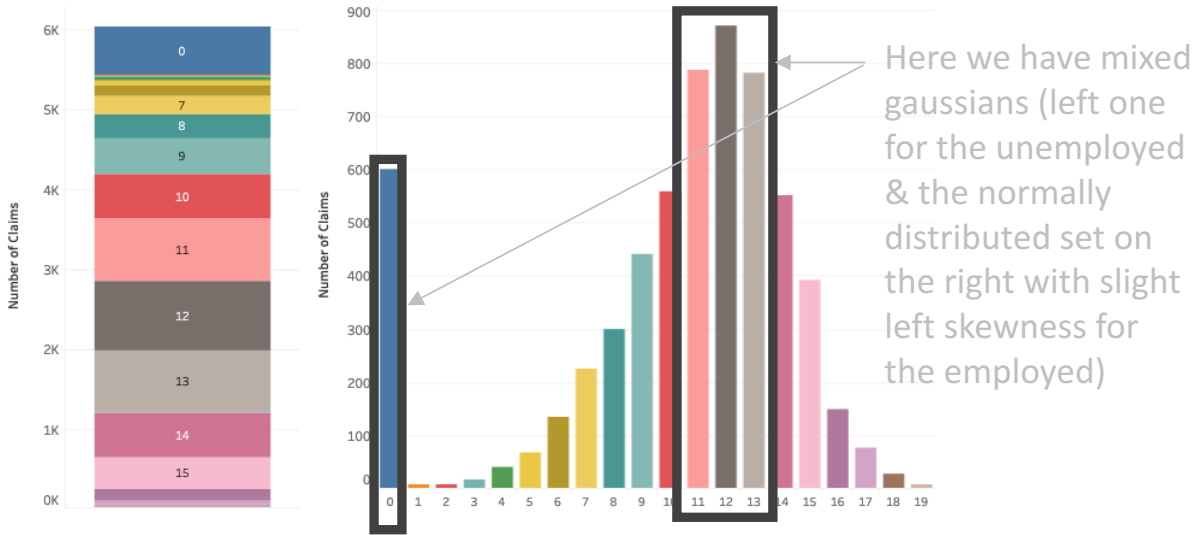


Number of Claims by Customer Attributes (2)

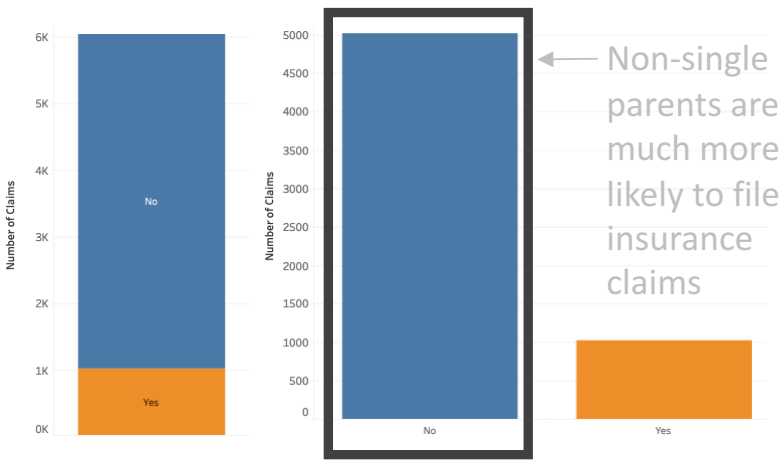
Claims by Education



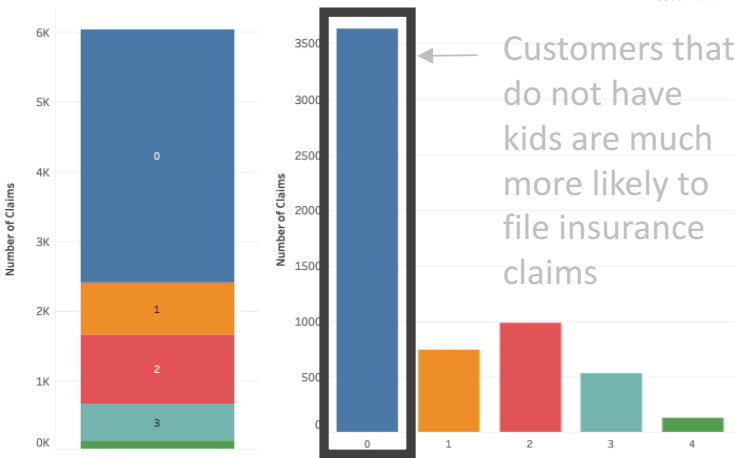
Claims by Years of Work Experience



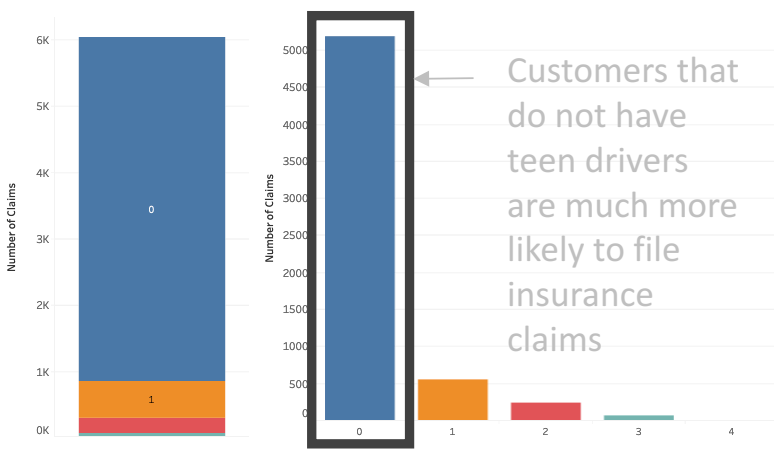
Claims by Single Parent



Claims by Kids (# of)

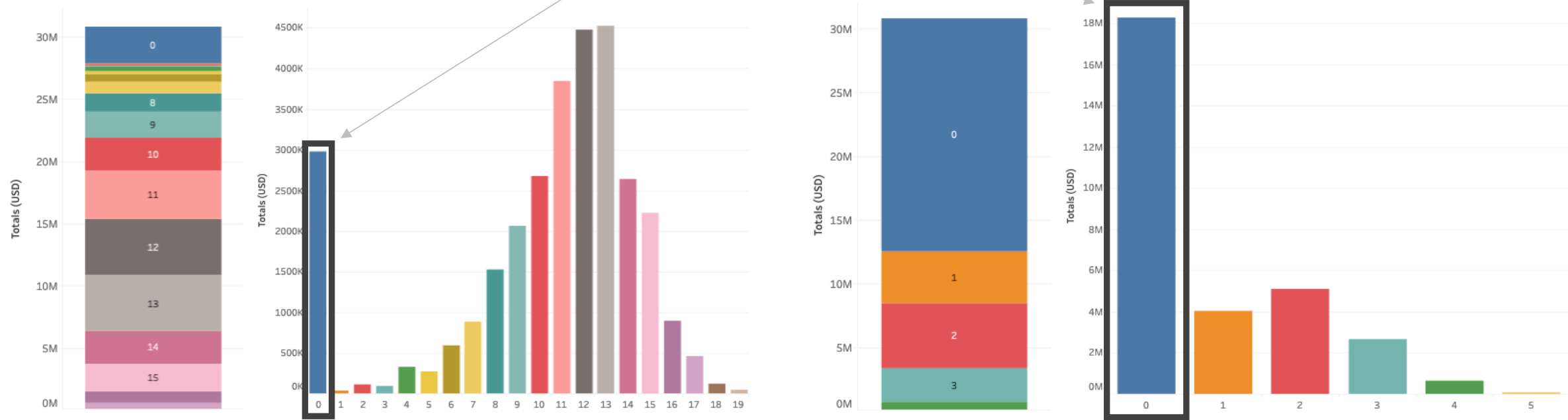


Claims by Teen Drivers

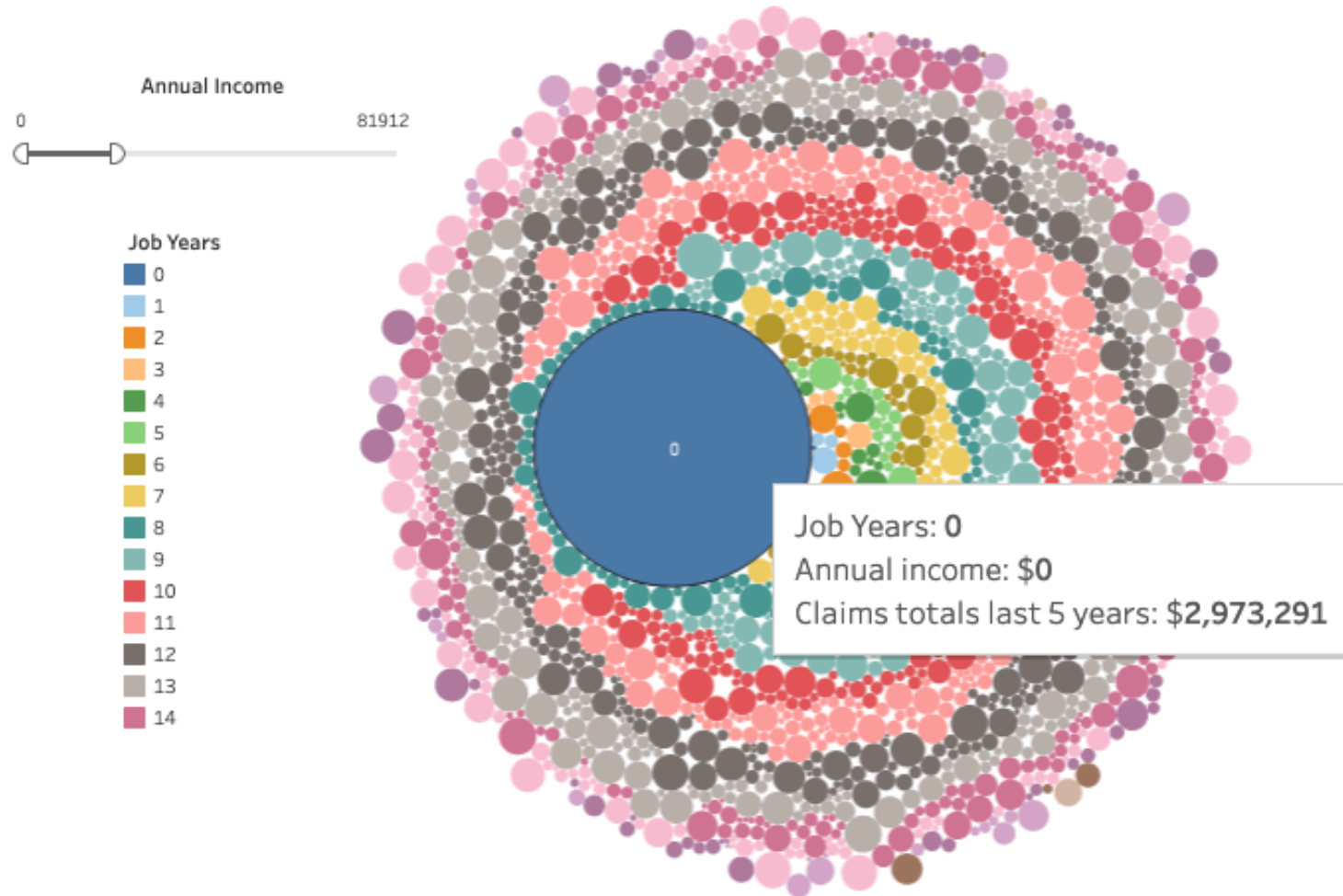


Claim total propensity by kids & employment

We can clearly see that customers that have no kids and are not employed have a propensity for high claim totals



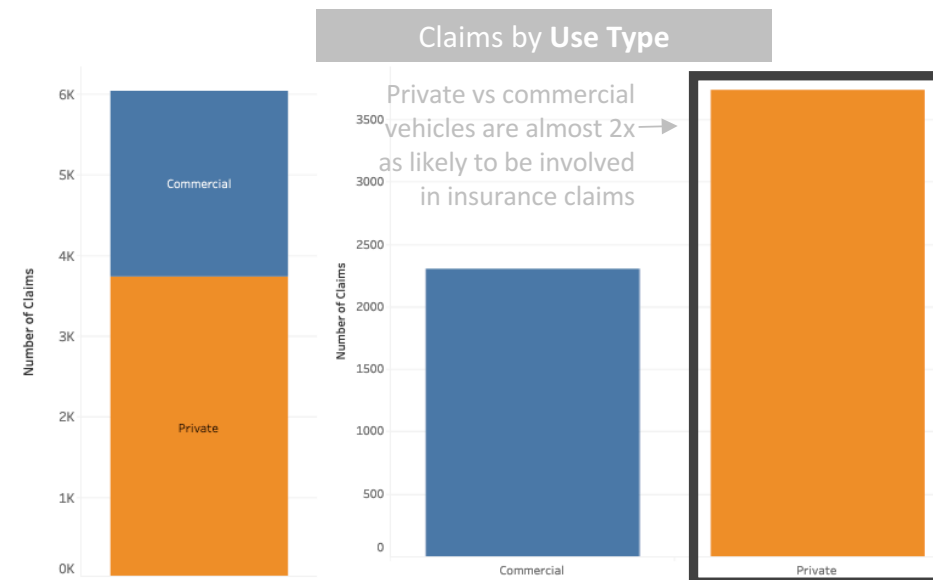
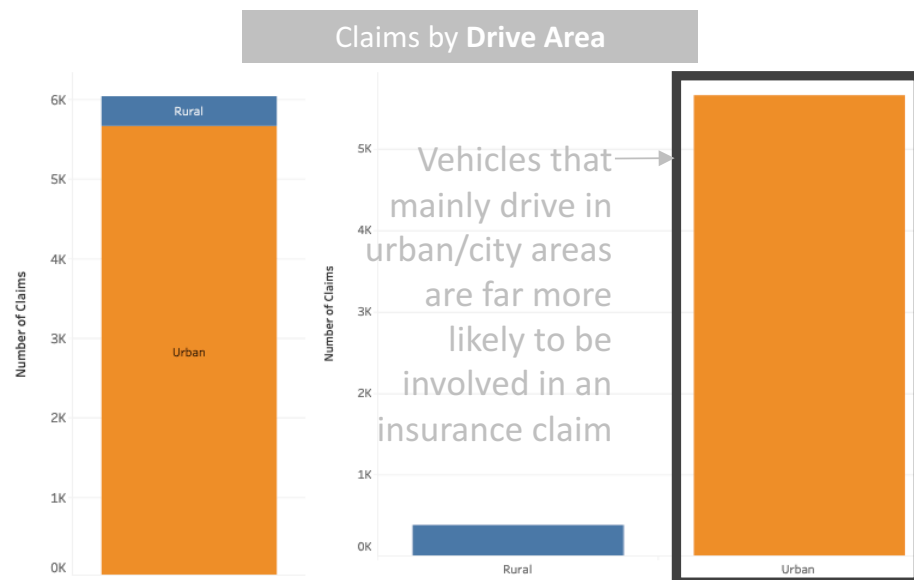
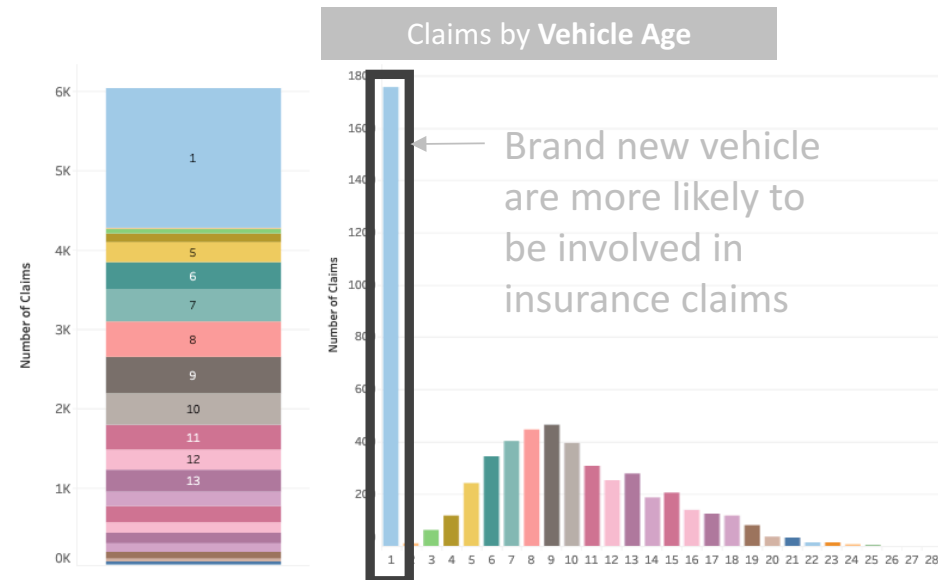
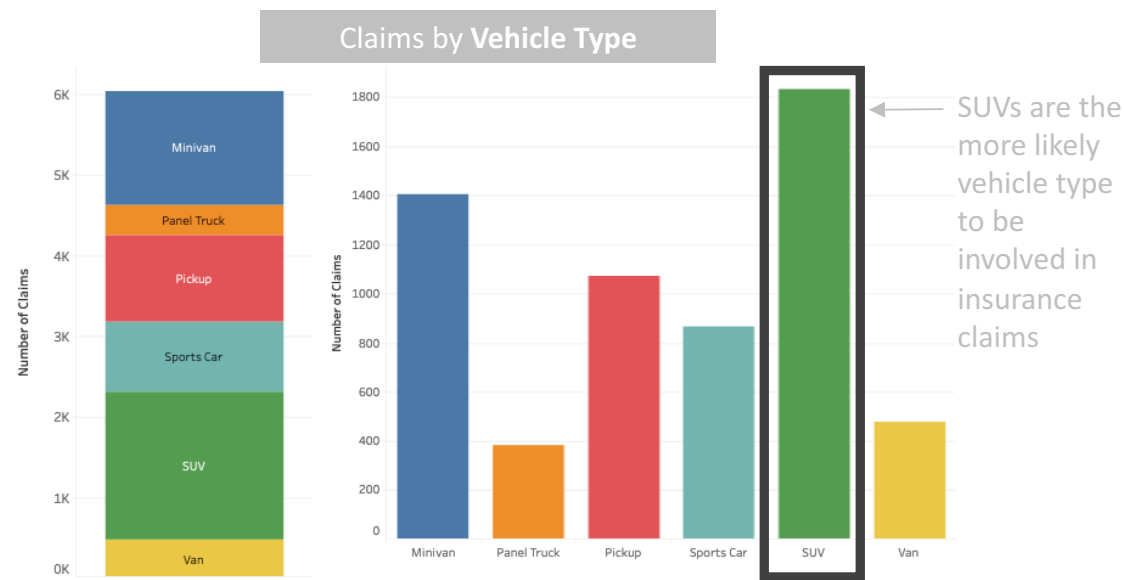
How does **employment** affect insurance claims?



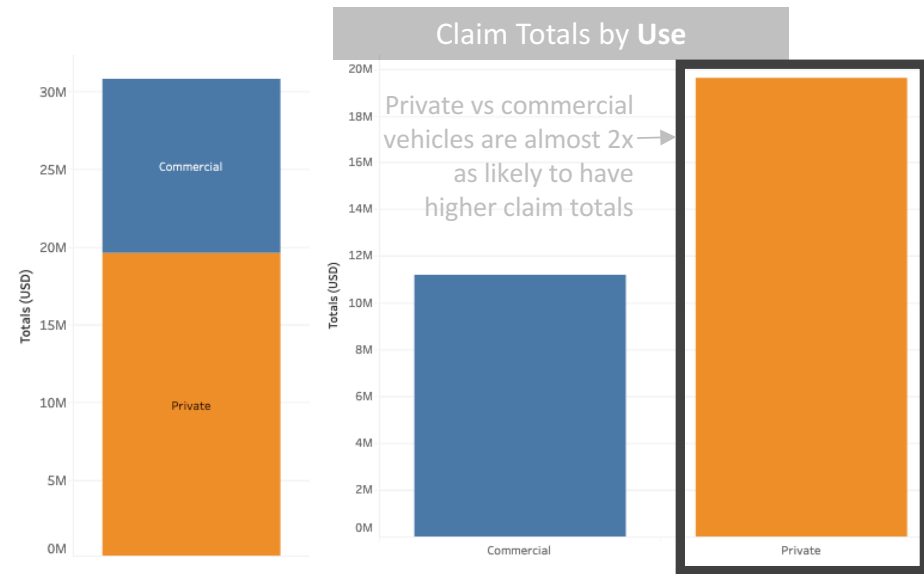
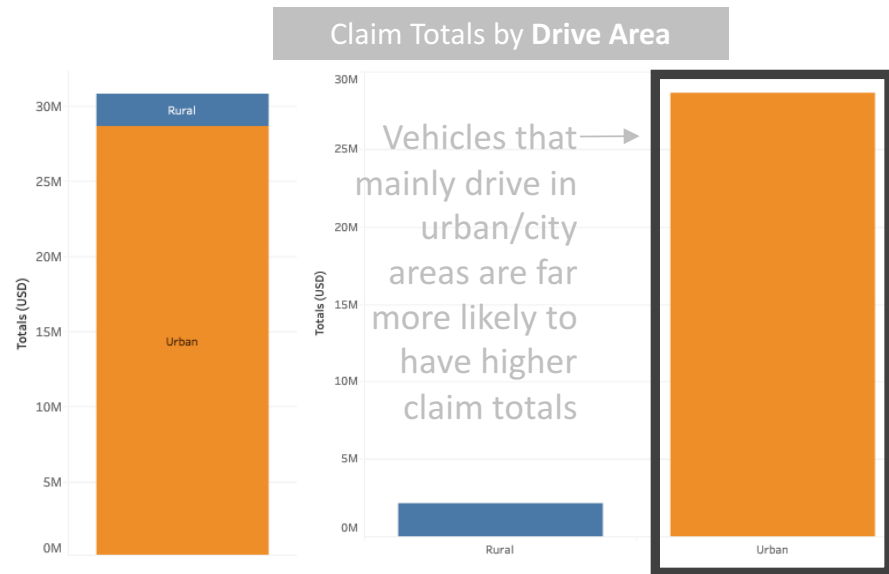
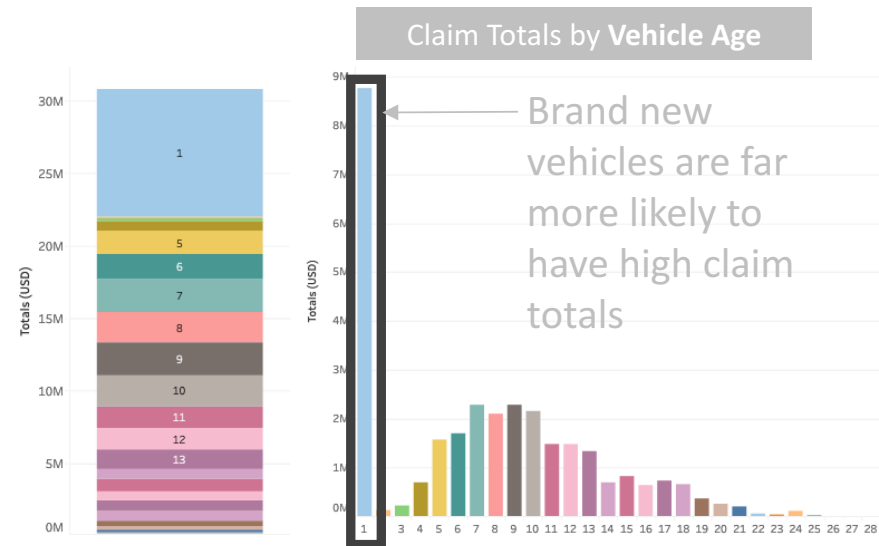
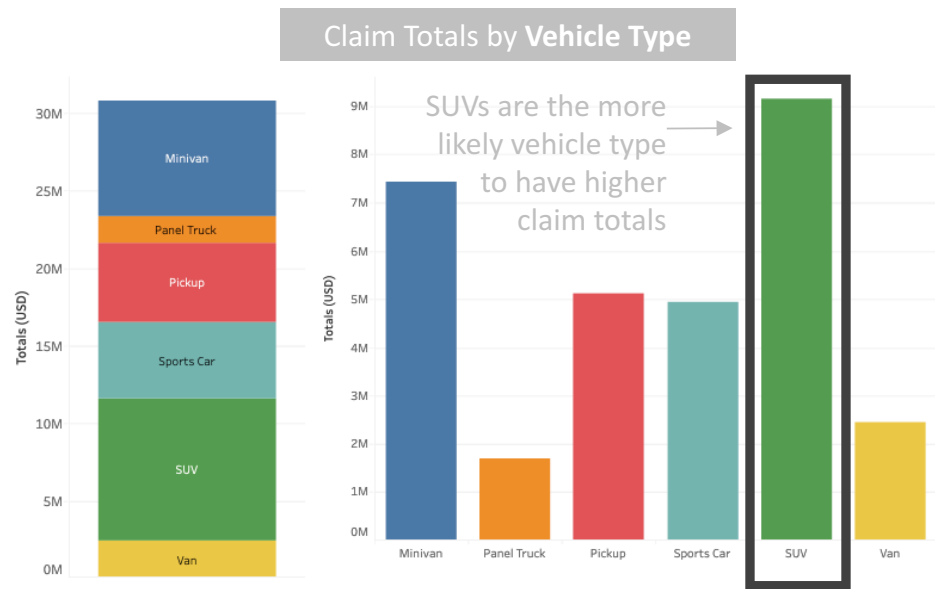
Customers that are unemployed account are the most likely segment to file insurance claims

Claims by **Vehicle Attributes**

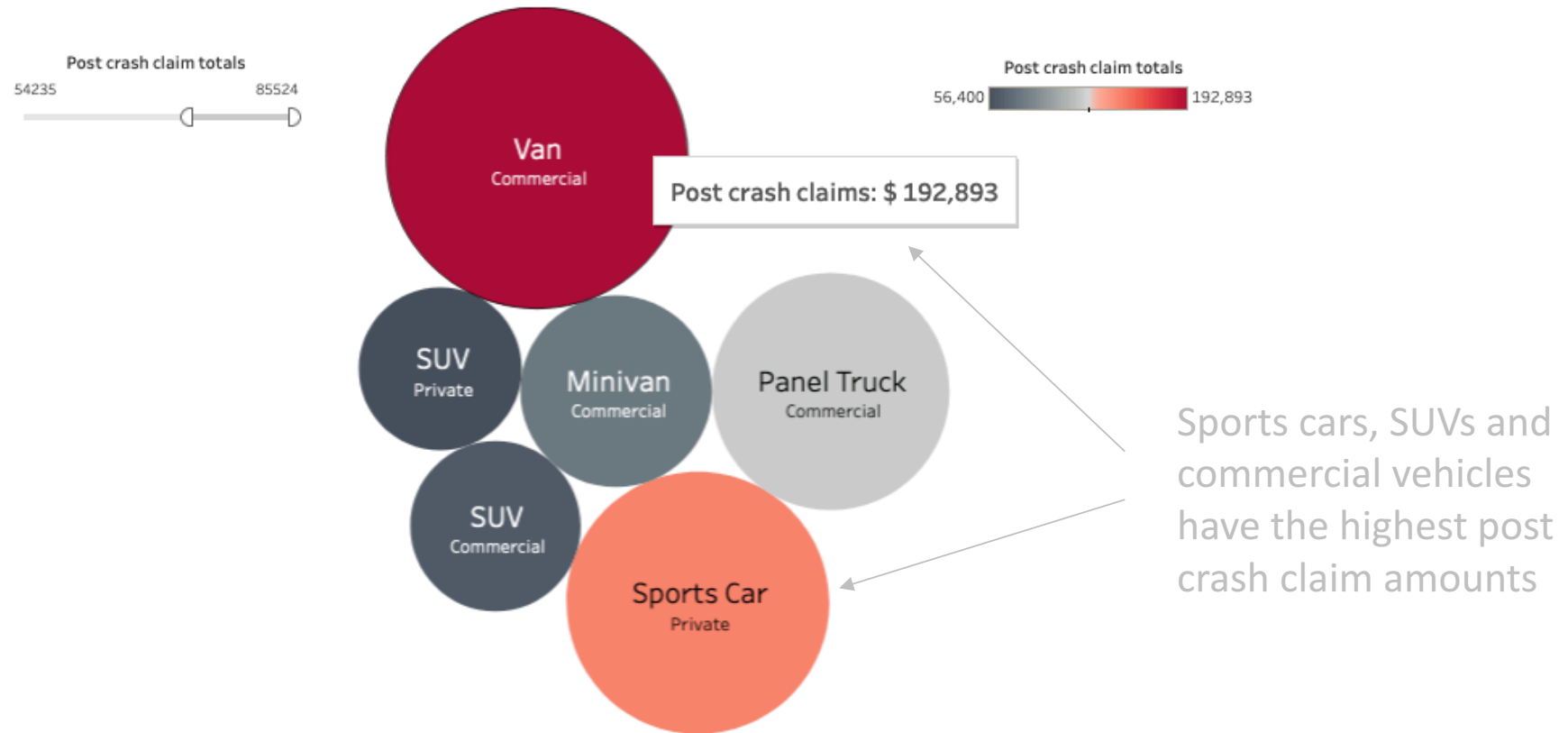
Number of claims by Vehicle attribute



Claim totals by vehicle attribute



Post Crash claim totals by vehicle & use type



Summary of Insights

Customer Risk Factors

- Blue collar workers are the most likely occupation to file insurance claims
- Marginal difference between genders and marital status in likelihood of filing insurance claims
- Customers with no more than a high school education account for the majority of insurance claims
- Customers who have never been employed have high propensity for filing insurance claims
- Customers without kids are far more likely to file insurance claims compared with those with kids
- Customer without teen drivers are most likely to file insurance claims compared with those with 1 or more teen drivers

Vehicle Risk Factors

- SUVs are the most likely vehicle type to be involved in filed insurance claims
- Brand new (1 year or less) vehicles are far more likely than any other age to be involved in insurance claims
- Vehicles driven mainly in urban/city areas are far more likely to be involved in insurance claims compared with rural
- Private vehicle are almost twice as likely to be involved in insurance claims compared with commercial vehicles
- Sports cars, SUVs and commercial vehicles have the highest post crash claims filed

Business Recommendations

Marketing Segmentation

- ✓ To increase profit and reduce claims, marketing investment and strategy should focus on prospective customers that are least likely to file claims
- ✓ Rate discounts should be presented to the lowest cost customers
 - ✓ Professionals with at least a bachelors degree & 8+ years of work history should get maximum discounts, as these are our lowest cost customers to service
 - ✓ Customers insuring rural and commercial vehicles should get a discount as these groups have a low propensity for claims (we want increase the overall proportion of low cost customers)
- ✓ Clustering should be used to isolate distinct customers groups to adaptively inform digital marketing campaigns

Claims Prediction & Pricing Optimization

- ✓ Predictive models should be explored to iteratively monitor claim propensities of customer segments
- ✓ Premiums should be higher for customers that are likely to file claims (risk hedge)
 - ✓ Insurance rates should be increased proportional to the financial liability/risk represented by these customers in terms of claims (further analysis needed)
- ✓ Explore machine learning models to adaptively set pricing targets based on claim risk data and other economic factors

Visual Story & Analysis of Insurance Claims

Analysis Guide

1 - Claims (# of) by Customer attribute

2 - Claim totals (\$) by Customer attribute

3 - Claim totals by Customer employment

4 - Claims (# of) by Vehicle attribute

5 - Claim totals (\$) by Vehicle attribute

6 - tot


Visual Story Guide for Insurance Claims

This visual story seeks to understand business liability and risk for the insurance company from the data provided.

Through understanding the characteristics of customers and vehicles that are more commonly associated with claims, the business can increase profits by selling more insurance policies to higher value (low liability) customers and can mitigate financial risk by optimizing pricing segments of its insurance products.

Notice: Use the gray box navigation sequence above to move through the visual story of claims risk

Car Insurance Wikipedia



WIKIPEDIA

The Free Encyclopedia

[Main page](#)
[Contents](#)
[Current events](#)
[Random article](#)
[About Wikipedia](#)
[Contact us](#)
[Donate](#)

[Contribute](#)
[Help](#)
[Learn to edit](#)
[Community portal](#)
[Recent changes](#)
[Upload file](#)

[Tools](#)
[What links here](#)
[Related changes](#)
[Special pages](#)
[Permanent link](#)
[Page information](#)
[Cite this page](#)
[Wikidata item](#)

[Print/export](#)
[Download as PDF](#)
[Printable version](#)

[Languages](#)

Deutsch
Español
Français
한국어
हिन्दी
Bahasa Indonesia
日本語

Article

Talk

Read

Edit

View history

Vehicle insurance

From Wikipedia, the free encyclopedia



This article **needs additional citations for verification**. Please help [improve this article](#) by adding citations to [reliable sources](#). Unsourced material may be challenged and removed.

Find sources: "Vehicle insurance" – news · newspapers · books · scholar · JSTOR (July 2014) [\(Learn how and when to remove this template message\)](#)

Vehicle insurance (also known as **car insurance**, **motor insurance**, or **auto insurance**) is [insurance](#) for [cars](#), [trucks](#), [motorcycles](#), and other road vehicles. Its primary use is to provide financial protection against physical damage or bodily injury resulting from [traffic collisions](#) and against [liability](#) that could also arise from incidents in a vehicle. Vehicle insurance may additionally offer financial protection against [theft](#) of the vehicle, and against damage to the vehicle sustained from events other than traffic collisions, such as [keying](#), weather or [natural disasters](#), and damage sustained by colliding with stationary objects. The specific terms of vehicle insurance vary with legal [regulations](#) in each region.

Contents [\[hide\]](#)

1 History

2 Public policies

2.1 Australia

2.1.1 Compulsory Third Party Insurance

2.2 Bangladesh

2.3 Canada

2.4 European Union

2.5 Germany

2.6 Hong Kong

2.7 Hungary

2.8 Indonesia

2.9 India

2.9.1 Third-party insurance

2.10 Ireland

2.11 Italy

2.12 Netherlands

2.13 New Zealand

2.14 Norway

2.15 Romania

2.16 Russian Federation

2.17 South Africa

Try the Tableau Public story board

<https://public.tableau.com/app/profile/eric.green2313/viz/Project8-VehicleInsuranceClaimsEricGreen/VisualStory>