

## Reports, Observations and Conclusions [Answering Key Questions]

Tool Used: Microsoft Power BI

### Answers To Key Questions

#### Claim Frequency and Amount Analysis

- What are the average claim frequencies and amounts for different demographic groups (e.g., age, gender, marital status)?

#### Demographics

**Age:** The average claim amount ranges from \$48K to \$52K, with the highest amounts observed in older age groups that is 40+. The average claim frequency increases slightly with age.

**Gender:** The average claim amount is higher in for males than females, whereas claim frequency is slightly higher for females.

**Marital Status:** Married individuals have the highest average claim amounts, while separated individuals have the highest claim frequencies.

Age Group	Total Policyholders	Average Claim Amount	Average Claim Frequency
20 - 30	6242	\$49,871.5	0.515
30 - 40	7128	\$50,014.7	0.511
40 - 50	7059	\$50,219.8	0.520
50 - 60	7056	\$49,867.2	0.502
60 - 70	7191	\$50,409.0	0.505
70+	2866	\$49,376.2	0.509

Gender	Total Policyholders	Average Claim Amount	Average Claim Frequency
Male	18,736	\$50,197.6	0.506
Female	18,806	\$49,860.1	0.514

Marital Status	Total Policyholders	Average Claim Amount	Average Claim Frequency
Single	15525	\$49,906.3	0.505
Married	12570	\$50,337.8	0.520
Separated	3090	\$49,259.4	0.534
Divorced	6357	\$50,089.2	0.492

- Are there any specific vehicle characteristics (e.g., make, model, and year) that correlate with higher claim frequencies or amounts?

### Vehicle Characteristics [Highest Claims]

The top three (3) cars having the highest claim amounts.

Car Make	Total Policyholders	Total Claim Amounts	Total Claim Frequencies
<b>Ford</b>	3302	\$165,583,317.0	1694
<b>Chevrolet</b>	2954	\$147,856,359.2	1457
<b>Dodge</b>	1843	\$92,912,361.2	933

Car Model	Total Policyholders	Total Claim Amounts	Total Claim Frequencies
<b>Grand Prix</b>	250	\$12,264,512.0	167
<b>Mustang</b>	231	\$12,165,358.0	124
<b>Corvette</b>	235	\$11,445,437.3	84

Car Year	Total Policyholders	Total Claim Amounts	Total Claim Frequencies
<b>2006</b>	1978	\$97,397,487.5	1039
<b>2009</b>	1822	\$90,512,309.7	925
<b>2008</b>	1865	\$89,889,342.7	894

### Overall Highest Claim Amounts and Frequencies

The **Ford Thunderbird** which is a **2006** year model has the **highest claim** of **\$715,528.3**, a **claim frequency** of **6** with a **total** of **11** policyholders.

### Risk Assessment

- Which factors (e.g., household income, education level, coverage zone) are most indicative of high-risk policyholders?

### High-risk Policyholders

**Household Income:** Policyholders with incomes around \$45,004.91 to \$249,991.11 with the average household income being \$145,000 have varied claim frequencies and amounts, with no clear correlation to high-risk.

**Education Level:** higher claim counts were observed among those with Bachelor's and High School Education.

**Coverage Zone:** Suburban and Highly Suburban Zones show higher claim counts, indicating higher risk.

- Can we identify any common characteristics among policyholders who make frequent claims?

**Frequent Claimants** – Suburban Residents.

### **Premium Optimization**

- How do current premium amounts relate to the risk profiles of policyholders?

### **Premium Amounts and Risk Profiles**

Higher risk policyholders may have higher premiums and lower risk policyholders may have lower premiums.

### **Higher Risk Profiles and Higher Premiums**

**Age Group 40 – 50:** Higher Average Claim Frequency.

**Age group 60 – 70:** Higher Average Claim Amount.

**Separated Individuals:** Higher Average Claim Frequency.

### **Lower Risk Profiles and Lower Premiums**

**Age Group 50 – 60:** Lower Average Claim Amount.

**Divorced Individuals:** Lower Claim Frequency.

**Rural Residents:** Lower Average Claim Amount.

- Can we recommend adjustments to the premium pricing model to better reflect risk levels and improve profitability?

Yes we can, by adjusting premiums based on detailed risk assessments, including vehicle make and model, coverage zones, and education level of policyholders. Basically, we can increase premiums for high risk policyholders.

## Customer Segmentation and Marketing

- What are the key characteristics of policyholders with low claim frequencies and high household incomes?

Typically those with higher education levels [PhD, and Masters].

- How can we segment the customer base to identify high-value customers for targeted marketing campaigns?

1. Household Income
2. Claim Frequency
3. Education Level
4. Coverage Zones

## Demographic Analysis

- How does the distribution of policyholders vary across different demographic factors (age, gender, marital status)?

Middle-aged policyholders are more frequent, with a balanced distribution across genders. Marital status shows a higher proportion of married individuals.

- Are there any noticeable trends in car usage and ownership among different demographic groups?

### Car Usage Trends Among Different Demographics with Higher Claim Counts and Higher Claim Frequencies.

Car Usage	Age Group	Marital Status	Education	Coverage Zone
Commercial	40 – 50	Divorced	Bachelors	Rural
Private	30 – 40	Divorced	Bachelors	Highly Rural

## Geographical Analysis

- How do claim frequencies and amounts vary across different coverage zones?

Coverage Zone	High Claim Count	Total Claim Frequency
Highly Rural	142	887
Highly Urban	121	790
Rural	133	866
Suburban	126	799
Urban	134	862

- Are there any regional trends or patterns that should be taken into consideration for marketing or risk assessment?

Coverage Zone	High Claim Count	Total Claim Frequency	Total Claim Amount
Highly Rural	141	887	\$85,451,400.9
Highly Urban	121	790	\$78,122,527.7
Urban	133	866	\$79,279,045.2

These are the top three (3) regions with higher claim amounts and higher claim frequencies, which should be taken into consideration for marketing or risk assessment.

## Customer Behavior Insights

- Are there any trends or patterns in the behavior of policyholders who have children driving?
- How does the presence of children driving affect the frequency and number of claims?

Kids Driving	Total Claims	Average Claim Frequency	Total Claim Frequency
0	5740	0.513	\$286,872,341.5
1	1487	0.494	\$74,587,887.5
2	752	0.565	\$36,563,777.8
3	181	0.558	\$8,501,142.9

This shows that those with no kids driving and those having 1 kid driving have higher claim frequencies and amounts, and that they can be considered for premium options.