RECOMMENDATION REPORT

Domain – Auto Insurance Claims – Risk Assessment

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PROBLEM STATEMENT

A famous Auto Insurance provider in France is trying to understand the underlying factors associated on making an auto insurance claim for a particular city. The data has been gathered by a third-party vendor from different Auto Insurance providers that has customer demographic information and if they have made claims or not.

Extract important insights from the data which will help the marketing team to better make pricing decisions and assess the underlying risk elements. The data dictionary below provides the details of the dataset

Data Dictionary – Table name - auto_insurance_risk

- **IDpol:** The policy ID (used to link with the claims dataset).
- **ClaimNb:** Number of claims during the exposure period.
- **Exposure:** The exposure period. o Area The area code.
- **VehPower:** The power of the car (ordered categorical).
- **VehAge:** The vehicle age, in years. o DrivAge The driver age, in years (in France, people can drive a car at 18).
- **BonusMalus:** Bonus/malus, between 50 and 350: 100 means malus in France. (https://en.wikipedia.org/wiki/Bonus-malus)
- **VehBrand:** The car brand (unknown categories).
- **VehGas:** The car gas, Diesel or regular.
- **Density:** The density of inhabitants (number of inhabitants per km2) in the city the driver of the car lives in.
- **Region:** The policy regions in France (based on a standard French classification)

STEPS INVOLVED AND PROPOSED INSIGHTS

- Average exposure period for those who have claimed=0.642495175948072

Protection of the covered claims will be provided if claimed within exposure period. Therefore we can infer that on an average exposure period of 0.64, the insurance are claimed due to accidency or loss or risk of exposure.

- Percentage of claim rate: E1=19.67, E2=17.95, E3=16.53, E4=45.28

Exposure between 0 and 0.25 is E1

Exposure between 0.26 and 0.5 is E2

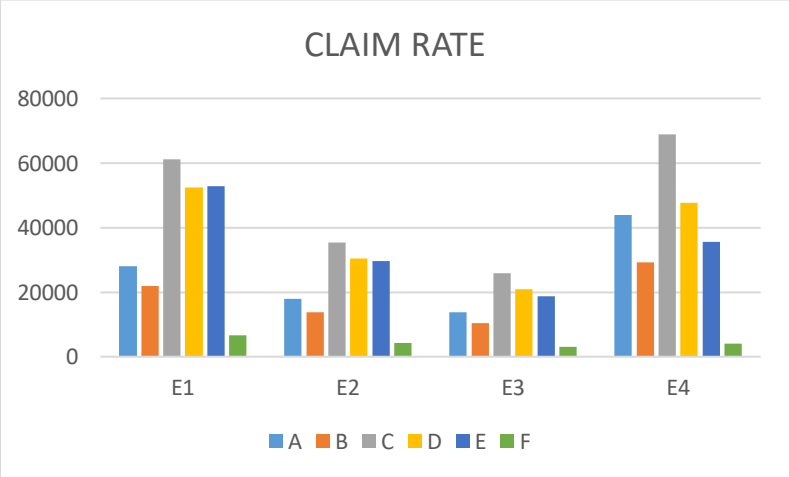
Exposure between 0.51 and 0.75 is E3

Exposure>0.76 is E4

It can be summarised that as percentage of claim rate for E1>E2>E3 but E4 has the highest claim rate percentage.

Claim Rate

Area	Exposure between 0 and 0.25 as E1	Exposure between 0.26 and 0.5 as E2	Exposure between 0.51 and 0.75 as E3	Exposure>0.76 As E4
A	28028	17983	13732	43881
B	21905	13677	10346	29268
C	61111	35464	25806	68885
D	52369	30342	20814	47587
E	52751	29649	18789	35596
F	6648	4187	3007	4064



- We can see the pattern that for Exposure E1>E2>E3, after that claim rate is increasing for E4 for the areas

- When Claimed, Average vehicle age = 6.50252495596007
  When not Claimed, Average vehicle age = 7.07291836516019

  We can infer that the Average vehicle age when claimed is less than the average vehicle age when not claimed.
- From the table we can infer that the average vehicle age for Area A greatest followed by Area B then Area D, Then Area C(which is almost equal to Area D) , then Area E, then Area F. We can infer from the above data that Area A may be the least busy and chances of risk is less there followed by by Area B then Area D, Then Area C, then Area E, then Area F.

Area	AVG(VehAge)
A	7.43407162078245
B	6.97988980716253
C	6.44025224454895
D	6.49011657374557
E	6.09772478070175
F	4.03886255924171

- It can be seen that the Average Vehicle Age for claimed is less than the Average Vehicle Age for not claimed ones for every exposure periods.

E1_CLaimed_AVG_VehAGe	E2_CLaimed_AVG_VehAGe	E3_CLaimed_AVG_VehAGe	E4_CLaimed_AVG_VehAGe
4.89	6.22	6.18	7.41

E1_NOT_CLaimed_AVG_VehAGe	E2_NOT_CLaimed_AVG_VehAGe	E3_NOT_CLaimed_AVG_VehAGe	E4_NOT_CLaimed_AVG_VehAGe
6.36	6.72	6.27	8.32

- We can infer that the average BonusMalus is less for those without any claims, higher for those with 1 claim and highest for those whose made claims more than once.

CLAIM_CT	AVG(BonusMalus)
1 Claim	62.8371558207471
MT 1 Claims	67.5531349628055
No Claims	59.5850411443071

- From the data, we can infer that as the density increases, claim rate increases as the are becomes more busy, maybe with more traffic and with higher chances of risk.
- The claims more than one is having the highest density followed by 1 claim and least deny for no claims.

CLAIM_CT	AVG(Density)
1 Claim	1947.32404127043
MT 1 Claims	2297.45483528162
No Claims	1783.20605541088

- We can infer that as the age is increasing, the BonuMalus is decreasing. That means with increasing age, risk factor is decreasing as if the DrivAge=18, they have more chances of risk than increasing age.

Average BonusMalus according to DrivAge is as follows.

DrivAge=18	DrivAge<=30	DrivAge<=45	DrivAge<=60	DrivAge>60
93.01	79.53	65.27	61.01	52.80

PROPOSED SOLUTION:

The benefits and marketing can be focused based on exposure, density of areas, DrivAge, BonusMalus and Claim rate on the basis of insights mentioned above.

SUMMARY

It can be seen that the claim rates are affected by The benefits and marketing can be focused based on exposure, density of areas, DrivAge, BonusMalus and Claim rate on the basis of insights mentioned above. Therefore strategies looking at these should be made properly.