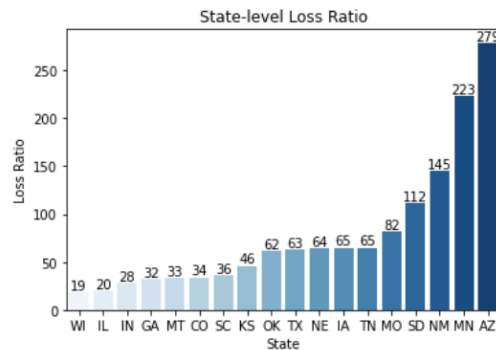


Fortegra Data Challenge - Executive Summary

Executive Summary

The loss ratio of this irrigation sprinkler insurance portfolio is 59.3% overall and 335.4% where claims were made. While overall the business operates at a workable ratio, the aforementioned abysmal loss ratio where claims were made is one of many cases where business operations could be optimized.



The above (State-level Loss Ratio) visualization highlights that some locations perform better than others. To this point, and to lower the loss ratio, we'd recommend the following changes to the underwriting process:

1. Expand operations, up-sell, and otherwise seek new clientele in locations where loss ratios are favorable.
2. Increase premiums to a level that brings the loss ratio below 60% or cease policies in locations where loss ratios are unfavorable.
3. Diversify the portfolio by converting / on-boarding more customers to high deductible policies.
4. Increase premiums in a stepwise fashion based on magnitude and frequency of claims.
5. Cease policy offerings on equipment from prior to the 1970s and increase premiums by on modern equipment.

Data Cleaning & Assumptions

In preparing the data, the following, simplifying assumptions were made:

1. Data was aggregated for all 5 years of data.
2. Claims were excluded if they'd been denied, withdrawn, did not have money tied to them, or did not have paid-for premiums.
3. Premiums were excluded if they were duplicates or did not have positive premium or equipment values.
4. Missing EquipmentYear observations were excluded (from claims and premiums data) because claims should not be paid for irrigation *equipment* where *equipment data* was not provided.
5. Claims outliers were left in because they appear to be "naturally occurring" whereas premiums outliers were excluded because they appeared to be manual error.

Additional EDA: Bright Spot Analysis

The motivation behind this analysis was to dig into what is working for this portfolio to better understand the patterns / trends and emulate them in other areas of the portfolio. The additional EDA, confirmed that certain counties are more favorable for high value operations, higher deductible plans are correlated with higher value policies, and equipment from 1990-2010 is correlated with higher value (better loss ratio) policies.