# 3.1.1 → Importance of equitable rates

→ <notes above in pdf>

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→ Assignment

→ Q1) Explain the following concepts:

(a) *(0.75 points)* Adverse selection

(b) *(0.75 points)* Skimming the cream

→ a) Adverse selection occurs when an insurer fails to implement a rating variable that recognizes the differences in expected costs that its competitors are implementing. As a result, the insurer will overcharge the low-risk insureds & undercharge the high-risk insureds. This leads to a distributional shift towards high-risk insureds, resulting in a higher loss ratio for the insurer.

→ b) "Skimming the cream" occurs when an insurer uses a risk characteristic for purposes beyond ratemaking, such as underwriting or marketing to attract lower-risk insureds. If the company can effectively focus on attracting & retaining these lower-risk insureds, it will become more profitable compared to its competitors.

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# 3.1.2 → Criteria for evaluating rating variables

→ <notes above in pdf>

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→ Assignment

→ Q1) As the actuary for an insurance company, you are developing an auto class plan in which one of the proposed rating variables is estimated miles driven during the coverage period.

(a) *(1.5 points)* Identify and briefly describe two statistical criteria, and explain whether mileage defined this way satisfies these criteria.

(b) *(1.5 points)* Identify and briefly describe two operational criteria, and explain whether mileage defined this way satisfies these criteria.

→ a) → Homogeneity → Risks w/in the same level should exhibit similar expected costs. The estimated miles driven during the coverage period satisfy this criterion bc the expected costs increase w/ more miles driven

→ Credibility → Each level of a rating variable should be large ther stable enough to allow for a credible estimate of costs. If the insurer segments the estimated miles driven into sufficiently large enough ranges, each level should have enough data to credibly estimate the expected costs.

→ b) → Objective → The definitions of the levels w/in a rating variable should be clear, objective, & measurable. The estimated miles driven satisfy this criterion bc it has a clear definition & can be objectively measured.

→ Cost-effective / inexpensive to administer → The cost to obtain the data needed to classify risks should not outweigh the potential benefit. It may be challenging to obtain accurate data on the miles driven for each insured. Since audits would be required, this variable may not be cost-effective. Thus, this criterion is not met.