

Module 2: Basics of regression analysis

(The attached PDF file has better formatting.)

Homework Assignment: attributes of classical regression analysis

CLAIM SEVERITY AND SPEED

Suppose a regression of Y = the logarithm of claim severity on X = the speed of the car satisfies the five attributes of classical regression analysis on pages 15-17. Explain whether regression of $Y' = \text{claim severity}$ on $X = \text{the speed of the car}$ satisfies each attribute.

Jacob: What is this homework assignment asking?

Rachel: $Y' = e^Y$. If the conditional distribution of Y , given X , is symmetric, is the conditional distribution of Y' , given X , symmetric or skewed? Answer this question for each of the five attributes on page 15-17:

- symmetric vs skewed
- single mode vs multiple modes
- normal vs heavy tailed
- equal vs unequal spread
- linear vs non-linear

For four of these five attributes, the relation assumed in classical regression analysis does not hold for Y' if it holds for Y .

Jacob: Are the five attributes explicitly listed?

Rachel: The five attributes are implicit in Fox's discussion: symmetric, unimodal, normal distribution, constant variance, and linear relation.