

PART 5: Zero Truncated Modesl

Zero Truncated Poisson Distribution

Zero-Truncated Poisson Regression

- ▶ Zero-truncated Modelling is used to model count data for which the value zero cannot occur.
- ▶ Zero Truncated Poisson Model
- ▶ Zero Truncated Negative Binomial Model (Over Dispersion)

Examples of Zero-Truncated Model

Example 1.

- ▶ A study of length of hospital stay, in days, as a function of age, kind of health insurance and whether or not the patient died while in the hospital.
- ▶ Length of hospital stay is recorded as a minimum of at least one day.

Example 2.

- ▶ A study of the number of journal articles published by tenured faculty as a function of discipline (fine arts, science, social science, humanities, medical, etc).
- ▶ To get tenure faculty must publish, therefore, there are no tenured faculty with zero publications.

Examples of Zero-Truncated Model

Example 3.

- ▶ A study by the county traffic court on the number of tickets received by teenagers as predicted by school performance, amount of driver training and gender.
- ▶ Only individuals who have received at least one citation are in the traffic court files.

Example 4.

- ▶ Consider for example the random variable of the number of items in a shopper's basket at a supermarket checkout line.
- ▶ Presumably a shopper does not stand in line with nothing to buy (i.e. the minimum purchase is 1 item), so this phenomenon may follow a ZTP distribution