Data Type and Collection September 22, 2010

- Q&A
- Trouble with Design
- Sampling Types
- Real Examples

Design Issues

- Voluntary Response
- Sample Size
- Wording of Survey Questions
- Question and Response Order

Observational vs. Experimental

- Observational Study: Observe and measure without modifying the subjects.
- Experiment: Apply a treatment and then observe its effects on the subjects

Random Samples

- Random Sample: Any individual is just as likely to be chosen as any other individual.
- Simple Random Sample: Every possible group of n individuals is just as likely to be chosen as any other group of n individuals.

Type of Sampling

- Systematic: Select every k^{th} individual, such as every 10^{th} person.
- Convenience: Select whatever is easiest.
- Stratified: Subdivide the population into groups and establish quotas to ensure that each group has the same proportionate representation in the sample as it has in the population.
- Cluster: Divide the population into many sectors. Then randomly select a few sectors and choose **all** members from these chosen sectors.

Timed Studies

- Cross-sectional: One point in time is chosen to make all observations.
- Retrospective: Data are collected by going back in time.
- Prospective: Data are collected in the future from groups (cohorts) sharing common factors.

Blind Studies

- Control Study: The population is divide into a control group and a treatment group.
- Blind Study: The subjects do not know whether they are part of the control or the treatment group.
- Double Blind Study: Neither the subjects nor the treatment provider knows who is in which group.

Error

- Sampling Error: The difference between the sample statistic and the population parameter.
- Nonsampling Error: An error that occurs when the sample is incorrectly collected, recorded, or analyzed.

Relative and Cumulative

- Relative Frequency Distribution: Instead frequency, use

- Cumulative Frequency Distribution: Instead of frequency use the number at or below that class.