Sampling Distributions (EPIB 607)

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Parameters, Samples, and Statistics

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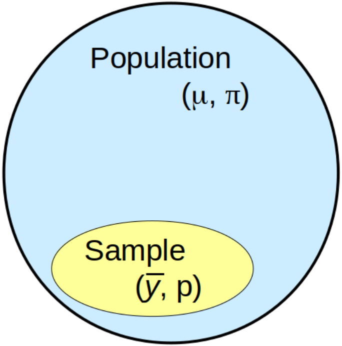

Examples

Proportions:

- Proportion of Earth’s surface covered by water
- Proportion who saw a medical doctor last year
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Means:

- Mean depth in *n* randomly selected ocean locations
- Mean household size in *n* randomly selected households.
- Median number of persons under-5 in a sample of *n* households

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- When conducting a study, it is always better to seek statistical advice sooner rather than later. Get a statistician involved at the *planning* stage of the study... by the analysis stage, it may be too late!

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  - who saw a medical doctor last year
  - average rent

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- Sampling the depth of the ocean *only around Montreal* to estimate
  - proportion of Earth’s surface covered by water

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In general

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- Because of this, estimates such as $\bar{y}$ (the sample mean) will vary from one sample to another

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- B&M definition: The sampling distribution of a statistic is the distribution of values taken by the statistic in all possible samples of the same size from the same population.

Why are sampling distributions important?

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- Thus, they are used in confidence intervals for parameters. Specific sampling distributions (based on a null value for the parameter) are also used in statistical tests of hypotheses.

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- CAVEAT: This is a luxury using a toy example. In actual studies, we only get one shot!