Random Sampling, Platonic

Math 5 Crew

Department of Mathematics

Dartmouth College

First Platonic Sampling Model

You have a population of N objects. You select one at random, meaning that all N of your objects are EQUALLY LIKELY to be chosen. You record some data about your object. Repeat M times.

First Platonic Sampling Model

You have a population of N objects. You select one at random, meaning that all N of your objects are EQUALLY LIKELY to be chosen. You record some data about your object. Repeat M times.

Margin of error is computed using this Platonic Model.

First Platonic Sampling Model

You have a population of N objects. You select one at random, meaning that all N of your objects are EQUALLY LIKELY to be chosen. You record some data about your object. Repeat M times.

Name: Sampling with replacement.

Second Platonic Sampling Model.

You have a population of N objects. You select a group of M objects randomly from your population, meaning that every possible collection of M objects is EQUALLY LIKELY to be chosen. You record some data about each of these M objects.

Second Platonic Sampling Model.

You have a population of N objects. You select a group of M objects randomly from your population, meaning that every possible collection of M objects is EQUALLY LIKELY to be chosen. You record some data about each of these M objects.

Name: Sampling without replacement

In Practice

If N is a fair bit bigger than M then these two procedures produce very nearly the same results.

In Practice

If N is a fair bit bigger than M then these two procedures produce very nearly the same results.

In polling people, next to the reality of the equally likely assumption, this distinction is completely negligible.

Margin of Error

What we claim: 19 out of 20 times we expect the true percent to be within the margin of error of the percent we quote.

Margin of Error

What we claim: 19 out of 20 times we expect the true percent to be within the margin of error of the percent we quote.

Reality?