

STAT206

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0.1 Study Error versus Sample Error

0.1.1 Classic Example of Study Error

Suppose you work for Rob Ford and you want to estimate the proportion of Torontonians who will vote for Rob Ford on election day.

You run a telephone survey to estimate this proportion. What is the study error here?

Study Error is systematic skewing of results from the design of the setup

1 : We have ruled out Toronto voters without phones

2 : Depending on when survey is carried out, response rate could be affected

3 : Voters who live outside Toronto can have Toronto cell #'s

4 : Non response can be high. Responders and non responders might have different opinion of Rob Ford

These study errors cannot be addressed by the techniques of Stat 206. Instead, these errors must be addressed at the design stage

Sampling Error occurs when the chosen sample is not a good representation of the population for the desired attribute.

Eg: Population A, B, C , say they are 3 users of an Android app you have written. Variable time to complete some task measured in seconds.

| | | | | |
|-----------|---------|---|----|----|
| Results = | User | A | B | C |
| | Time(s) | 2 | 10 | 18 |

- Taking unit B gives 10s - good!
- Taking unit A gives 2s - too low
- Taking unit C gives 18s - too high

This type of sampling error can be quantified using STAT206 techniques