



Sampling Technique

You have to be rather or very clear and specific on:

Research question(s)

Objective General & Specific

Population

How many groups of population that you want to study?

One group

Many groups How many?

Do you know your population ... well enough ?

Yes map of population?

Who are they?

Where are they?

How many of them?

Size of population

Sampling Frame Inclusion & Exclusion

Complete and update

No ... rather little information

Who are they?...

Where are they? ... not quite known

How many of them? ... not quite known

Sampling Frame Inclusion&Exclusion

No or little is known

Results that you are looking for

Know population rather well

RepresentativenessUnbiasedness

No Nonprobability sampling

Yes Probability sampling

Little is known about studied population

Representativeness ?????? Nonprobability sampling

How many should be included into your study?

Know population rather well

Objectives....General & specific

Sampling

Sample size To be included in statistics class on SAMPLE SIZE ESTIMATION

Little is known about studied population

Objectives....General & specific

Non-probability Sampling

Sample size At least tell how many to be included by using
sample size estimation of simple random sampling.

Sampling Techniques

1. Nonprobability sampling

- Convenience sampling
- Purposive sampling
- Accidental sampling
- Expert sampling
- Snowball sampling
- Quota sampling

2. Probability sampling

- Simple random sampling
- Systematic random sampling
- Stratified sampling
- Cluster sampling
 - Single stage
 - Two-stage
 - Multistage

*Population is rather easy to access to according to the method of data collector.
* Homogeneous ????

. Objectives
. Homogeneous within each stratum but heterogeneous among strata

- Various characteristics of population in each cluster.. heterogeneous within cluster
- Each cluster comprises of the same characteristics of population ...homogeneous among clusters
- Sampling some clusters can represent all clusters

Equal chance of each cluster (1st stage)

Un-equal chance of each cluster (1st stage)

Chance of being included depend on size of cluster

Sampling with probability proportional to size of cluster

PPS cluster sampling

e.g 2-stage cluster sampling

1st stage Pick up clusters to represent all cluster of the population

2nd stage... pick up representative from the sample clusters of the 1st stage

Less costly face-to-face or in-person interview but sampling error ↑

This is the plan for sampling and sample size estimation proposed in your proposal.

For actual implementation, it might be modified or changed to fit into the real situation.

In your report, write as what you have done, not should be done.

Do not forget to write **the replacement criteria?**

Do not give chance to the data collector to replace on their own. ???? Convenience sampling???

Strickly control according to the sampling plan during data collection.

Yamane Taro

- Descriptive study - Objective To estimate proportion (Binary outcome)
- Unknown Population Proportion (not review:P) use 50%
- Significance level 5%
- Simple random sampling
- N = Size of population, e= margin of error= $|p-P|$; p= sample proportion
 $n = N/(1+Ne^2)$

Yamane Taro(1923-1979)

Japanese economist and statistician. Born in New York in 1923.

Studied economics in Japan's Hitotsubashi University.

1950 went to study Master and Ph.D at Wisconsin Univ.

Author of textbook in mathematics and statistics for economists.

Professor of Texas Univ.

Appointed as professor at Aoyama Gakuin Univ.

Sample size estimation

สิ่งที่ต้องรู้อีกก่อน

1. Research questions คำถามที่ต้องการคำตอบ
2. Study design รูปแบบการศึกษา >>> Survey / Cross-sectional / Descriptive study
3. Objectives วัตถุประสงค์ของการศึกษา
ตัวแปรที่ใช้เพื่อตอบวัตถุประสงค์
Quantity ปริมาณ >>> เฉลี่ย และ ส่วนเบี่ยงเบนมาตรฐาน
Quality คุณภาพ >>> %, ร้อยละ, prevalence
4. Review literature คนอื่นทำอะไรมาบ้าง ทำอย่างไร ผลเป็นอย่างไร โดยเฉพาะตัวแปรที่เราศึกษา
ถ้าไม่มีเลย (???? ไม่เชื่อ) ... ทำการศึกษานำร่อง (Pilot study)/ Proxy variable
5. การสุ่มตัวอย่าง
Simple random sampling แบบง่าย
Systematic random sampling แบบมีระบบ
Stratified sampling ชั้นภูมิ
Cluster sampling กลุ่ม
 - Single stage ชั้นตอนเดียว
 - Two-stage สองขั้นตอน
 - Multistage หลายขั้นตอน
6. ความคาดหวังในผลการศึกษานำร่องที่จะนำไปตอบวัตถุประสงค์
 - Margin of error/ Maximum allowable error กำหนดโดยนักวิจัย
ความใกล้/ไกล หรือ ความห่างระหว่างของผลการศึกษาที่ได้ Statistics กับ ผลการศึกษาที่เราพบพบมา ... Parameter
 $d = | \text{parameter} - \text{statistics} |$
 - Confidence level ความเชื่อมั่นของผลที่ได้ $(1 - \alpha)$
ไม่น้อยกว่า 95%