Q3(a)

Why is random sampling said to have more reliability and validity in research?

UPSC Civil Services Mains 2015 · Sociology GS 1 · 20 marks · Research Methods and Analysis

Research Methods and Analysis: Qualitative and quantitative methods; Techniques of data collection; Variables, sampling, hypothesis, reliability and validity.

Core demand of the question

- Why is random sampling said to have more reliability and validity in research?
- Keep the answer within a 20-mark length

Revision summary

Random sampling gives known chances of selection from a frame.

It raises reliability through repeatable rules and estimable variance.

It raises validity for population totals by cutting convenience bias.

It is not random assignment and not a guarantee of construct validity.

NFHS and NSS illustrate the gain; hidden groups and meaning studies still need other designs.

Introduction

Random sampling gives each unit in a defined population a known, non-zero chance of selection. It is praised for reliability and validity because it reduces selection bias and supports inference from sample to population. It is not a magic wand for every sociological question.

Body

What random sampling is

- Simple random, systematic, stratified, and cluster designs are probability designs when the chance is known.
- A sampling frame, such as a Census list or a household listing for NFHS, is the practical condition.

Reliability

- Reliability is consistency of a procedure. Random rules can be repeated by another team with the same frame, which interviewer whim cannot.
- Variance can be estimated. Quotas and convenience samples hide that uncertainty.
- Stratification, as in rural-urban or sex cells, can raise precision for the same size, which is a reliability gain in the estimate.

Validity of inference

• External validity of a population estimate is stronger when non-coverage and non-response are managed. Random selection attacks the first bias of picking friends.

• Internal validity of a causal claim is a different issue. Random sampling is not random assignment. Emile Durkheim's suicide study was not a random sample of persons, yet it still reasoned about rates.

• Construct validity still depends on concepts. Max Weber's meaning is not guaranteed by a random draw of poorly worded items.

Why the claim is only "more"

• Hidden populations, as in some informal labour, have no frame. Snowballing may be more valid for that object.

• George Herbert Mead's interaction studies need cases, not a national percentage.

• **Robert K. Merton's middle-range work can use both:** a probability survey for rates, a case for mechanism.

• **Indian official practice:** Census as frame-maker, NSS and NFHS as probability household surveys. Caste-association office networks still need other designs.

Limits to advertise

• Non-response, outdated frames, and clustered designs that ignore design effects produce false precision.

• A random sample of households can still miss women's work if the questionnaire is androcentric, as Ann Oakley-type critiques show.

Flow diagram

Sampling frame -> Random selection

Random selection -> Repeatable estimates

Random selection -> Population inference

Repeatable estimates -> Rates Census NFHS

No frame -> Purposive snowball

Conclusion

Random sampling has more reliability as a repeatable selection rule and more validity for population inference because chance, not convenience, chooses cases. It does not by itself validate meaning, causation, or a bad concept. Use it for rates; do not use it as a certificate for every method.

Facts & figures

Probability sampling

Each unit has a known non-zero chance; supports design-based inference to the frame population.

NFHS

Large Indian household survey using probability selection for health and fertility indicators.

Sampling frame

List or procedure from which draws are made; without it, "random" is a slogan.

Design effect

Cluster samples can inflate variance; ignoring it overstates reliability.