

Survey frame, sample size and sample design

UN Handbook chapter 4
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Outline of this presentation

- Some words on the handbook
- General remarks on precision, sample methods and sample size
- Consumer surveys
 - Survey frame
 - Sample methods & sample size
- Business surveys
 - Survey frame
 - Sample methods

Some words on the handbook

- Trade off between more formal theoretical description and more applicable to business/consumer tendency surveys
- Change in structure suggested:
 - Ch 4: survey frame and sample design (both CS and BS)
 - Ch 5: estimation procedure and weighting (both CS and BS)
 - Ch 4: consumer surveys
 - Ch 5: business surveys
- Work in progress:
 - more applicable to bcs: results of the task forces can add additional insights and valuable best practices for the handbook
 - adding more explicit recommendations

General remarks on precision, sample methods and sample size

- Sample size
can be limited due to constraints in budget or burden on enterprises
- Precision of estimators
can be improved by larger sample size or more effective/advanced sampling method
- Sampling method
an effective sample design can reduce sample size and/or improve the precision

CS: recommendation on survey frame

Identify clearly the target or reference population: consumer or household?

A reliable, complete and up-to-date list of all possible subjects of investigation, as far as possible, has to be available

Most widely used lists: population, fixed telephone list, mobile phone register. However, each has limitations and affect the sample design/ sampling error

Sometimes NSI's combine the consumer survey with other social surveys, using existing samples

CS: recommendation on sampling methods

- Non- probability sampling
 - Purposive (judgemental) samples
 - Quota sample
 - Substitution sample
- Probability sampling
 - Balanced sampling
 - Random route sampling
 - Systematic sampling

CS: sample design, multiple elements

- Stages
- Clustering

- Stratification
 - Proportional allocation
 - Neyman optimal allocation

- Random digit dialling

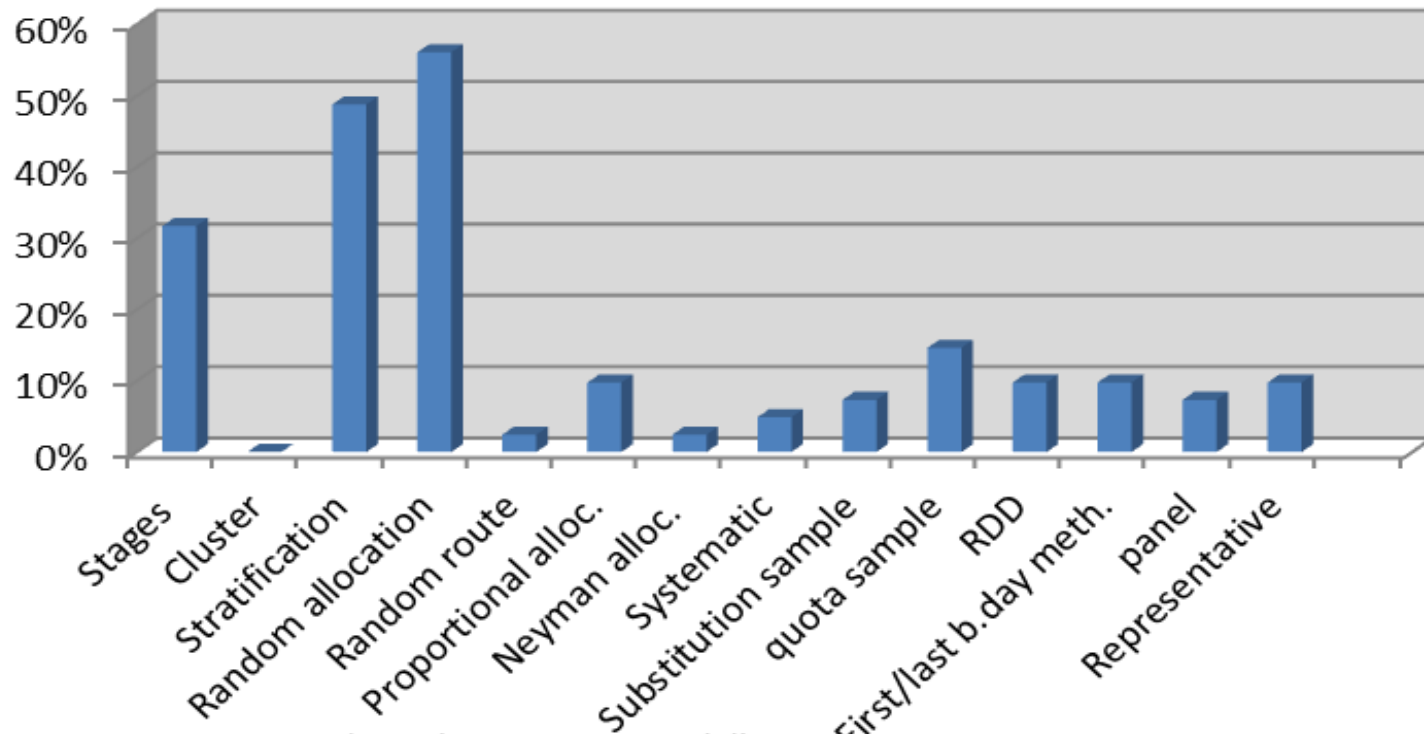
- Panel v non panel sampling

- Equal Probability of selection method (EPSEM)

One of the most widely used sampling techniques is the EPSEM clustered (multi-staged) stratified random sample.

CS: overview of sampling methods in use

Sampling Methods



Source: EU Metatata (2012), OECD_MEI and direct sources

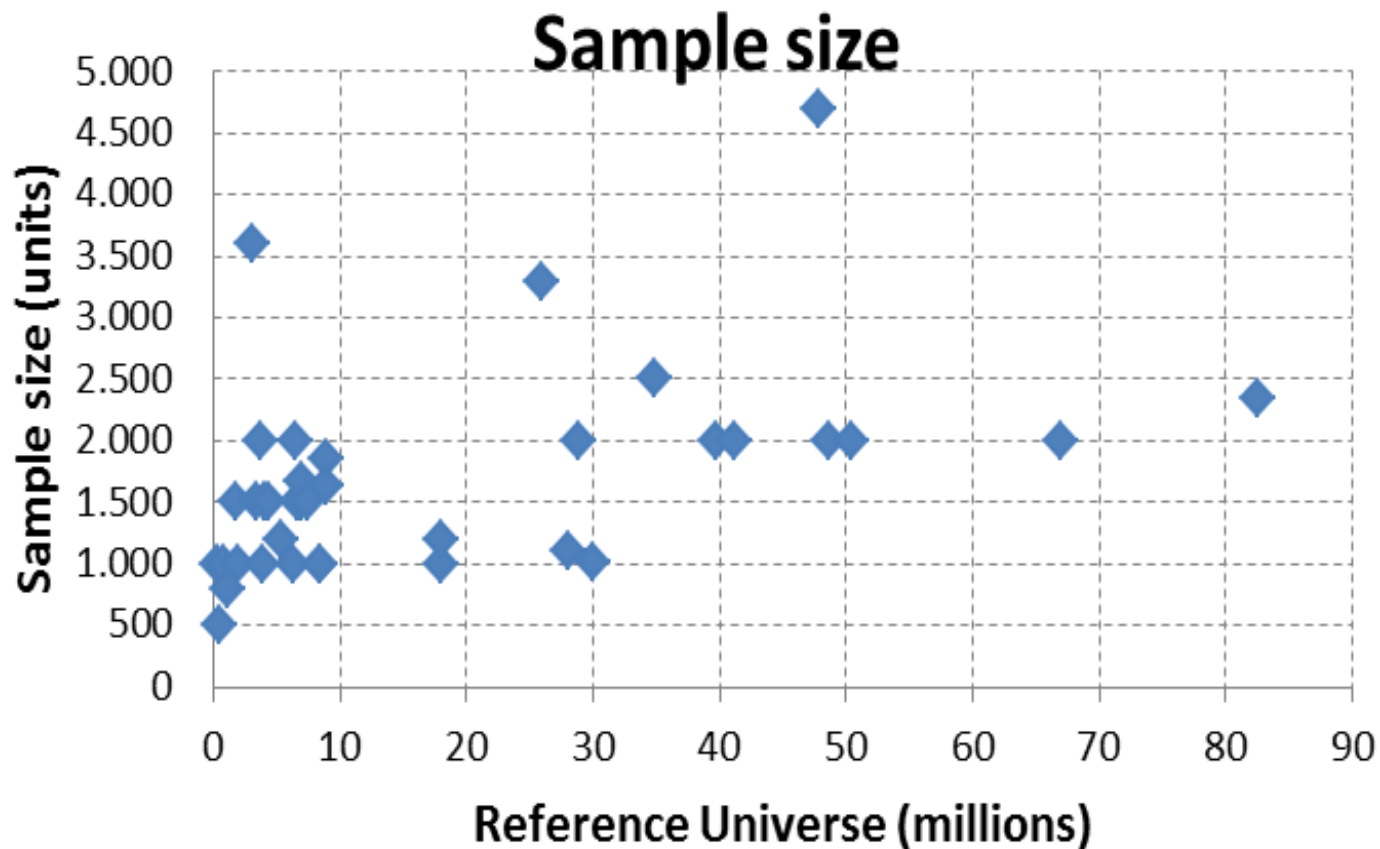
CS: sample size and precision

The purpose is to define a sample size n so that the estimate p of the true unknown proportion P would lie within an accepted interval around P with a low probability value α to commit an error

The decision of the size of the sample is important. A too large sample implies a waste of resources, and a too small sample diminishes the utility of results.

In large populations the sampling size is relatively independent from the population size. As a matter of fact, the majority of the countries, carrying a consumer tendency surveys, select a sample size ranging from 1000 to 2000 units.

CS: overview of sample size v universe



Source: EU Metatata (2012), OECD_MEI and direct sources

Note: USA over 250 millions population >15 years; 500 sample size; Switzerland not included

BTS: recommendation on survey frames

Recommendation: *business tendency surveys should use as their survey frame comprehensive business registers of the kind that national statistical agencies maintain for their regular enterprise surveys, if available*

However: membership lists and other sort, have proven to give reliable information as well

A register/list, at a minimum, contains information on addresses, kind of activity and approximate size of a unit

BTS: recommendation on sample methods

- Non probabilistic sample
 - Purposive sample
 - Quota sample
- Probabilistic sample
 - Simple random sampling
 - Stratified random sampling
 - Probability-proportional-to-size sampling
- Panel v non panel sampling

BTS: recommendation on sample methods

- Why stratify
 - improving the precision of estimators (reduce variance)
 - interest in specific subsectors in population
 - helps reduces sample size (efficient design)
 - offer opportunities for specific data collection methods
- How to stratify
 - Kind of activity, number of employees, geographical
- Allocation of units:
 - proportional allocation
 - Neyman allocation
- Stratum size v sample size

Thank you for your attention!

