

## Types of Probability Sampling for Representativeness

Sample Type	Need for Sample Frame	How It Works	Advantages	Disadvantages
<i>Simple Random Sample (SRS)</i>	Got to have it!	Random sample in computer readable form or use random number table	If done well, can't do much better	Due to sampling variability, may not have sufficient units from minority subpopulations.
<i>Systematic</i>	Got to have it!	Make list of units—make random selection of one unit and then take every kth element	If done well, should be as good as a SRS (only need one random selection)	Way list is constructed may introduce bias (e.g., periodicity)
<i>Stratified Sample</i>	Got to have it!	Make sure each strata has the “right” proportion of elements in each.	Ensures appropriate numbers of units are drawn from homogeneous subsets of that population and representation of strat variable.	Selecting invalid variables for stratification can hurt results.
<i>Multistage Cluster Sample (MSC)</i>	Need a smaller list at a higher level of abstraction from units of analysis themselves.	Develop list of higher level units (clusters) to obtain lists of units of interest—take random sample.	Don't have to have an apriori list of the population (i.e., sampling frame).	An n-stage cluster sample is subject to n sampling errors. Clusters may be of different sizes leading to units having different probabilities of being sampled.
<i>Multistage Cluster Sample with Stratification</i>	Need a smaller list at a higher level of abstraction from units of analysis themselves.	Stratified by variables at one or more stages of the MSC.	Ensures appropriate numbers of units at each stage are drawn from homogeneous subsets of that population.	Same as above.
<i>Probability Proportionate to Size Sample</i>	Must have apriori information on size of units.	In first stage each cluster's chance of selection proportional to size. Stage 2 some fixed number of elements is chosen from each of the selected clusters.	Maximizes chances for equal probability of selection of units (i.e., representative).	Need for apriori information on size of clusters.
<i>Disproportionate Sampling and Weighting</i>	Got to have it!	Over sample subpopulation of interest.	Ensures smaller subsets of populations are sufficiently represented.	Requires weighting cases. Possible problems with precision of weighting in statistical inference.