Disproportional Sampling

Disproportional sampling is a probability sampling technique used to address the difficulty researchers encounter with stratified samples of unequal sizes.

This sampling method divides the population into subgroups or strata but employs a sampling fraction that is not similar for all strata; some strata are oversampled relative to others.

Disproportional vs. Proportional Sampling

The main difference between the two sampling techniques is the proportion given to each stratum with respect to other strata. In proportional sampling, each stratum has the same sampling fraction while in disproportional sampling technique; the sampling fraction of each stratum varies.

Example of Disproportional Sample

Suppose, for example, a researcher desires to conduct a survey [1] of all the students in a given university with 10,000 students, 8,000 females and 2,000 males. His desired sample size is only 1,000. Since the 1,000 subjects needed for the survey is 10% of the entire population, sampling proportion suggests that 8/10 be female and 2/10 be male. This would result in a sample composed of 800 females and 200 males. In this case, the relatively small

number of males in the sample probably would not provide adequate representation for drawing conclusions [2] from the said survey.

Disproportional sample technique will permit the researcher in the mentioned case selection of students of adequate size from the two genders. Say for example, 500 males and 500 females can be selected to represent the population. This cannot be considered random [3] since the males had better chances of being selected as part of the sample.

When to Use Disproportional Sampling

Disproportional sampling allows the researcher to give a larger representation to one or more subgroups to avoid underrepresentation of the said strata. This applies to populations with a very high strata population ratio.

Disadvantages of Disproportional Sampling

Even though the researcher can create an adequate size [4] and representation with this technique, it presents problems in data analysis since the characteristic of the overrepresented group can skew the results. The way around this however is to give a proportionally greater mathematical representation of the underrepresented group in the analysis of the scores.

Generally, disproportional sample tend to be less accurate and reliable compared to a stratified sample since mathematical adjustments are done during the analysis of the data. This process increases the chance of encountering errors [5] in data analysis. With this possibility of encountering errors in analysis, it is less accurate in drawing conclusions from the results of such studies.

Links
[1] https://explorable.com/survey-research-design
[2] https://explorable.com/drawing-conclusions
[3] https://explorable.com/simple-random-sampling
[4] https://explorable.com/sample-size
[5] https://explorable.com/experimental-error