

The Probability Space of Statistical Surveys

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A statistical survey consists, among others, of a random experiment where a sample is selected from a target population with a well-defined procedure. The outcomes of the experiment, the selection of the sample and the construction of probability measures associated with them, form a probability space $(\Omega, \mathcal{B}, \mu)$. Each element of the triplex is defined and examined for properties, like completeness, additivity continuity and more, with emphasis given to the construction of different probability measures μ_i associated with respective sampling schemes. Effort has been made so that the proposed probability system can accommodate the individualities and the complexity of modern statistical surveys within official statistical organizations.

Key Words: *Statistical Survey, Probability Space, Probability Measure, Sampling.*