

COMPARISON OF SOME STATISTICAL EXPERIMENTS ASSOCIATED  
WITH SAMPLING PLANS

Erik Torgersen

*Abstract:* Some experiments occurring in sampling theory may be described as follows:

Consider a finite population  $\mathcal{F}$  and a characteristic of interest which, with varying amount (value, degree, etc.), is possessed by all individuals in  $\mathcal{F}$ . Let  $\theta(i)$  be the amount of this characteristic for an individual  $i$ .

It is known that  $\theta$  belongs to some set  $\Theta$  of functions on  $\mathcal{F}$ .

Let  $\alpha$  be a sampling plan, i.e. a probability distribution on the set of finite sequences of elements from  $\mathcal{F}$ . If this sampling plan is used and if the characteristics of sampled individuals are determined without error, then the outcome

$$x = ((i_1, \theta(i_1)), \dots, (i_n, \theta(i_n)))$$

is obtained with probability  $\alpha(i_1, \dots, i_n)$ .

Let  $\mathcal{E}_\alpha$  denote the experiment obtained by observing  $x$  and assume that  $\Theta$  is not too small. Then  $\mathcal{E}_{\alpha_1}$  is at least as informative as  $\mathcal{E}_{\alpha_2}$  if and only if the sampled subset under  $\alpha_2$  is "stochastically contained" in the sampled subset under  $\alpha_1$ . Using the theory of comparison of statistical experiments we shall here discuss this and other related results.

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