

**Comparison of Some Selected Values of the Constants of Basit and Shahbaz
Selection Procedure under Unequal Probability Sampling Without
Replacement**

**O.O. Dawodu
McPherson University, Seriki – Sotayo Ogun State, Nigeria,
omotola_dawodu@yahoo.com**

Probability sampling involves random selection of units from the population. It can be categorized as either equal probability sampling or unequal probability sampling (UPS). UPS however, can be with replacement or without replacement. My interest is on UPS without replacement. It occurs when there is a fixed sample size to be selected from finite population with the intention of not returning the sample already selected into the population. This is the idea used in this research work. In order to select the desired sample, the sample selection procedure, or simply put, sampling scheme proposed by Basit and Shahbaz is applied here which deals with sample size two. Their selection procedure consists of formulae for calculating the probabilities of inclusion of a unit in the sample, and the joint probabilities of inclusion of two different units in the sample. These formulae consist of two constants with varying values which can be positive or negative. I also used the Modified Murthy estimator, which Basit and Shahbaz proposed to estimate the variance. They carried out empirical studies based on their proposed method and came up with results. In this research, a sample size of two is selected from the population of size six. One of the constants is fixed while the other varies. I am particularly interested in determining the best value(s) of the constant that is allowed to vary. This will help in reducing the stress of varying the values of the constant. The results obtained in this research work are approximately in support of the empirical studies carried out by Basit and Shahbaz.

Key Words: Sampling scheme, sample size two, modified murthy estimator.