Summary

After describing the basic theory of Estimation along with their properties, the three methods of Estimation such as mle (Maximum likelihood estimator), mch (Minimum chi-square estimator) and mbe (Minimum – B estimator) have been discussed.

Empirical study has been carried out to compare the three methods for small samples with different choices of constants A and B in the mbe by using two discrete distributions namely (i) Binomial distribution (ii) Poisson distribution. At the same time, I have obtained the variances and APB (Absolute Percent Bias) of the three estimates i.e. mle, mch and mbe by generating 1000 samples each of sizes, 10, 30, 50 from Binomial and Poisson distribution respectively. The number of sample is 5,000 when sample size (N) is less than and equal to 50 and 20, 000 when sample size is greater than 50. The number of groups used for the each estimator are 3, 4, 5 and denoted by K. The samples are generated using a computer programme and the results regarding the variances, APB are calculated for three estimates with different values of θ and (A, B) constants n and K respectively.

It has been found that in case of Binomial distribution with increasing n, mbe becomes equally efficient estimator as mle and more efficient estimator as compared to mch. Where as in case of Poisson distribution for all n, mle is more efficient estimator as compared to mbe and mch, but mbe is more efficient estimator as compared to mch for some situations.