

Assignment 8

Find the average MLE, Bias, MSE(mean square error) of following distribution for generated 50 samples and repeat this process 1000 times and you can take specific choices of parameters.

1. Burr XII distribution.

$$F(t, c, k) = 1 - (1 + t^c)^{-k}$$
$$f(t, c, k) = ck t^{c-1} (1 + t^c)^{-(k+1)}, \quad t > 0,$$

2. Inverse Weibull Distribution

$$f_X(x | a, b) = abx^{-(a+1)} e^{-bx^{-a}}, \quad x > 0,$$

3. Chen Distribution

$$F(x) = 1 - e^{-\eta(e^{\beta x} - 1)}, \quad x > 0, \quad \beta, \eta > 0,$$
$$f(x) = \beta \eta e^{\beta x} e^{-\eta(e^{\beta x} - 1)}, \quad x > 0, \quad \beta, \eta > 0,$$

Find Variance covariance matrix using function. Also, find the 95% Confidence interval of each parameter.