

# Interval Estimation of the Mean Response in a Log-regression Model

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**Abstract:** Skewed response data with concomitant information, are often generated in diverse forms of medical, ecological, and econometrics research. A standard approach to the analysis of skewed data is to use a log-transformation to normalize the distribution of the original response variable and then conduct a log-regression analysis. However, the mean response on the original scale is often interesting. Finney (1941) developed a minimum variance unbiased estimation of parameters for the log-normal distribution, and Bradu and Mundlak (1970) extended those results to the log-normal regression model. El-Shaarawi and Viveros (1997) developed a large-sample interval estimation of the mean response of a log-regression model. However, there is very little literature available on how to construct the interval estimation for the mean response under a log-regression model when such data arise from a small sample; for example, a small number ( $n=17$ ) of patients with AML and high WBC count (Feigl and Zelen, 1965) or a small data set ( $n=10$ ) on the annual production and market prices of ground nuts and cotton in Israel from 1954 to 1963 (Bradu and Mundlak, 1970). The primary goal of this research is to develop a small-sample corrected interval estimation of the mean response at a specific value of the concomitant variates.