ABSTRACT

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Order statistics play an important role in placing many of the statistical inference. The bootstrap is considered of the most important methods developed in statistical inference, and deal with the random sampling so that allows us to generate several random samples of the random sample that we have. Note that with these random samples are selected returns generated from the same sample that we have the same size or the size of less, both methods have broad applications. This research is dealing with the most important properties of bootstrap convergent approach considering the consistency feature of central and intermediate order statistics, which means that the limit of bootstrap distribution is distributed the same as the original variables, also provided simulation. The research was divided into five chapters to clearly represent the main research objective. This thesis contains five chapters as:

The first chapter consists of the following subjects: introduction of order statistic, convergence theories and its properties, theoretical convergence of the extreme order statistics, domains of attraction for largest and smallest order statistics, and theory of extreme values under power normalization, supported with examples.

The second chapter represents the following subjects: theoretical convergence of the central order statistics and its domains of attraction, theoretical convergence of the intermediate order statistics and its domains of attraction, supported with examples.

The third chapter is dealing with the bootstrap method and the process of developing and estimating the standard error, autoregressive models, Jackknife, confidence intervals based on bootstrap, and the definition of double bootstrap, supported with examples.

The fourth chapter is representing the bootstrapping extreme values under linear normalizing constants and power normalizing constants, supported with applications.

The fifth chapter is describing the theory of bootstrapping central and intermediate order statistics in under linear normalizing constants and simulation, supported by tables and figures.