

REGRESSION TYPE TESTS FOR PARAMETRIC HYPOTHESES BASED ON OPTIMALLY SELECTED SUBSETS OF THE ORDER STATISTICS

R. L. EUBANK¹ AND V. N. LARICCIA²

¹*Department of Statistics, Texas A&M University, College Station, TX 77840, U.S.A.*

²*University of Delaware, Newark, DE 19716, U.S.A.*

(Received October 26, 1984; revised June 8, 1987)

Abstract. Through use of a regression framework, a general technique is developed for determining test procedures based on subsets of the order statistics for both simple and composite parametric null hypotheses. Under both the null hypothesis and sequences of local alternatives these procedures are asymptotically equivalent in distribution to the generalized likelihood ratio statistic based on the corresponding order statistics. A simple, approximate method for selecting quantiles for such tests, which endows the corresponding test statistics with optimal power properties, is also given.

Key words and phrases: Order statistics, generalized likelihood ratio test, power, nonlinear regression.