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Mosisa G Aga* (maga@math.wayne.edu), 4413 John R, Apt 1, Detroit, MI 48201. *A Preliminary Report on High-Order Improvements of the Parametric Bootstrap for Long-memory Linear Regression Gaussian Processes*. Preliminary report.

This paper provides higher-order improvements over the delta method of coverage probability errors of parametric bootstrap confidence intervals (CI_s) and tests for the covariance parameters of a time series generated by deterministic trend with Gaussian stationary long-memory errors. The CI_s and tests are based on the plug-in maximum likelihood (PML) estimators.

It is shown that, under some sets of conditions on the regression coefficients of the model, the spectral density function, and the parameter values of the Gaussian stationary long-memory errors, the parametric bootstrap based on the plug-in log-likelihood (PLL) function provides higher-order improvements over the traditional delta method. The magnitude of the coverage probability errors for one-sided bootstrap CI_s for covariance parameters of the model are shown to be essentially the same as those of the iid data. (Received August 23, 2005)