

1135-VT-1198      **Rajeshwari Majumdar** and **Suman Majumdar\*** (suman.majumdar@uconn.edu), Department of Statistics, University of Connecticut, 1 University Place, Stamford, CT 06901-2315. *Necessary and Sufficient Condition for Asymptotic Standard Normality of the Two Sample Pivot.*

The asymptotic solution to the problem of comparing the means of two heteroscedastic populations, based on two random samples from the populations, hinges on the pivot underpinning the construction of the confidence interval and the test statistic being asymptotically standard Normal. Existing results in the literature establish the convergence of the pivot to the standard Normal distribution assuming that the samples are independent and the ratio of the sample sizes converges to a finite positive number. We show, without any restriction on the asymptotic behavior of the ratio of the sample sizes, that Cesaro convergence of the sequence of cross sample correlation coefficients to 0 is necessary and sufficient for the aforesaid pivotal convergence. We also obtain, without any assumption on the cross sample dependence structure, that both iterated limits of the pivot are standard Normal and if the joint distribution of the standardized sample means converges to a spherically symmetric distribution, then that distribution must be bivariate standard Normal. (Received September 20, 2017)