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Jamye Nichelle Curry* (jcurry4@ggc.edu), School of Science and Technology, Georgia Gwinnett College, 1000 University Center Ln, Lawrenceville, GA 30043. *Rank Based Two-Sample Tests Under a General Alternative.*

Rank based formulations of a univariate two-sample distribution-free test are proposed. One form of the proposed test is the average of between-group distances of ranks. The other form of the test is the difference between the average of between-group distances of ranks and the average of within-group distances of ranks. Although they are different in formulation, they are closely related to the two-sample Cramér-von Mises criterion. The first one is a linear transformation of Cramér-von Mises criterion in the case the two samples have the same sample size. The second one is an alternative form of the Cramér-von Mises criterion. The properties of the test statistics based on the new formulation are studied by applying the Hájek projection in deriving the asymptotics of the test statistics. Rank-based formulations allow generalizations of the two-sample Cramér-von Mises test to the multivariate case by using different notions of multivariate rank functions. Two corresponding tests based on multivariate spatial ranks are proposed. Bootstrap and permutation procedures are used for yielding consistent approximations to the null distribution of the tests. A comparison with other popular tests demonstrates the competitive power performance of the proposed tests. (Received January 21, 2015)