CORRECTION TO "ASYMPTOTICALLY MOST POWERFUL RANK TESTS FOR REGRESSION PARAMETERS IN MANOVA"

M. S. SRIVASTAVA

In the above entitled paper in Vol. 24 (1972), pp. 285-297 which is a multivariate generalization of the results in paper "Asymptotically most powerful rank tests", *J. Statist. Res.*, Vol. 7 (1973), pp. 1-11, the results of Section 4 (in both the papers) holds under the assumption that $\beta_1=0$ and $\beta_2=0$. To obtain the results when $\beta_1=0$ but $\beta_2 \neq 0$, we proceed as follows. For simplicity of presentation, we consider the univariate regression model, that is when $k=1$.

Let

$$\tilde{\beta}' = \beta' T_n = (\tilde{\beta}_1, \dots, \tilde{\beta}_p).$$

We shall assume that either

$$\tilde{\beta}_i = O(1), \quad i=1, \dots, p \quad \text{or} \quad \lim_{n \rightarrow \infty} \max_{1 \leq i \leq n} \mathbf{x}^{(i)'} \mathbf{x}^{(i)} = 0. \quad (\text{C5})$$

Let P_0 and P_{00} denote the distributions under $\beta_1=0$ and $\beta=0$ respectively. Then it is shown in Section 4 that $\mathcal{L}(L_n^{(1)} \mathbf{Z}_n | P_{00}) \rightarrow N(0, \sigma_1^2 I_q)$, not under P_0 as claimed there. However, under conditions (C2) and (C5) it can easily be shown that P_0 is contiguous to P_{00} . Thus, following as in the paper, we get

$$\mathcal{L}(\beta_2' X_n \mathbf{Z}_n | P_0) \rightarrow N(\lim v_{12}, \sigma_{11} \lim \tau_{1n}^2),$$

where

$$v_{12} = \beta_2' X_n^{(2)} X_n^{(2)'} \beta_2 \int_0^1 \phi_1(u) \phi_1(u) du$$

and

$$\tau_{1n}^2 = \beta_2' X_n^{(2)} X_n^{(2)'} \beta_2.$$

Hence

$$\mathcal{L}(L_n^{(1)} \mathbf{Z}_n | P_0) \rightarrow N\left(\lim L_n^{(1)} X_n^{(2)'} \beta_2 \int_0^1 \phi_1(u) \phi_1(u) du, \sigma_{11} I_q\right).$$

But

$$L_n^{(1)} X_n^{(2)'} \beta_2 = L_n^{(1)} L_n^{(2)'} T_n^{(2)'} \beta_2 = 0 .$$

Hence

$$\mathcal{L}(L_n^{(1)} Z_n | P_0) \rightarrow N(0, \sigma_{11} I_q) .$$

UNIVERSITY OF TORONTO