ERRATUM

In the solution to Problem 92.4.4, which was written by L. Alvarez and J. Dolado, it was stated that the OLS estimator for $\mu(\hat{\mu})$ in the model

$$y_t = \mu + u_t,$$

where $u_t = e_t - e_{t-1}$, e_0 and $\{e_t\}$ is a martingale difference sequence (MDS) with $E(e_t^2) = \sigma^2$, was as follows.

$$T(\hat{\mu} - \mu) \Rightarrow N(0, \sigma^2), \tag{1}$$

given that

$$\hat{\mu} = \mu + \sum_{1}^{T} (e_t - e_{t-1})/T = \mu + e_T/T. \tag{2}$$

The result in (1) is correct (asymptotically and in finite samples) only if $e_T = N(0, \sigma^2)$. Since $\{e_t\}$ is an MDS in the problem, the correct asymptotic distribution would be

$$T(\hat{\mu} - \mu) \Rightarrow e_\infty, \tag{3}$$

where e_∞ is the limiting distribution of e_T as $T \uparrow \infty$ with $E(e_\infty) = 0$ and $V(e_\infty) = \sigma^2$.

However, as correctly stated in the solution, the asymptotic distribution of the GLS estimator $(\tilde{\mu})$ is given by

$$T^{3/2}(\tilde{\mu} - \mu) \Rightarrow N(0, 3\sigma^2), \tag{4}$$

since $T^{-3/2} \sum_1^T te_t \Rightarrow N(0, \sigma^2/3)$ by application of the multivariate central limit theorem for MDS [1].

This erratum was prepared by L. Alvarez and J. Dolado who are grateful to In Choi for having pointed out this mistake to us.

REFERENCE

1. Helland, I.S. Central limit theorems for martingales with discrete or continuous time. *Scandinavian Journal of Statistics* 9 (1982): 79–94.