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ERRATUM

Automatic selection of indicators in a fully saturated regression

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The paper contains some misprints and to avoid misunderstandings we choose to present here the main results again.

Theorem 1 *Let* $y_t = \mu + \sigma_\varepsilon \varepsilon_t$, $t = 1, \ldots, T$ *be i.i.d., where* ε_t *has symmetric continuous density* $f(.)$ *with mean zero, variance one, and* $E[\varepsilon_t^8] < \infty$. *Let* $T = T_1 + T_2$, *and assume that* $T_1/T \to \lambda_1$ *and* $T_2/T \to \lambda_2$ *where* $0 < \lambda_1, \lambda_2 < 1$, *with* $\lambda_1 + \lambda_2 = 1$,

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then the limit distribution of the estimator $\widetilde{\mu}$, *see* (5)*, is given by*:

$$T^{1/2}\left(\widetilde{\mu}-\mu\right) \xrightarrow{\mathsf{D}} \mathsf{N}\left[0, \sigma_{\varepsilon}^{2}\sigma_{\mu}^{2}\right], \tag{7}$$

where

$$\sigma_{\mu}^{2}=\left(\int_{-c_{\alpha}}^{c_{\alpha}} f(\varepsilon)d\varepsilon\right)^{-2}\left[\int_{-c_{\alpha}}^{c_{\alpha}} \varepsilon^{2} f(\varepsilon)d\varepsilon(1+4c_{\alpha} f(c_{\alpha}))+\left(\frac{\lambda_{1}^{2}}{\lambda_{2}}+\frac{\lambda_{2}^{2}}{\lambda_{1}}\right)(2c_{\alpha} f(c_{\alpha}))^{2}\right].$$

Note that $\int_{-c_{\alpha}}^{c_{\alpha}} f(\varepsilon)d\varepsilon=1-\alpha$, and for the normal distribution, $f(\varepsilon)=\phi(\varepsilon)$, we find the expression:

$$\int_{-c}^{c} \varepsilon^{2}\phi(\varepsilon)d\varepsilon=\int_{-c}^{c} \phi(\varepsilon)d\varepsilon-2c\phi(c),$$

so that:

$$\sigma_{\mu}^{2}=\frac{1}{(1-\alpha)}\left(1+4c_{\alpha}\phi(c_{\alpha})-\frac{2c_{\alpha}\phi(c_{\alpha})}{(1-\alpha)}\left[1+2c_{\alpha}\phi(c_{\alpha})\left(2-\left(\frac{\lambda_{1}^{2}}{\lambda_{2}}+\frac{\lambda_{2}^{2}}{\lambda_{1}}\right)\right)\right]\right)$$

Theorem 2 *Under the assumptions of Theorem 1 it holds that the estimator* $\widetilde{\sigma}_{\varepsilon}^{2}$, *see* (6)*, has the limit*

$$\widetilde{\sigma}_{\varepsilon}^{2} \xrightarrow{\mathsf{P}} \sigma_{\varepsilon}^{2}\frac{\int_{-c_{\alpha}}^{c_{\alpha}} \varepsilon^{2} f(\varepsilon)d\varepsilon}{\int_{-c_{\alpha}}^{c_{\alpha}} f(\varepsilon)d\varepsilon}=\mathsf{V}(\varepsilon||\varepsilon|<c_{\alpha}).$$

For the normal distribution, $f(\varepsilon)=\phi(\varepsilon)$, *we find the expression*:

$$\frac{\int_{-c_{\alpha}}^{c_{\alpha}} \varepsilon^{2} f(\varepsilon)d\varepsilon}{\int_{-c_{\alpha}}^{c_{\alpha}} f(\varepsilon)d\varepsilon}=1-\frac{2c_{\alpha}\phi(c_{\alpha})}{1-\alpha}.$$

Theorem 3 *Let* $y_{t}=\mu+\sigma_{\varepsilon}\varepsilon_{t}$, $t=1,\ldots,T$ *be i.i.d., where* ε_{t} *has symmetric continuous density* $f(.)$ *with mean zero, variance one, and* $E[\varepsilon_{t}^{8}]<\infty$. *Let* $T=\sum_{j=1}^{m} T_{j}$, *and assume that* $T_{j}/T \rightarrow \lambda_{j}$, *where* $0<\lambda_{j}<1$, *with* $\sum_{j=1}^{m} \lambda_{j}=1$, *then the limit distribution of the estimator* $\tilde{\mu}$, *see* (17)*, is given by*:

$$T^{1/2}\left(\tilde{\mu}-\mu\right) \xrightarrow{\mathsf{D}} \mathsf{N}\left[0, \sigma_{\varepsilon}^{2}\sigma_{\mu}^{2}\right], \tag{19}$$

where

$$\sigma_\mu^2 = \left(\int_{-c_\alpha}^{c_\alpha} f(\varepsilon) d\varepsilon \right)^{-2}$$

$$\times \left[\int_{-c_\alpha}^{c_\alpha} \varepsilon^2 f(\varepsilon) d\varepsilon (1 + 4c_\alpha f(c_\alpha)) + \sum_{j=1}^{m} \lambda_j \left[\sum_{k \neq j} \frac{\lambda_k}{1 - \lambda_k} \right]^2 (2c_\alpha f(c_\alpha)) \right]^2$$

If in particular $T_1 = \cdots = T_m$, *then* $\sum_{j=1}^{m} \lambda_j \left[\sum_{k \neq j} \frac{\lambda_k}{1-\lambda_k} \right]^2 = 1.$

The results of this paper are generalized to autoregressive time series in Johansen, S. and Nielsen, B. "An analysis of the indicator saturation estimator as a robust regression estimator," *The Methodology and Practice of Econometrics: A Festschrift in Honour of David F. Hendry*, Oxford University Press, 2008.