CLAMSES — MICROECONOMETRIA — LABORATORIO 3a

Titolo nota 25/05/2017

PANEL 1 · DTA

FE: $C_{it} = \underbrace{(\alpha + \mu_i)}_{\alpha_i} + \beta O_{it} + u_{it}$

$i = 1 \dots N = 4$

$t = 1 \dots T = 10$

IIS FIRM
TIS TIME
} TSSET FIRM TIME

XTREG COST OUTPUT, FE

SIGMA_E = $\hat{\sigma}_u$

→ SCALAR SIGMA2U = E(SIGMA_E)^2

SIGMA_U = $\widehat{\sigma_\mu}$

↳ NON IMPORTANTE/NON INTERESSANTE IN UN CONTESTO FE

⟶ SCALAR SIGMA2m = E(SIGMA_U)^2

$$\rho = \frac{\tilde{\sigma_\mu}}{\tilde{\sigma_\mu} + \sigma_u^2}$$

→ SCALAR RHOHAT = SIGMA2M / (SIGMA2M + SIGMA2U)

→ SCALAR LIST SIGMA2U SIGMA2M RHOHAT

SCALAR ALFAHAT = _R[_CONS]

XTPIED MI, U ← μ

↳ $\hat{\mu}_i$

$\underline{\hat{\alpha}_i} = \hat{\alpha} + \hat{\mu}_i$

GEN ai = ALFAHAT + MI

GEN m11 = .

REPLACE m11 = m1 IN 1/1

XTPRED COSTHAT

CORR m1 COSTHAT

(ASSUME OPZIONE $\hat{x}_m$)

FE

$C_{it} = (\alpha + \mu_i) + \beta O_{it} + v_{it}$

ERRORE

$\text{Corr}(\mu_i, O_{it})$ CONSENTITA

RE

$C_{it} = \alpha + \beta O_{it} + \underbrace{(\mu_i + v_{it})}_{\varepsilon_{it}}$

$\text{Corr}(\mu_i, O_{it}) = 0$ NON È CONSENTITA

$\hat{\sigma}_u^2$

$$\rho = 1 - \frac{\sigma_u}{\sigma_1}$$

DOVE $\tilde{\sigma}_1 = T\tilde{\sigma}_\mu + \tilde{\sigma}_u$

BETWEEN: $C_{i\cdot} = \alpha + \beta O_{i\cdot} + (\mu_i + v_{i\cdot})$

$\rightarrow \text{VAR}(\mu_i + v_{i\cdot}) = \tilde{\sigma}_\mu + \frac{\tilde{\sigma}_u}{T}$

$$\sqrt{VAR(\mu_i + v_{i\cdot})} = 8.1593$$

$$T \cdot VAR(\mu_i + v_{i\cdot}) = \tilde{\sigma}_1^2$$

XTREG cost output, BE

SCALAR SIGMA21 = 20 * E(RMSE)^2

$$\vartheta = 1 - \frac{\sigma_u}{\sigma_1}$$

SCALAR THETAHAT = $1 - \text{SQRT}\left(\frac{\text{SIGMA2V}}{\text{SIGMA21}}\right)$

WITHIN : $I_T - C_T$ $\xrightarrow{\vartheta=1}$

GLS : $I_T - \vartheta C_T$ $\xrightarrow{\vartheta=0}$ WITHIN POOLING SEPARATE

TMASF GLS : $I_T - \vartheta C_T$

$\vartheta = 1 \Rightarrow I_T - C_T$ (TMASF "WITHIN")

$\vartheta = 0 \Rightarrow I_T$ (NON TMASF, POOLING SEMPLICE)

$$\sigma_1^2 = T\sigma_\mu^2 + \sigma_u^2$$

$$\hat{\sigma}_u^2, \quad \hat{\sigma}_1^2$$

$$\Downarrow$$

$$\boxed{\hat{\sigma}_\mu^2 = \frac{\hat{\sigma}_1^2 - \hat{\sigma}_u^2}{T}}$$

SCALAR SIGMA21_GLS = (SIGMA21 - SIGMA20)/10

XTREG COST OUTPUT, RE THETA

XTPRED MU_GLS, U

QUIETLY XTREG COST OUTPUT, FE

EST STORE EFFETTI FISSI

QUIETLY XTREG COST OUTPUT, RE

HAUSMAN EFFETTI FISSI

XTTESTϕ (TEST BP DI $H_0: \sigma_\mu^2 = 0$)

(ISTRUZIONE DA USARE IMMEDIATAMENTE DOPO IL COMANDO XTREG COST OUTPUT, RE)

TEST DI HAUSMAN

CONFRONTA DUE STIMATORI (WITHIN/FE VS GLS/RE)

H_0: NO CORRELAZIONE TRA EFFETTI INDIVIDUALI E REGRESSORI

H_1: CORRELAZIONE TRA EFFETTI INDIVIDUALI E REGRESSORI

SOTTO H_0 : GLS / RE CONSISTENTE
WITHIN / FE CONSISTENTE
> GLS / RE PIÙ EFFICIENTE

SOTTO H_1 : GLS / RE INCONSISTENTE
WITHIN / FE CONSISTENTE

$$\underset{\text{TEST}}{\text{HAUSMAN}} = \underset{1\cdot(K-1)}{\left(\hat{\beta}_{FE} - \hat{\beta}_{RE}\right)'} \underset{(K-1)(K-1)}{\hat{\hat{\Sigma}}} \underset{(K-1)\cdot 1}{\left(\hat{\beta}_{FE} - \hat{\beta}_{RE}\right)} \underset{H_0}{\sim} \chi^2_{(K-1)}$$

DOVE $\hat{\hat{\Sigma}} \equiv \left[\text{COV}\left(\hat{\beta}_{FE}\right) - \text{COV}\left(\hat{\beta}_{RE}\right)\right]^{-1}$

SE H_0 RIFIUTATA, ALLORA FE

CASO SEMPLICE

$$\text{HAUSMAN} = \frac{\left(\hat{\beta}_{FE} - \hat{\beta}_{RE}\right)^2}{\widehat{VAR}\left(\hat{\beta}_{FE}\right) - \widehat{VAR}\left(\hat{\beta}_{RE}\right)} \underset{H_0}{\sim} \chi^2_{(1)}$$

> 0 DATO CHE SOTTO H_0 GLS .. PIÙ EFFICIENTE