

Different programs can give different answers because of factors such as using:

- different but equivalent formulae, e.g. for AIC and BIC
- different versions of a test (e.g. Chi-squared or F or W,LR,LM versions);
- different alternative hypotheses for diagnostic tests;
- differences in convergence criteria or algorithms in non-linear models.
- differences in how the standard errors are computed in non-linear models: from the Hessian or outer product gradient, OPG.
- differences in the sample used, always check the number of observations.
- differences in the number of significant figures and rounding.

ARDL to ECM reparameterisation

$$\begin{aligned}
 d_t &= \alpha_0 + \beta_0 e_t + \beta_1 e_{t-1} + \alpha_1 d_{t-1} + u_t \\
 d_t - d_{t-1} &= \alpha_0 + \beta_0 e_t + \beta_1 e_{t-1} + (\alpha_1 - 1)d_{t-1} + u_t \\
 d_t - d_{t-1} &= \alpha_0 + \beta_0 e_t + [-\beta_0 e_{t-1} + \beta_0 e_{t-1}] + \beta_1 e_{t-1} + (\alpha_1 - 1)d_{t-1} + u_t \\
 d_t - d_{t-1} &= \alpha_0 + \beta_0(e_t - e_{t-1}) + (\beta_0 + \beta_1)e_{t-1} + (\alpha_1 - 1)d_{t-1} + u_t \\
 \Delta d_t &= a_0 + b_0 \Delta e_t + b_1 e_{t-1} + a_1 d_{t-1} + u_t
 \end{aligned}$$

Non-linear estimation

The theoretical model behind the ECM is

$$\begin{aligned}
 d_t^* &= \theta_0 + \theta e_t \\
 \Delta d_t &= \lambda_1 \Delta d_t^* + \lambda_2 (d_{t-1}^* - d_{t-1}) + u_t \\
 \Delta d_t &= \lambda_1 \theta \Delta e_t + \lambda_2 (\theta_0 + \theta e_{t-1} - d_{t-1}) + u_t
 \end{aligned}$$

$$dld=\{c1\}*\{c4\}*dle+\{c2\}*({c3}+\{c4\}*le1-l d1))$$