Data

Data: NG data, 131-8=123 series in total.

The "spread" series (difference between two I(1) series) are removed.

log() is done.

ADF test

No contradiction of being I(0) or I(2) in NG data.

Lasso 1

I(2) is first differenced, others are original.

$$\begin{aligned} y_t = & I(0)_{t-1} + I(0)_{t-2} + I(0)_{t-3} + I(0)_{t-4} \\ & + I(1)_{t-1} + I(1)_{t-2} + I(1)_{t-3} + I(1)_{t-4} \\ & + \Delta I(2)_{t-1} + \Delta I(2)_{t-2} + \Delta I(2)_{t-3} + \Delta I(2)_{t-4} \end{aligned}$$

Lasso 2

All stationary.

$$\begin{aligned} y_t = & I(0)_{t-1} + I(0)_{t-2} + I(0)_{t-3} + I(0)_{t-4} \\ & + \Delta I(1)_{t-1} + \Delta I(1)_{t-2} + \Delta I(1)_{t-3} + \Delta I(1)_{t-4} \\ & + \Delta^2 I(2)_{t-1} + \Delta^2 I(2)_{t-2} + \Delta^2 I(2)_{t-3} + \Delta^2 I(2)_{t-4} \end{aligned}$$

Lasso 3

Combination of Lasso 1 and 2.

$$\begin{aligned} y_t = & I(0)_{t-1} + I(0)_{t-2} + I(0)_{t-3} + I(0)_{t-4} \\ & + \Delta I(1)_{t-1} + \Delta I(1)_{t-2} + \Delta I(1)_{t-3} + \Delta I(1)_{t-4} \\ & + \Delta^2 I(2)_{t-1} + \Delta^2 I(2)_{t-2} + \Delta^2 I(2)_{t-3} + \Delta^2 I(2)_{t-4} \\ & + I(1)_{t-1} + \Delta I(2)_{t-1} \end{aligned}$$