Assume the long-run consumption function

$$c_{it} = \theta_{0t} + \theta_{1t} y_{it} + \theta_{2t} \pi_{it} + \mu_i + \epsilon_{it} \tag{6}$$

where the number of nations $i = 1, 2, \ldots, N$; the number of periods $t = 1, 2, \ldots, T$; c_{it} is the log of real per capita consumption; y_{it} is the log of real per capita income; and π_{it} is the inflation rate. If the variables are $I(1)$ and cointegrated, then the error term is $I(0)$ for all i. The ARDL(1,1,1) dynamic panel specification of (6) is

$$c_{it} = \delta_{10i} y_{it} + \delta_{11i} y_{i,t-1} + \delta_{20i} \pi_{it} + \delta_{21i} \pi_{i,t-1} + \lambda_i c_{i,t-1} \mu_i + \epsilon_{it} \tag{7}$$

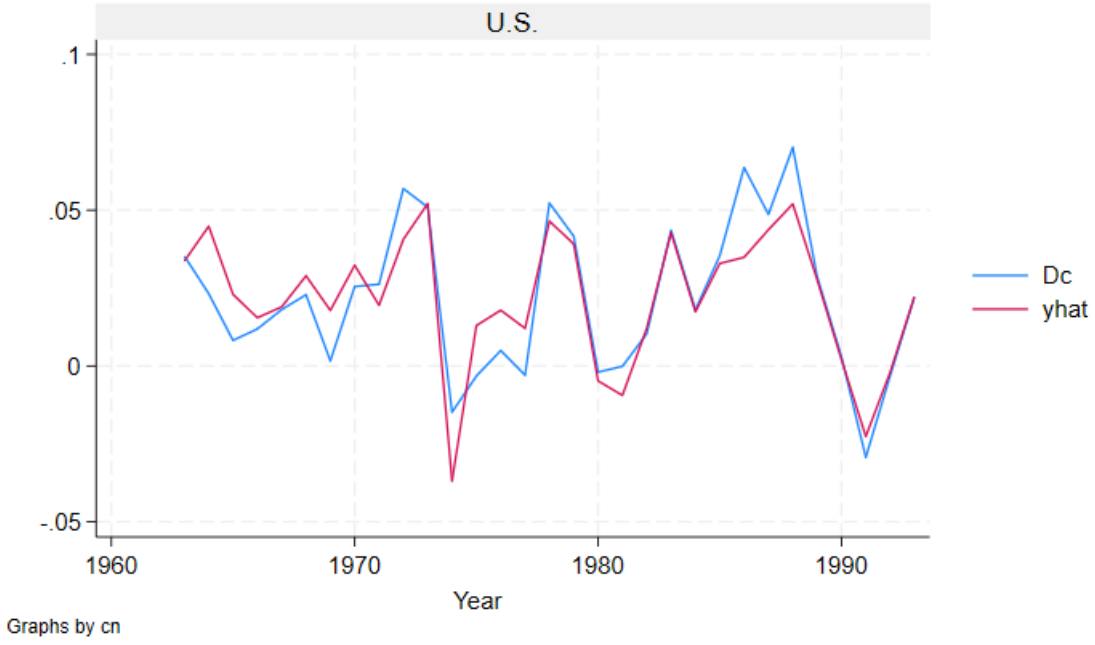
The error correction reparameterization of (7) is

$$\Delta c_{it} = \phi_i \left(c_{i,t-1} - \theta_{0i} - \theta_{1i} y_{it} - \theta_{2i} \pi_{it} \right) + \delta_{11i} \Delta y_{it} + \delta_{21i} \Delta \pi_{it} + \epsilon_{it} \tag{8}$$

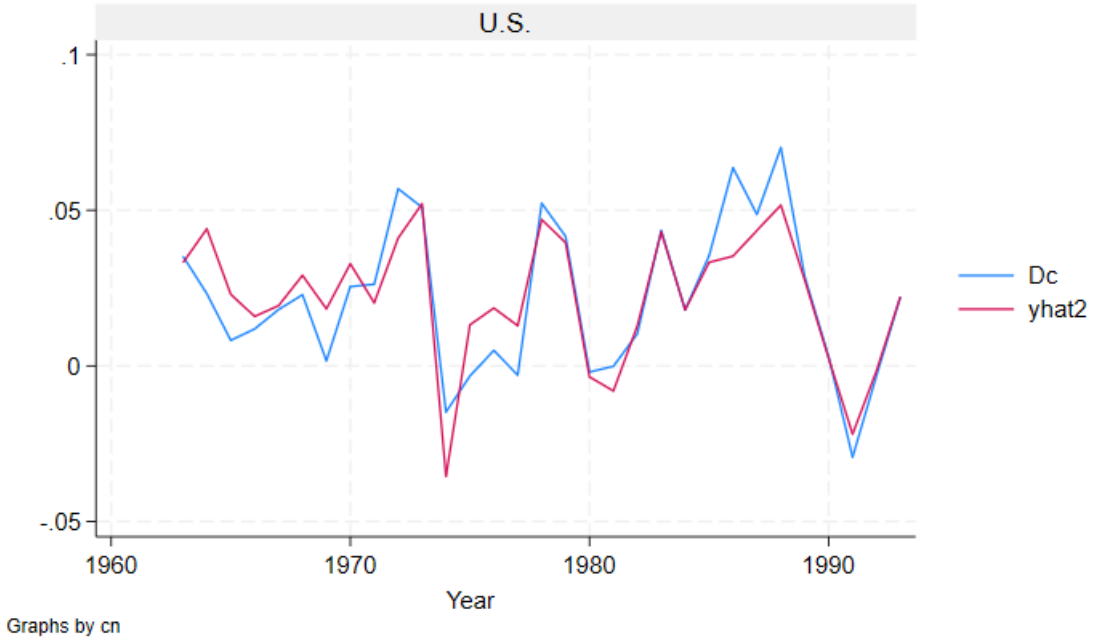
where $\phi_i = -(1 - \lambda_i)$, $\theta_{0i} = \frac{\mu_i}{1-\lambda_i}$, $\theta_{it} = \frac{\delta_{10i}+\delta_{11i}}{1-\lambda_i}$, and $\theta_{2i} = \frac{\delta_{20i}+\delta_{21i}}{1-\lambda_i}$.

The error-correction speed of adjustment parameter, ϕ_i, and the long-run coefficients, θ_{1i} and θ_{2i}, are of primary interest. With the inclusion of θ_{0i}, a nonzero mean of the cointegrating relationship is allowed. One would expect ϕ_i to be negative if the variables exhibit a return to long-run equilibrium. Most aggregate consumption theories indicate that the long-run income elasticity, θ_{1i}, should be equal to one. The inflation effect, θ_{2i}, is generally thought to be negative.

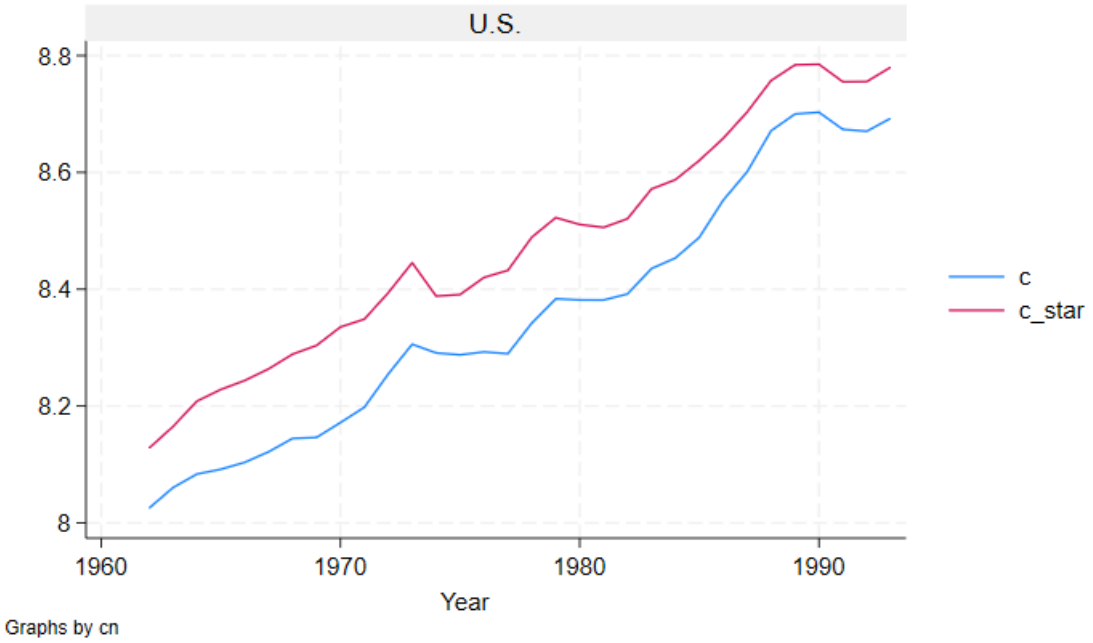
Short run prediction:



Short run prediction with a common constant:



Long run prediction with a common constant (xtmpg):



Long run prediction with heterogeneous long run slopes (xtmg):