

# Numerical Methods Homework 2

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February 28, 2016

I use dynare to compute a basic RBC model with shocks following Cole and Ohanian, "The U.S. and U.K. Great Depressions Through the Lens of Neoclassical Growth Theory," (AER 2004).

My model is

$$\max E_0[\sum_{t=0}^{\infty} \beta^t \{\log(c_t) + \phi \log(1 - n_t)\}]$$

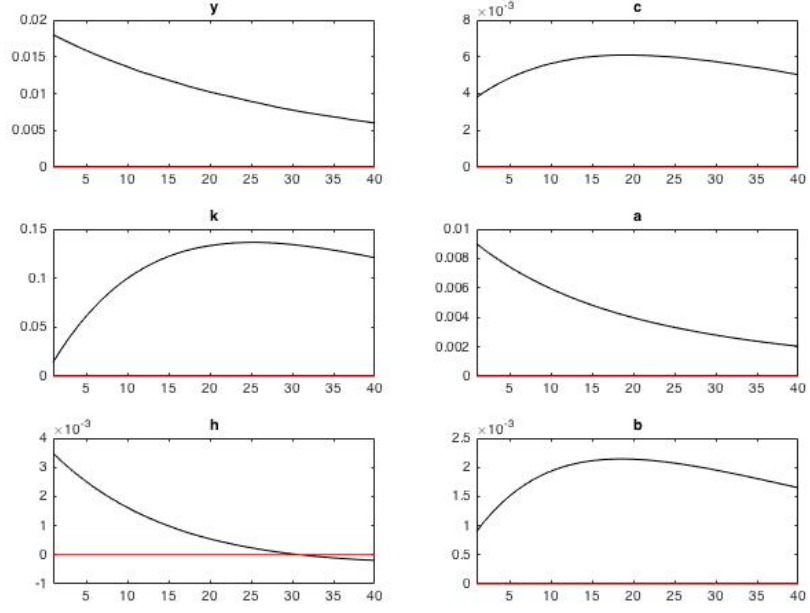
such that

$$c_t + i_t = k_t^\theta (e^{x_t} n_t)^{1-\theta}$$

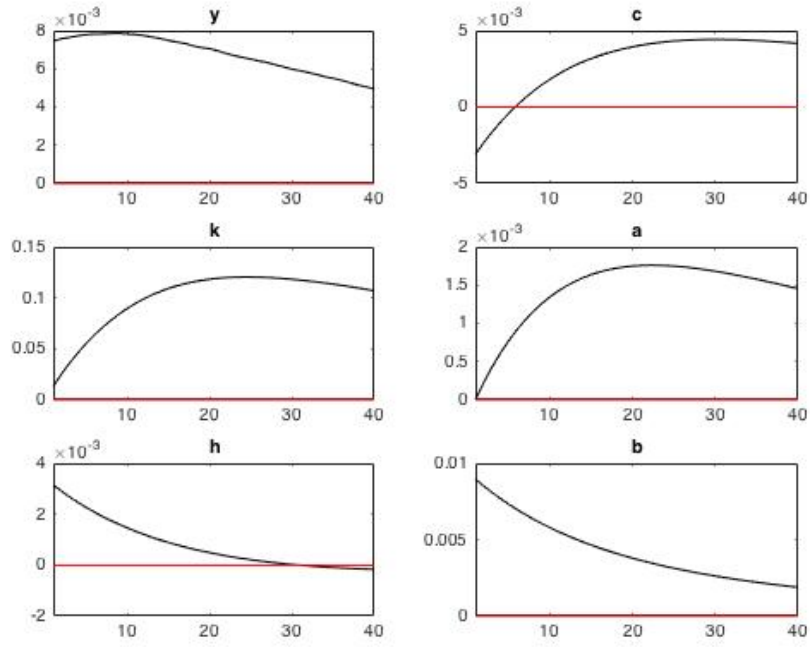
$$k_t = (1 - \delta)k_{t-1} + i_t$$

$$x_t = \rho_x x_{t-1} + \epsilon_t$$

Here is the result using dynare.



(a) Orthogonal shock to  $e$



(b) Orthogonal shock to  $u$

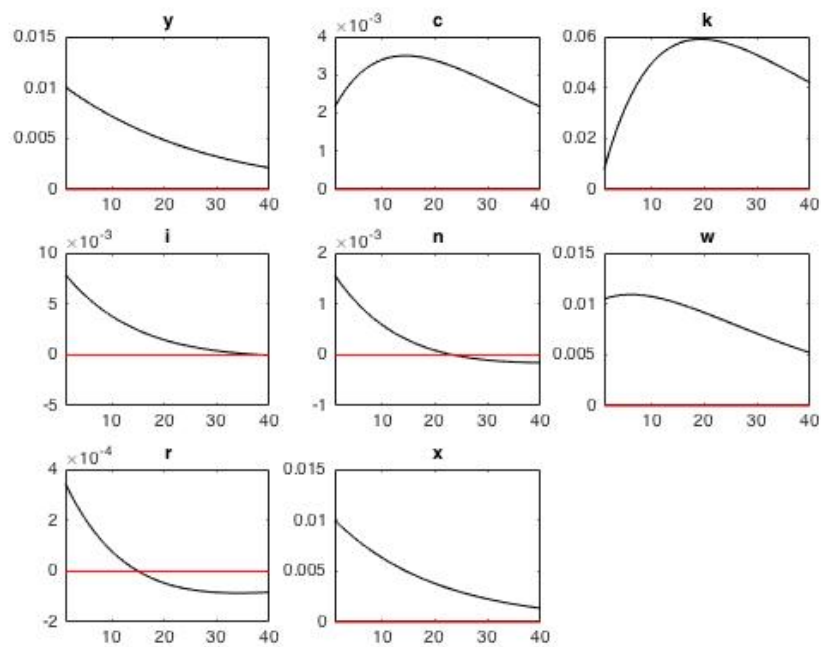


Figure 1: Orthogonal shock to  $e_x$