Econ 714: Stochastic Solow model in Dynare[1]

This example demonstrates some basic usage of Dynare.

Solution of the Solow growth model with stochastic productivity is characterized by the following equations:

$$y_t = a_t k_{t-1}^\alpha$$

$$\log a_t = \rho \log a_{t-1} + \epsilon_t, \quad \epsilon_t \overset{i.i.d.}{\sim} N(0, \sigma^2)$$

$$i_t = s y_t$$

$$c_t = (1-s) y_t$$

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

Endogenous variables: (k, y, a, i, c). Exogenous variable: ϵ. Parameters: $\alpha, \delta, s, \rho, \sigma$.

The timing convention used here is that predetermined capital in period t is indexed by $t-1$.

Steady state: $\bar{k} = \left(\frac{s}{\delta}\right)^{\frac{1}{1-\alpha}}$.

Dynare will log-linearize system of equations around steady state, plot impulse response functions, run simulations and much more. See attached files: `solow.mod` - model description in format understandable by Dynare, `go_solow.m` - Matlab script to launch estimation and do some post-estimation plotting.

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