

# Advanced Macroeconomics

2014/15 Winter term

Klaus Wälde (lecture) and Jean Roch Donsimoni (tutorial)  
www.macro.economics.uni-mainz.de

## Tutorial 11: Behavioural Business Cycles

January 29, 2015

1. Hopefulness, suspense and anxiety are feelings related to uncertainty about the future. An anticipatory feeling is a feeling that anticipates the outcome of an event (following the spirit of Caplin and Leahy, 2004). These feelings are embedded here in an otherwise standard two-period consumption and saving model. Consider the objective function:

$$U_t = E_t [\gamma u(a_t, c_t) + (1 - \gamma) u(c_{t+1})]$$

Using  $a_t$  and the budget constraints, compute the FOC for the optimal saving decision and provide an economic interpretation.

The constraint in the first period (at  $t$ ) reads:

$$w_t = c_t + s_t$$

Where  $w_t$  is wage at time  $t$ ,  $c_t$  is consumption and  $s_t$  represents savings. In the second period, i.e. at  $t + 1$ , the constraint reads:

$$(1 + r_{t+1}) s_t = c_{t+1}$$

Where  $r_{t+1}$  is uncertain.

Where  $a_t$  is the anticipatory feeling in  $t$ ,  $\gamma$  and  $\phi$  are preferences parameters between 0 and 1 and, following Caplin and Leahy (2004), we model feelings as falling in mean and rising in the variance of uncertain consumption  $c_{t+1}$ :

$$a_t = -E_t [c_{t+1}] + \zeta V [c_{t+1}]$$

Also use:

$$\begin{aligned} \mu &\equiv E_t [1 + r_{t+1}] \\ \sigma^2 &\equiv V [1 + r_{t+1}] \end{aligned}$$

Expectations are formed by the expectations operator  $E_t$ .

2. Express the following objective function by replacing anticipatory feelings by its specification:

$$U_t = E_t [\gamma [-\phi \ln a_t + \ln c_t] + (1 - \gamma) \ln c_{t+1}]$$

Compute the first-order condition.

3. Imagine the individual does not care about the mean (i.e. set  $\mu$  equal to 0 in the FOC). Compute the optimal saving level and provide an economic interpretation.
4. Imagine the individual is not worried about the variance (set  $\zeta$  equal to 0 in the FOC). Compute the optimal saving level and provide an economic interpretation.