

# Marcin Bielecki, Applied Macroeconomics, Spring 2018

## Homework for Class 10

Deadline: 15th May if sending e-mail, 16th May if handing in at the beginning of the class

Consider a modification of the basic RBC model that was presented in class. The households solve the following expected utility maximization problem:

$$\begin{aligned} \max \quad & U_0 = E_0 \left[ \sum_{t=0}^{\infty} \beta^t (\log c_t - B h_t) \right] \\ \text{subject to} \quad & a_{t+1} + c_t = (1 + r_t) a_t + w_t h_t \end{aligned}$$

where  $B$  is a positive constant and the rest of the symbols have the same meanings as in the class.

- (a) Derive the first order conditions of the households.
- (b) Construct the optimality conditions: consumption-labor choice and the Euler equation.
- (c) Assuming that the rest of the model is identical to the basic RBC model that was presented in class, find the steady state of this model economy.