

**Klausur/Exam – Macroeconomics (11063) – SS 2012**

• **Prüfer/Examiner:** Manfred Jäger-Ambrożewicz, 01 Exam on Macroeconomics, 2012-Aug-03

• **No aids are allowed but a pocket calculator according to the rules of the examination office and a bilingual dictionary.**

• **The exam has 5 questions. All questions must be answered. Your time budget is 120 minutes.**

• **When answering the questions you must provide explanations and intermediate steps! Write full sentences, provide precise labels for all axes and curves. Define all symbols.**

**Question 1 (20 points):** Use Solow's growth model – but assume for the sake of simplicity that there is no technical progress – to analyse this question. The economy considered is a closed economy and initially in its steady state (given the initial parameters). Suppose the investment rate (= savings rate) increases.

a.) What can you say about the long run level of capital intensity  $k = \frac{K}{L}$  and about the evolution of capital intensity during the transition?

b.) What can you say about the long run level of per capita income  $y = \frac{Y}{L}$  and about the evolution of per capita income during the transition?

c.) What can you say about the long run level of per capita consumption  $c = \frac{C}{L}$  and about the evolution of per capita consumption during the transition? Note that it is necessary to consider two cases when answering this part of Q1.

**Questions 2 (20 points):** Consider the following small macro model:

$$\hat{Y} = -\delta(r - \bar{r}) \quad (1)$$

$$i = \bar{\pi} + \bar{r} + a\hat{Y} + b(\pi - \bar{\pi}) \quad (2)$$

$$i = r + \pi \quad (3)$$

where  $\delta, a, \bar{r}, \bar{\pi}$  are strictly positive real numbers,  $b > 1$  (the so-called Taylor Principle),  $\hat{Y}$  denotes  $\frac{Y - \bar{Y}}{\bar{Y}}$ ,  $r$  denotes the real interest rate and  $i$  denotes the nominal interest rate.

a.) Explain each of these equations (resp. curves), i.e. what kind of situation of the economy or what kind of policy do these curves describe?

b.) Derive the AD curve for this model and the slope of the AD curve? Explain economically why the AD curve has the sign that you just derived.

c.) Suppose the Taylor Principle isn't satisfied, but  $0 < b < 1$ . What can you say about this situation?

**Question 3 (20 points):** Use the Mundell-Fleming model to analyse a small open economy with floating exchange rates.

a.) First consider only the demand side. Explain why – if monetary policy remains unchanged – fiscal policy (such as an increase of governmental spending) has no effect on GDP.

b.) Now also take the supply side into account and argue that even a combination of monetary and fiscal policy won't increase GDP permanently.

**Question 4 (20 points):** In the lecture we discussed the battle of the mark-ups that culminated in the following equation

$$P = (1 + \theta)(1 + \gamma)\bar{s}P^e. \quad (4)$$

- a.) Explain how this equation is derived and
- b.) Explain why it is the basis of the (expectation augmented) Phillips Curve. Remark: The Phillips Curve as discovered by Phillips (or maybe Irving Fischer) later “transmuted”. In the textbook and in the lecture this latter version was also called the Phillips curve. It is frequently called expectation augmented Phillips Curve.

**Question 5 (20 points):** The supply curve is given by

$$\pi = \bar{\pi} + 0.001(Y - \bar{Y}) + s \quad (5)$$

and initially  $Y_0 = \bar{Y}$ ,  $s = 0$  and  $\pi_0 = \bar{\pi}_0 = 0.02$ . The government decides to stimulate the economy such that  $Y_i - \bar{Y} = 10, i \geq 1$ . Suppose that underlying inflation adjusts according to  $\bar{\pi}_i = \pi_{i-1}, i \geq 1$ .

- a.) Calculate the rate of inflation for  $i = 1, 2, 3, 4, 5$ . What conclusion do you draw?
- b.) Comment the way underlying inflation is modelled and discuss more sophisticated modelling discussed in the lecture.