

Matriculation-No. \_\_\_\_\_

Name: \_\_\_\_\_

# Macroeconomics

(11063)

## Examination Summer Semester 2011

Examiner:

Jun.-Prof. Dr. Andreas Knabe

The following aids may be used:

Non-programmable pocket calculators;  
English language dictionaries without  
individual entries or marking.

Time:

120 minutes

***This exam comprises 16 multiple-choice problems and 2 open questions. In each of the multiple-choice problems, exactly one of the four optional answers is correct. Do not mark more than one answer to any of these questions, otherwise the solution will be considered false. For every correct answer you obtain 1 point. If no answer is marked or a wrong answer is given, you neither obtain nor lose a point.***

***Make sure that this copy of the exam bears your matriculation number and name in the appropriate fields at the top of this page.***

Good luck!

### Examination Questions (Part I: Multiple Choice)

#### The Short Run

1. Consider a closed economy with a private marginal propensity to consume of 40 % and a marginal tax rate of 50 %. The central bank succeeds in keeping the interest rates relevant for saving and investment plans constant. The government increases (tax-free) lump-sum transfers by 1 billion euro. If investment plans do not depend on current changes in GDP, and the government finances its additional expenditure by increasing its debt, the horizontal rightward shift in the IS-curve amounts to

- |                          |    |                   |
|--------------------------|----|-------------------|
| <input type="checkbox"/> | a) | 0.5 billion euro. |
| <input type="checkbox"/> | b) | 1.0 billion euro. |
| <input type="checkbox"/> | c) | 1.5 billion euro. |
| <input type="checkbox"/> | d) | 2.0 billion euro. |

2. Assume that under the assumptions made in problem 1, the government keeps its deficit constant by cutting public investment spending. In this case, the IS-curve

- a) does not shift.
- b) shifts to the left by 2 billion euro.
- c) shifts to the left by 0.5 billion euro.
- d) shifts to the right by 0.5 billion euro.

3. Assume that for a constant private marginal propensity to save, aggregate tax revenue  $T$  is a linear function of GDP,  $T = tY$ ,  $0 < t < 1$ . For given fluctuations in aggregate investment expenditure the corresponding fluctuations in total effective demand are

- a) the bigger the lower the tax rate  $t$  is.
- b) the smaller the lower the tax rate  $t$  is.
- c) independent of the size of  $t$ .
- d) Without further information a correct answer is impossible.

4. Aggregate money demand by the non-banking public is 1000 billion euro, the public holds currency and bank deposits in a proportion of 1 to 4, and the banks hold 25 % of their deposits as reserves. Then the total demand for central bank money (by banks and the public) is

- a) 300 billion euro.
- b) 400 billion euro.
- c) 500 billion euro.
- d) 600 billion euro.

5. A point which lies above the IS-curve and below the LM-curve, indicates

- a) excess demand on goods market and excess supply on financial market.
- b) excess demand on goods market as well as on financial market.
- c) excess supply on goods market as well as on financial market.
- d) excess supply on goods market and excess demand on financial market.

6. Suppose that the government wants to raise investment but keep output constant. In the IS-LM model, what mix of monetary and fiscal policy will achieve this goal?

- a) Cut in taxes, increase in money supply.
- b) Cut in government expenditure, increase in money supply.
- c) Cut in taxes without increasing the budget deficit, keeping the money supply unchanged.
- d) Cut in taxes, decrease in money supply.

## The Medium Run

7. Assume standard  $AS$ - and  $AD$ -curves derived from a standard  $IS$ - $LM$  model. In order to avoid that the increase of government spending leads to an increase in the short-run equilibrium price level, the central bank would have to

- a) keep the money supply constant.
- b) keep the current interest rate constant.
- c) engage in a contractive open-market policy.
- d) engage in an expansionary open-market policy.

8. Suppose an economy which is in its medium-run equilibrium. The central bank increases (permanently) money supply by 20 %. Without any further government action

- a) the price level rises immediately by 20 % without any change in output.
- b) the price level rises in the medium run by 20 % while real GDP and the interest rate return to their previous (natural) levels.
- c) the real GDP stays in the medium run at a higher level (and the interest rate at a lower level) than before the monetary expansion.
- d) the real GDP stays in the medium run at a lower level (and the interest rate at a higher level) than before the monetary expansion.

9. Assume that in an average month, the number of people entering the labor force is 4 % of the labor force at the beginning of the month, while 2 % are leaving the labor force. The number of people losing or quitting their jobs during a month is 1 % of total employment at the beginning of the month. The number of people finding a job during a month is 45 % of those unemployed at the beginning of a month. Assume that the percentage of people with a job leaving the labor force is the same as the percentage of unemployed leaving the labor force. Moreover, every person entering the labor force during a month is at first unemployed. The natural unemployment rate (as a percentage of the labor force) is

- a) 10 %.
- b) 12.5 %.
- c) 14 %.
- d) 16.6 %.

10. Combine an expectations-augmented Phillips curve with the assumption of adaptive inflation expectations ( $\pi_t^e = \pi_{t-1}$ ). If in period  $t - 1$  the unemployment rate was below its natural level and the government keeps it at that level also in period  $t$ . Then  $\pi_t - \pi_{t-1}$  equals

- a)  $\pi_{t-1} - \pi_{t-1}^e > 0$
- b)  $\pi_{t-1} - \pi_{t-1}^e < 0$
- c)  $-0.5(\pi_{t-1} - \pi_{t-1}^e) < 0$
- d)  $\pi_{t-1} - \pi_{t-1}^e = 0$

11. Assume that the current actual rate of inflation is kept constant. Then, according to the expectations-augmented Phillips curve, a lower expected rate of inflation is associated with

- a) a lower unemployment rate.
- b) a higher unemployment rate.
- c) no change in the unemployment rate.
- d) a change of the natural unemployment rate.

12. Okun's law states that

- a) the fall in the unemployment rate from one period to the next is linearly related to the extent the actual growth rate of real GDP exceeds the growth rate of its natural level
- b) the unemployment rate in the current period is negatively correlated with the real growth rate of GDP in the previous period.
- c) the fall in the unemployment rate from one period to the next is linearly related to the extent the actual inflation rate exceeds the expected inflation rate
- d) an increase in the bargaining power of labor unions increases the natural unemployment rate

### The Long Run

13. Which of the following statements concerning long run economic growth is true (independently from the question whether the economy is in steady state or not)?

- a) An increase in the saving rate raises the depreciation rate of investment.
- b) A one-time but permanent increase of the saving rate always leads to a permanent increase of the consumption per person.
- c) If there is no population growth and no technological progress, output growth rate is always equal to zero.
- d) Income per person has its highest equilibrium value for a saving rate equal to one.

14. For an economy with a production function  $Y = K^{1/3} N^{2/3}$  the depreciation rate on the capital stock is 4%. The private and public households save 45% of GDP, and the population (and labor force) grow at a rate of 1% per period. The steady-state capital intensity for this economy is

- a) 21.
- b) 23.
- c) 25.
- d) 27.

15. For the economy of problem 14., the steady-state equilibrium is

- a) optimal in the sense of the Golden Rule.
- b) an under-accumulation equilibrium.
- c) an over-accumulation equilibrium.
- d) characterized by a too low saving rate.

16. In an economy with a given saving rate, real GDP is growing at a steady-state growth rate  $g$ . The Solow model predicts that a permanently higher total factor productivity would result in

- a) a higher long-run growth rate of real GDP.  
 b) an only temporarily higher growth rate of real GDP.  
 c) an only temporarily higher real wage rate.  
 d) None of the above answers is correct.

### Examination Questions (Part II: Open Questions)

#### 17. IS-LM-Model

Consider an economy with the following demand functions of consumption, investment and money:

$$C = 80 + 0.8(Y - T)$$

$$I = 150 - 1000i$$

$$\frac{M^d}{P} = 0.2Y - 1000i$$

The price level is  $P = 1$ .

- Assume that government spending is  $G=100$ , the government budget is balanced, and real money supply is  $M/P=50$ . Determine the IS curve and the LM curve and depict them graphically.
- Determine the interest rate at which the goods market and the financial market are in equilibrium. Calculate the associated values for disposable income, consumption and investment.
- Assume that the government increases its expenditures to  $G=250$ . The difference to the original value is financed by debt. Determine the interest rate, income, investment, consumption and private saving in the new equilibrium. Explain your results.

#### 18. Fiscal Policy in the AS-AD-Model

Consider an economy in which output in period  $t$  is at its natural level. In order to raise its probability of re-election, the government implements a tax reduction (financed by debt). Assume adaptive expectations with respect to the price level ( $P_t^e = P_{t-1}$ ).

- Explain graphically and verbally (by means of the AS-AD-model) the short-run and medium-run effects of the tax cut on output, the interest rate and the price level.
- Which other policy measures or economic events would lead to identical effects in the short run and medium run?
- After some years, a research group of economists analyses the long-run effects of the tax cut. They conclude that the tax cut has led to the formation of many new companies. Contrary to the predictions of the AS-AD-model, the natural level of output has increased too. How might this effect be explained? (Hint: Use price and wage setting curves!)

– End of text. Good luck! –