



EVALUATION GUIDELINES - Written examination

EXC 35251  
Macroeconomics

Department of Economics

<b>Start date:</b>	10.12.2018	Time 09:00
<b>Finish date:</b>	10.12.2018	Time 12:01

For more information about formalities, see examination paper.

**The exam consists of four sub-sections. Each weighted 25 % of the total.**

**Exercise 1 (weight 25 %):**

Explain the difference between the following terms:

- a) Real economy and monetary economy.
- b) Real exchange rate and nominal exchange rate.
- c) Current account and balance of goods and services.
- d) Substitution effect and income effect.
- e) Dynamically inefficient economy and a dynamically efficient economy in a Solow model.

**Guidelines:**

- a) Real economy: term referring to the production and consumption of goods and services, and the (inflation corrected) incomes associated with productive activities. Monetary economy: The part of the economy dealing with monetary and financial, nominal phenomena.
- b) Real exchange rate: the cost of foreign goods in terms of domestic goods, defines as the nominal exchange rate adjusted by prices at home and abroad. Nominal exchange rate: the value of foreign currency in terms of domestic money.
- c) Current account and balance of goods and services. The difference is unilateral transfers with the rest of the world.
- d) Substitution effect: The component of the total change in quantity demanded that is attributable to the change in relative prices. Income effect: The portion of change in quantity demanded which is attributed to the change in effective real income that results from the price change.
- e) Dynamically inefficient economy: Save and invest too much. A reduction of current savings can make all generations better off. Dynamically efficient economy: Save and invest too little. Future generations can be made better off only by reducing consumption today.

**Exercise 2 (weight 25 %)**

Answer the following statements as **true** or **false**, and explain why. Write no more than three sentences on each question.

- a) Inflation measures the increase in the value of money
- b) In a Solow model, net capital accumulation per capita depends positively on the rate of depreciation and negatively on the savings rate
- c) Involuntary unemployment exists when unemployed workers would be willing to work for the wage paid to employed workers or even for a lower wage, but don't find employment.
- d) Money neutrality means that money has no effect on inflation in the long run.
- e) In a flexible exchange rate regime, the Central Bank must adjust the money supply to keep the interest parity condition.

**Guidelines:**

- a) False: Inflation measures the decrease in the value of money, i.e. a certain amount of money buys you less than previously.
- b) False: It is the opposite: net capital accumulation per capita depends negatively on the rate of depreciation and positively on the savings rate.
- c) True: Involuntary unemployment includes those who wish to work at the current wage level but cannot find a job.
- d) False: Money neutrality means that money does not matter for the real economy in the long run.
- e) False: If flexible exchange rates then monetary policy can be used to affect aggregate demand (true if fixed exchange rates).

**Exercise 3 (weight 25 %)**

- a) Consider an economy where GDP is equal to 3000, private consumption is 1400, public consumption is 900, net investments in real capital is 300, exports is 1300 and depreciation of real capital is 500. How much will purchase of goods and services (imports) be? Answer by using numbers and an equation.
- b) Why is GDP typically higher than personal disposable income?
- c) How can a decomposition from a) and one other decomposition of GDP, be used to express net flows of private sector, government and the rest of the world?
- d) Use the equation from c) to discuss the situation if in a country, the balance in private sector = - 5 % of GDP and the balance in public sector (government) = - 5 % of GDP.
- e) As a follow up to d), what do you know about the situation in private sector if firms' investments = 2 % of GDP?
- f) Suppose a country is facing a balance of payments deficit (overall balance deficit). How will the response from the monetary authorities be different, depending on the exchange rate regime?

**Guidelines:**

B & W 6<sup>th</sup> edition chapter 2.

- a) Equation:  $GDP (3000) = \text{private consumption} (1400) + \text{public consumption} (900) + \text{net investments in real capital} (300) + \text{depreciation of real capital} (500) + \text{exports} (1300) - \text{imports}$ . Then  $\text{Imports} = 1400$
- b) Because a share of GDP does not reach individual households. It either goes to the government (net taxes) or is saved by firms (retained earnings).
- c) Decompositions of GDP (2.5)  $Y = C + I + G + X - Z$  and (2.6)  $Y = C + S + T$ . The two accounting identities yield a third: (2.7)  $(S - I) + (T - G) = (X - Z)$ .
- d) If both private sector and public sector spends more than they take in, the country as a whole has to borrow abroad ( $(S - I) = -5\%$  of GDP and  $(T - G) = -5\%$  then  $(X - Z) = -10\%$ ) (sometimes used current account instead of trade balance).
- e) In private sector if  $I = 2\%$  of GDP and  $S - I = -5\%$  of GDP then  $S = -3\%$  of GDP. If private household's savings are negative, then household's consumption is higher than their disposable income.

- f) The imbalance between inflows and outflows must translate into excess supply of the domestic currency on exchange markets worldwide. The currency will reduce its value (depreciate) if a flexible exchange rate regime – meaning no intervention from the monetary authorities. If the monetary authorities want to prevent this (fixed exchange rate regime) they must buy the excess supply of domestic currency – using their holdings of foreign currency.

#### **Exercise 4 (weight 25 %)**

In this exercise you can, but are not expected to use diagrams when answering the questions.

- a) Define the IS curve and the TR curve in a Mundell-Fleming model.
- b) Use the open economy IS-TR model to explain demand expansions under fixed exchange rates.
- c) As a follow up to question b), explain what the central bank must do to keep the domestic interest rate equal to the foreign rate of return?
- d) Use an AD-AS model (aggregate supply - aggregate demand) to explain what will happen to the economy in the short run and in the long run, if the central bank lowers its inflation target (contractionary monetary policy) under flexible exchange rates.

#### **Guidelines:**

B & W 6<sup>th</sup> edition chapter 11, 12 and 14.

- a) Def IS curve = the combinations of nominal interest rate and real output that are consistent with goods market equilibrium, for given values of exogenous variables.  
Def TR curve = a graphical representation of the Taylor rule, which states that central banks adjust the interest rate to reduce fluctuations in output and inflation.
- b) With fixed exchange rates there is no TR curve. A demand expansion will increase output. As in fig 12.4 it can be explained by shifting the IS curve to the right. Output increase. New equilibrium where both the goods market and international financial markets are in equilibrium. Assuming capital mobility domestic interest rate equals international interest rate.
- c) The output expansion raises the demand for money in the money market. The central bank must therefore increase the money supply to keep the domestic interest rate equal to the foreign rate of return.
- d) Short run effect: the AD curve shifts to the left and the LAD curve shifts down reflecting the permanent lower target inflation rate. Short run equilibrium occurs where underlying inflation exceeds actual inflation. Thereafter underlying inflation decreases to its long-run level where it is equal to the new target inflation rate and with GDP equal to trend output (opposite of fig 14.13).