



EVALUATION GUIDELINES - Written examination

EXC 35251
Macroeconomics

Department of Economics

Start date:	12.12.2016	Time 09:00
Finish date:	12.12.2016	Time 12:00

For more information about formalities, see examination paper.

Exercise 1 (weight 25 %)

- a) Define the unemployment rate and the unemployment gap.
- b) Explain how the unemployment rate can go down without more people have found jobs.
- c) What is business cycles and how is the unemployment rate related to the business cycle?
- d) Use a diagram for the labour market with real wage on the vertical axis and labour on the horizontal axis. Define the supply and demand curves.
- e) Use the model from d) to explain the difference between involuntary - and voluntary unemployment.
- f) Suppose an extreme case where the labour supply decrease when the real wage increase. Use economic terms to explain reasons.

Answer:

- a) B & W 6th edition chapter 1 and 12. The unemployment rate is the ratio of the number of unemployed workers to total labour force. The unemployment gap is the difference between the actual and long run equilibrium unemployment rate.
- b) Every individual is on one of three states: employed, unemployed or out of the labour force. Then the reason could be discouraged people leaving the labour force.
- c) Business cycles: successions of periods of growth and slowdowns or decline in which output fluctuates around its long-run trend. The unemployment rate is countercyclical: it moves against the cyclical behaviour of output.
- d) B & W 6th edition chapter 5. Labour demand: the relationship linking the number of man-hours that firms wish to hire and the cost of labour. Labour supply: From a fig with consumption and leisure (like fig 5.3) to the labour supply typically sloping upwards because the substitution effect dominates the income effect. In practice, the response to rising wages varies widely across individuals, depending on tastes, family circumstances, age etc.
- e) B & W 6th edition chapter 5, like fig 5.9 to explain involuntary unemployment because the real wage is too high and like fig 5.7 to explain voluntary unemployment with labour market equilibrium down compared to the total labour endowment level.
- f) B & W 6th edition chapter 5.2. The reason could be that the income effect dominates the substitution effect. Students must define these two effects.

Exercise 2 (weight 25 %)

- a) Define the production function in intensive form.
- b) What do we assume about marginal productivity and returns to scale in a Solow model?
- c) Explain Steady State in a Solow model.

- d) What is the Golden Rule in a Solow model?
- e) What are the consequences of “disobeying” the Golden Rule?

Answer:

- a) B & W 6th edition chapter 3. The production function is a theoretical relationship linking aggregate output to inputs of factors of production. Intensive form is obtained by dividing both sides by labour.
- b) In the Solow model we assume diminishing marginal productivity (the increases in output becomes smaller and smaller as you add more capital per labour) and constant returns to scale (a doubling of all inputs will double outputs).
- c) Steady State is when the capital – labour ratio stops changing. Then investments is equal to depreciation (fig 3.5).
- d) Golden Rule: the proposition that per capita consumption is maximized in a growing economy at the point at which the marginal product of capital is equal to the growth rate (fig 3.9).
- e) Higher capital labour ratio than following the Golden Rule, is called dynamic inefficient. Then it is permanently possible to raise consumption by reducing saving. The opposite is called dynamic efficient. Then higher future consumption requires early sacrifices (fig 3.10).

Exercise 3 (weight 25 %)

- a) Explain the 45-degree line in a Keynesian Cross model.
- b) Define exogenous - and endogenous variables and seat the following variables in one or the other category, when using the Keynesian Cross model: GDP (Y), the price level (P), Private consumption (C), Government purchases (G) and the primary current account (PCA = exports (X) - Imports (Z)).
- c) Use the Keynesian Cross model to discuss the effect of an expansionary fiscal policy.
- d) Define the IS curve and explain how it can be derived from a Keynesian Cross model.
- e) What makes the IS curve flatter and how will this affect an expansionary fiscal policy according to the model?

Answer:

- a) B & W 6th edition chapter 10. Fig 10.3. The 45-degree line represents the equilibrium in the goods market where supply equals demand.
- b) B & W 6th edition chapter 1 and 10.2.5. Endogenous variables are explained by economic principles while exogenous are determined outside the system under study. In the Keynesian Cross model endogenous variables are Y, C, and PCA while G and P are exogenous.

- c) Fig 10.4. An exogenous increase in government spending (G) (example of an expansionary fiscal policy) or lowering taxes, shifts the demand schedule vertically by the change in G. Supply rises to meet increased demand, and the economy's equilibrium output ultimately rises. Here it is important that students explain the multiplier effect (the Keynesian demand multiplier). That the change in output exceeds the initial impulse. The total effect depends on the marginal propensity to consume (c). The higher c to 1, the higher the multiplier. Box 10.1.
- d) The IS curve is combinations of nominal interest rates and output that are consistent with goods market equilibrium, for given values of exogenous variables. From a fig with desired demand and output on the axes to a fig with nominal interest rate and output on the axes. An increase in the interest rate shifts the desired demand curve in the first fig and makes the IS curve slope down in the last fig. Like fig 10.5.
- e) The more equilibrium output rises in response to a given reduction of the interest rate, the flatter the IS curve. Then the higher the marginal propensity to consume, the higher multiplier and then the flatter the IS. Then the effect on GDP of an expansionary fiscal policy will be higher the flatter the IS curve.

Exercise 4 (weight 25 %)

- a) Define the AD curve in an AD-AS model.
- b) Why is the slope of the AD curve different when moving from the short to the long run under fixed exchange rates?
- c) Explain by using the AD-AS framework the effect of an expansionary monetary policy under fixed exchange rates.
- d) Explain by using the AD-AS framework the effect of a devaluation.
- e) Use economic theory to give reasons why a country with fixed exchange rates experience their currency to depreciate in relation to other countries.

Answer:

- a) B & W 6th edition chapter 13. Aggregate demand (AD) is different combinations of inflation and output that are consistent with equilibrium in the goods market.
- b) In the short run the AD curve slopes downwards in a fig with inflation on the vertical and output on the horizontal axis, because a reduction in a country's inflation (compared to inflation abroad) will increase competitiveness and increase aggregate demand. In the long-run we assume that the purchasing parity hold. If so then inflation gaps will cause nominal exchange rates to change in a way that makes the real exchange rate constant. The long run restriction on the demand side will therefor be that domestic inflation must equal foreign inflation and the long run aggregate demand curve (LAD) is horizontal.
- c) A key lesson from chapter 11 is that it is impossible to carry out an autonomous monetary policy when the exchange rate is fixed (if no restrictions on capital movements). This is because a country cannot run a monetary policy on their own

(with an interest rate different from other countries) if they at the same time want exchange rates fixed.

- d) If we go on to explaining a devaluation (fig 13.7), it will increase competitiveness and lead to higher demand in the short run (shifting AD to the right), but rising inflation will undo some of the real depreciation. Higher inflation will also lead to higher underlying inflation, which will eventually lead to pressure to devalue again, or a painful period of lower inflation and a negative output gap to restore competitiveness.
- e) According to the purchasing power parity condition chapter 6.4 and 13, the nominal exchange rate will in the long-run change, if inflation is different in different countries. The theory states that depreciations will occur in countries with higher inflation than other countries.