EVALUATION GUIDELINES - Written examination

EXC 35251
Macroeconomics

Department of Economics

Start date:	11.12.2015	Time 09:00
Finish date:	11.12.2015	Time 12:00

For more information about formalities, see examination paper.

Exercise 1 (weight 25 %)

a) Define exogenous variables and endogenous variables and explain the statement: "When using economic models it is essential to be clear about what we want to explain and what we take as given."
b) Explain the economic situation in a country if the real GDP growth rate is higher than the nominal GDP growth rate.
c) Use the circular flow diagram to explain the economic situation in a country if total consumption as a percentage share of GDP = 60 % and net export as a percentage share of GDP = 10 %.
d) Explain the economic situation in a country if the real exchange rate increases while the foreign inflation rate is higher than the domestic inflation rate.
e) What are exogenous variables in a Keynesian cross model?

Answer:

a) B & W 6th edition chapter 1 page 19. Exogenous variables are determined outside the economic model while endogenous variables are the object of analysis in an economic model. The variables to be explained using economic principles are called endogenous variables. The others – those we do not try to explain – are called exogenous variables.
b) B & W 6th edition chapter 2 page 30. Then the GDP deflator inflation must be negative. On average prices dropped.
c) B & W 6th edition chapter 2.3. Then investments (the purchase of new equipment) must be 30 % of GDP.
d) B & W 6th edition chapter 6 equation 6.7. Then the nominal appreciation (british term) must be greater than the difference between the inflation rates (the inflation differential).
e) B & W 6th edition chapter 10 page 245. The most important exogenous variables to mention are price, government spending and taxation. Others are wealth, foreign GDP, foreign price level and Tobin's q. Example of endogenous and therefor not to be mentioned are output, consumption and the primary current account (PCA).

Exercise 2 (weight 25 %)

a) Define indifference curves and the marginal rate of substitution (MRS) in a model showing the household's trade off between consumption and leisure.
b) Use the consumption – leisure trade off to explain the household's optimal choice.
c) Explain how you can derive the labour supply curve from the consumption – leisure trade off model.
d) In the model used in this exercise, explain the difference between the substitution effect and the income effect, if the wage increases.
e) As a follow up to d): explain the slope of the labour supply curve if the substitution effect dominates.

Answer:

a) B & W 6th edition chapter 5.2. Fig. 5.1: An indifference curve shows how readily a household is willing to substitute consumption for leisure. MRS is the rate of which a household is willing to give up consumption for leisure, holding satisfaction constant. An important principle is that as a good becomes increasingly scarce the MRS of other goods for that particular good increases.
b) Point R in fig. 5.2 where an indifference curve is tangent to the budget line. At this point MRS = w (the real wage), where w is the slope of the budget line.
c) Fig. 5.3. When the real wage increases, the budget line rotates around point A (the endowment of time remains unchanged) and becomes steeper.
d) The income effect: There is an incentive to work less and enjoy more leisure if the wage increase. The substitution effect: The relative attractiveness of leisure declines when the wage increase. This would be an incentive to take less leisure, work harder and consume more.
e) From d) it is clear that the two effects pull in opposite directions. If the substitution effect dominates, the labour supply curve will slope upwards like explained in fig. 5.3.

Exercise 3 (weight 25 %)

a) Define the money demand curve in a money market model. Who do we assume are the participants behind the curve?
b) Use a money market model to explain how the central bank and the banking system can influence the supply of money.
c) Explain the inflation target instrument by using a money market model and give reasons why many countries have changed from monetary targeting to inflation targeting.
d) Explain the Taylor rule and use it to predict outcome if the economy is at its natural rate. Use also a money market model to explain this situation.

Answer:

a) B & W 6th edition chapter 9. The public's demand for money is negatively related to the interest rate, which represents the cost of borrowing from commercial banks. The public could be both households and firms.
b) The supply of money depends on both the size of the monetary base (the sum of currency in the hands of the public and bank reserves) from the central bank and how well the money multiplier works (the chain of money and credit creation of banks). In the money market model the supply side is explained both by using a vertical supply curve (assuming the amount of supply is given) and a horizontal supply curve (the interest rate is given).
c) B & W 6th edition fig 9.11. From monetary targeting (vertical supply curve) to inflationary targeting (horizontal supply curve). The reasoning behind inflation targeting consists of two observations: 1. It is easier to target interest rates than reserves. 2. If the money supply is difficult to control, it is better to use the interest rate directly as an instrument for controlling inflation.
d) B & W 6th edition chapter 9.4.3. The Taylor rule states that the central bank will raise the interbank market rate when the inflation rate exceeds its target inflation rate and

when real GDP exceeds its current equilibrium or trend level. If the economy is at its natural rate there is no inflation gap and no output gap. Then the central bank will set its interbank market interest rate equal to the neutral interest rate. This is the interest rate that the central bank would want to set if both the inflation and GDP were stabilized at their desired levels. In a money market model with horizontal supply curve it can be thought of as where the supply schedule is placed (fig 9.8).

Exercise 4 (weight 25 %)

a) Define the curves in a IS TR model and explain the slope of the curves (ignore international trade in financial assets).
b) Explain what will happen if the economy is above the IS curve and above the TR curve.
c) Use the IS TR model to discuss the effect of an expansionary fiscal policy.
d) Compare the effect of an expansionary fiscal policy using the IS TR model with the effect using a Keynesian Cross Model.

Answer:

a) B & W 6th edition chapter 10. IS curve: For given values of exogenous variables, the IS curve represents the combinations of nominal interest rate and real GDP that are consistent with goods market equilibrium. TR curve: a graphical representation of the Taylor rule, which states that central banks adjust the interest rate to reduce fluctuations in output (assuming prices constant in the short run). The IS curve slopes down and becomes flatter the greater the sensitivity of demand to changes in interest rates and the larger the multiplier that translates the initial exogenous change into higher total demand (fig 10.5). The TR curve slopes upwards meaning that if output rises relative to its trend level, central banks raise interest rates (fig 10.10).
b) All points above the IS curve imply an excess supply of goods. It will lead to decreased production. All points above the TR curve imply that interest rates are above the level consistent with the central bank's monetary policy – the central bank can be expected to take action to reduce them.
c) Fig. 10.13. Explained by shifting the IS curve to the right. New equilibrium at a higher interest rate (because the central bank increase the interest rate) and a higher level of production (real GDP).
d) The real GDP increase more than the initial expansionary fiscal policy because of the multiplier effect, but the effect is less than when using a Keynesian Cross Model because with the latter the interest rate do not increase. By using the IS TR model, we also get the central bank response to the increasing output.