Assessment guidelines SØK1151 V2021

The exam consists of 4 different questions, but good students should be able to realize that different versions of the IS-LM model can be used to answer all questions. This is commented on below.

Question 1.

A macroeconomic commentator makes the following statement: "Higher public spending on infrastructure and roads is the best way to increase the economic activity in the current situation with high unemployment". Discuss this statement using an economic model.

Suggested solution

Relevant models are IS-LM-UIP model for closed or open economy as described in ch 19 in textbook. Efficient students should realize that an open economy model can be applied on several of the questions in the exam paper. The suggested solution departs from and IS-LM - UIP model for open economy with flexible exchange rates.

The model could concisely be formulated by 4 equations:

$$(1) Y = C(Y - T) + I(Y, i, o) + G + NX(Y, Y^*, \varepsilon)$$

$$(2)\ i = \bar{i}$$

$$(3)\ E = \frac{(1+i)}{(1+i^*)} \overline{E^e}$$

$$(4) \varepsilon = \frac{EP}{P^*}$$

The assumptions behind the model should be briefly described (constant prices, demand determined output and a negative relationship between unemployment and output-Okun's law). The equations and symbols should be explained:

(1) is the equilibrium conditions for the goods market, i.e. that aggregate domestic output, Y (GDP) equals aggregate demand

Aggregate demand consists of:

Domestic private consumption $C(Y - T)$ which is an increasing function of disposable $(Y - T)$ income. $(C' > 0)$, Net taxes (T) is assumed to be exogenous. Further, it is a function of nets exports, $NX(Y, Y^*, \varepsilon)$. Students should be able to briefly explain the net exports relationship. Domestic government spending, G, is assumed to be exogeneous and determined by the government.

(2) is the policy interest rate

Eq (4) is the definition of the real exchange rate which is one of the elements that determines net exports. (3) is the interest parity relation (UIP). (1) and (2) determines the interest rate and equilibrium output, while (3) determines the real exchange rate. Efficient students will note that a detailed discussion of the UIP curve is delegated to the answer to question 2.

The students should be able to draw the relevant figures (IS, LM and UIP curve) and explain the equilibrium in the model with equilibrium in the financial and goods markets. To answer question 1 raised in the text, the students should consider an initial situation with unemployment. This should be defined as a situation with Y lower than Y at full employment or potential GDP.

It is possible to analyze **question 1** raised in the text in several ways. One possibility is to consider different ways to implement a fiscal expansion. Thus, consider the use of increased G (increased public spending, i.e spending on roads and infrastructure) versus reduced T (reduced taxes) as policies to reduce unemployment (increase Y). The conclusion is that an increase in G by a certain amount is more effective than a similar reduction in taxes. See chapter xxx in textbook.

Another possibility is to consider the use of fiscal expansion (increased G) versus expansionary monetary policy (decreased $\bar{i}$)to fight unemployment (increase Y). Here it is relevant to consider limitations of fiscal policy due to initial budget deficits and high government debt. Similarly, limitations to monetary policy in terms of the liquidity trap because of an initial low or zero policy interest rate.

Question 2.

Discuss the relationship between interest rates and the foreign exchange rate in an open economy.

Suggested solution

In this question the students should elaborate on the financial market in an open economy with flexible exchange rates. Within the model above, it means to describe and explain in more detail the upward slope of the UIP curve based on eq (3). The mechanisms should be explained along the lines of ch. 19, in particular 19.2, in the textbook.

Question 3.

An economic commentator argues that turbulence in the finance market may lead to a fall in the activity level in the economy. Discuss the mechanisms behind that argument within an economic model and discuss to what extent economic policy can be used to counteract the fall in activity.

Suggested solution

Efficient students would realize that the model presented in Q1 can be simplified and used to discuss the financial tubulence argument. Chapter 6 in the textbook presents a relevant model for a **closed** economy with a simple variable representing the risk premium. Students can simply consider a closed economy version of the model in Q1 extended with a real interest rate and a shifter in the IS curve representing financial turbulence. The relevant equations are

(1)′ $Y=C(Y-T)+I(Y, r+x)+G$

(2)′ $r = i - \pi^e = \bar{r}$

Here, x represents risk premium facing private actors, r is the real interest rate and π^e is the expected inflation rate. $\Delta x > 0$ can represent an increased risk premium generated by financial turbulence. The model can be further simplified by assuming $\pi^e = 0$. The students should explain that the $r+x$ argument in the IS equation represents the borrowing interest rate faced by private sector that affect investment behaviour. Thus, $\Delta x > 0$ represents financial turbulence that gives an exogeneous negative shift in the IS-curve because of increased borrowing costs for private firms. Here it is possible to discuss the use of monetary policy (reduced policy real interest rate) or fiscal policy (increased G or reduced T) to counteract the financial disturbance represented by $\Delta x > 0$.

Question 4.

Discuss how an exogeneous increase in saving will affect the activity level in an open economy.

Suggested solution

The IS-LM-UIP model established in Q1 can be used to discuss this question. The candidates should realize that an exogeneous increase in saving can be represented by an exogeneous shift factor, z, in the consumption function embedded in the equation for the IS curve.

$(1)''Y = C(Y - T, z) + I(Y, i, o) + G + NX(Y, Y^*, \varepsilon)$

Here an increase in saving can be represented by a negative shift in the consumption function $\Delta z < 0$ (exogeneously reduced consumption). Thus, the effect on the activity level in the IS-LM-UIP model can be represented by a negative shift in the IS-curve. The conclusion is that the activity level falls. The students should be able to explain the mechanisms involved.