Queen Mary
University of London

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ECN206 *Macroeconomics II* *Duration: 2 hours*

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Answer all questions

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Examiner: Dr Karlygash Kuralbayeva

Question 1

Answer with either True or False and then provide at most three sentences including an explanation with empirical and/or theoretical backing to support your answer.

A) A reduction in the European money supply leads to appreciation of the dollar against the euro in the foreign exchange market.

[10 marks]

B) In a two-period economy, if households start period 1 with no assets or debt and the real interest rates rises, then the effect on consumption in the first period is ambiguous.

[10 marks]

C) The Solow model predicts that countries with a lower capital per worker grow faster than countries with a higher capital per worker.

[10 marks]

D) The real appreciation of the domestic currency will make goods produced domestically more expensive for foreigners.

[10 marks]

E) Suppose the following inequality holds: $F_K(K^{GR}, N) < F_K(K^*, N)$, where F_K is the marginal product of capital. Then $K^{GR} < K^*$, where K^{GR} is the capital stock under Golden Rule, K^* is the capital stock in steady state.

[10 marks]

Question 2

Consider a two-period economy populated by many identical households whose preferences are described by the utility function $\ln C_1 + \beta \ln C_2$, where C_1 and C_2 denote consumption in periods 1 and 2, the β is parameter representing the subjective discount factor. Assume that consumption is a composite of tradable and non-tradable goods described by the Cobb-Douglas aggregation technologies: $C_t = (C_t^T)^\gamma (C_t^N)^{1-\gamma}$, where C_t^T is the consumption of tradable goods and C_t^N is the consumption of non-tradable goods, γ is a parameter defining the relative importance of tradable consumption in utility.

Suppose that the household is endowed with Q_t^T and Q_t^N units of tradable and non-tradable goods in periods $t = 1, 2$. Households start period 1 with no debt or assets. In period 1, households can borrow or lend through a bond, denoted B_1, denominated in units of tradable goods and paying the interest rate r in period 2. The budget constraint of the household in period 1 is then given by $P_1^T C_1^T + P_1^N C_1^N + P_1^T B_1 = P_1^T Q_1^T + P_1^N Q_1^N$, where P_1^T and P_1^N denote the prices of tradable and non-tradable goods and B_1 is the stock of the bond.

The optimality conditions are the following:

$$\begin{aligned} C_2^T &= \beta(1+r)C_1^T \\ C_t^N &= \frac{1-\gamma}{\gamma}\frac{C_t^T}{p_t} \end{aligned} \tag{1}$$

where p_t is relative price of non-tradable goods: $p_t = \frac{P_t^N}{P_t^T}$

A) What is the effect of an improvement in the country's terms of trade on the equilibrium relative price of tradable goods? Expalin your answer.

[5 marks]

B) What is the effect of an increase in the endowment of tradable goods in period 1 on the equilibrium relative prices of non-tradable goods and on the real exchange rate?

[10 marks]

C) Would the effect be different if it was an increase in the endowments of tradable goods in period 2 instead? Explain

[10 marks]

Question 3

Consider a small-open endowment economy with free capital mobility, a single traded good per period, and a government that levies lump-sum taxes to finance government purchases. Assume that there is no physical capital and hence no investment. Assume that the economy exists for an infinite number of periods. The four building blocks that compose our monetary economy are

$$\frac{M_t}{P_t} = L(\bar{C}, i_t) \tag{2}$$

$$P_t = E_t P_t^* \tag{3}$$

$$1 + i_t = (1 + r^*)\frac{E_{t+1}^e}{E_t} \tag{4}$$

$$B_t^g - B_{t-1}^g = \frac{M_t - M_{t-1}}{E_t} - DEF_t \tag{5}$$

where M_t is money supply in period t; P_t is the domestic price level in period t; $L(\bar{C}, i_t)$ is the money demand function; $\bar{C}$ is consumption; i_t is the nominal interest rate in the domestic economy; E_t is the nominal exchange rate expressed as units of domestic currency per one unit of foreign currency; P_t^* is the foreign price level in period t (assume $P_t^* = 1$; r^* is the real interest rate in a foreign country; E_{t+1}^e is expected nominal exchange rate in period $t+1$; B_t^g is international bond held by the government; DEF_t is a secondary fiscal deficit.

Suppose that the central bank adopts a floating exchange rate regime and each period expands money supply at a constant positive rate μ, $M_t = (1 + \mu)M_{t-1}$ and the exchange rate depreciates at rate μ.

A) What would happen to the nominal interest rate and price level in the economy?

[5 marks]

B) Derive the expression for seignorage revenue. Would it be equal to the inflation tax? Explain.

[10 marks]

C) Consider a situation where government runs constant fiscal deficits $DEF_t = DEF > 0$, for all t, and that the government reached its borrowing limit so that $B_t^g - B_{t-1}^g = 0$. What is the government budget constraint in this case? Illustrate graphically the relationship between fiscal deficits and the rate of money expansion μ. Discuss the intuition behind it.

[10 marks]

End of Paper