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Macroeconomic Policies

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Exam (24 May 2022)

I (4.5 points)

Define ***three*** of the following concepts (3-5 lines each):

- i) The Say's Law in reverse

- ii) Consistent equilibrium (under discretion)

- iii) Open market operation

- iv) The Taylor principle

- v) Demand pull inflation

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IV (2.5 points)

In the following questions, choose the only correct answer. Answering correctly yields 0.5 points, wrongly -0.125.

1. A fiscal expansion will fail to expand output if: (i) wages are sticky; (ii) prices are sticky; (iii) investment and consumption do not respond to the interest rate; (iv) none of the above.
2. An inflation surprise will be less effective in expanding output when: (i) menu costs are significant; (ii) agents are accustomed to high inflation; (iii) expectations are slow to adjust; (iv) none of the above.
3. The monetary policy tool that automatically prevents money market interest rates from falling below a minimum level is: (i) reserve requirements; (ii) lending facility; (iii) deposit facility; (iv) none of the above.
4. The dynamic aggregate demand will be positively sloped if: (i) investment and consumption do not respond to the interest rate; (ii) the weight of excess inflation in the Taylor rule is zero; (iii) the weight of the output gap in the Taylor rule is zero; (iv) none of the above.
5. If the central bank sticks to a Taylor rule with weights $\frac{1}{2}$, $\frac{1}{2}$, a temporary increase in investment demand will lead to: (i) higher output and higher inflation; (ii) higher inflation and lower output; (iii) higher inflation or higher output but not both; (iv) none of the above.

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II (13.0 points)

II.A Consider a closed economy where the production function is $Q = zN^{0.5}$, with $z = 10$. In this economy there is no expected inflation. The aggregate demand is given by $Q^D = \frac{M}{P}$.

- a) (**Classical view**) Assume that the labour supply is infinitely elastic at $\frac{W}{P} = 1$. Assuming perfect competition, answer the following: (a1) Find out the labour demand and briefly interpret it; (a2) Find the equilibrium in the labour market and represent it graphically; (a3) Describe this economy in the AS-AD diagram, assuming that prices and wages are both flexible, and that $M = 50$. (a4) Examine the implications of a monetary expansion by the Central Bank resulting in $M = 200$. What principle is being illustrated here? (a5) Go back to the baseline scenario before the monetary expansion and examine the implications of a productivity shock amounting to $z = 20$. Use graphical analysis to describe what happens in the labour market and in the AS-AD diagram.
- b) (**Keynesian view**) Consider in alternative that the labour supply is infinitely elastic at $\bar{W} = 1$. The market for goods and services is also now described by savings $S = 0.2Q$ and investment, $I = 5/r$. b1) Departing from the firm's profit maximisation problem, find out the aggregate supply and describe it in the (P,Q) locus. How would it shift if $\bar{W} = 2$? b2) Assume now that the demand for money in this economy is equal to $m^d = 5 \left(\frac{Q}{r}\right)^{0.5}$. Explain the money demand equation. (b3) Using the equilibrium in the money and goods' markets, find the expression for aggregate demand. Examine the implications of a change in money supply from $M=50$ to $M=200$, namely in terms of: (b4) price level; (b5) output; (b6) interest rate; (b7) savings and investment. (b8) Explain the transmission mechanism of monetary policy in this model.
- c) (**Expectations**) Finally, assume that the labour supply is given by $\frac{W}{P^e} = 1$. (c1) Find out the short- and long-run aggregate supply and represent both in a graph. Departing from an equilibrium with $P^e = 1$, suppose that the money supply shifts from $M=50$ to $M=200$. Describe, quantifying, the short-run equilibrium and represent graphically the adjustment to the long run equilibrium, considering the following cases: (c2) rational expectations, anticipated policy; (c3) rational expectations, unanticipated policy; (c4) adaptive expectations according to $P_e = P_{-1}$; (c5) rational expectations, and unanticipated policy, and with only half of the labour contracts being renegotiated each year. (c6) In which case(s) monetary shocks are a good candidate to explain the business cycle?

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II.B (Money) Consider a banking system with $D = 100$, $X = 20$, $R = 10$, $eB_C^* = 45$, $D_B^G = 5$, $L_C^B = L_C^P = D_C^G = 0$ and commercial banks have equity equal to 10. The Basel Committee determined that commercial banks must meet a capital requirement of 10%.

- d) (**Accountancy**) Find out the following: (d1) liquidity preference coefficient; (d2) capital-adequacy ratio; (d3) reserves ratio; (d4) money multiplier; (d5) domestic credit from commercial banks to the private sector; (d6) Central Bank equity.
- e) (**Capital constraints**) Suppose that, because of a recession, some firms defaulted on their loans in the amount of 5, becoming non-performing. (e1) Describe the impact on the balance sheet of commercial banks. (e2) Out of the indicators computed in d), which would change? (e3) Assuming that banks could not raise capital, what would be the implications of the default? Quantify. (e4) Discuss what could the Central Bank do in order to keep the money supply unchanged.