ISEG - Lisbon School of Economics & Management
Universidade de Lisboa
Macroeconomics I
Normal-Period Written Exam

2 February 2022   Time length 2:30h

Warning:
- Responses to each of the six questions have to be written in separate sheets, i.e. <u>one question per (two- or four-page) sheet</u>.
- Scientific calculators <u>without</u> graphing capacity can be used.
- Graphing calculators, personal computers, tablets, audio and video players, mobile phones or other electronic devices are strictly forbidden.
- Only the "formulae" sheet accompanying the exam paper can be used.
- Mathematical calculations needed to answer the questions, and the results obtained, must always be followed by economic interpretation.

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1. Consider the following table for the Portuguese economy in the 2001:I - 2020:IV period.

Variable x	$\sigma_{\tilde{x}} / \sigma_{\tilde{y}}$	
	Linear filter	HP filter
Investment	3.71	2.36
Inflation rate	0.17	0.25
Private consumption	1.03	0.99

NOTES: y represents GDP and σ_z is the standard deviation of z.

What can you conclude about the volatility of these variables? Explain your position. [*2.5 marks*]

2. Consider a small open economy under a fixed exchange rate regime, with perfect capital mobility, that is well represented by the IS-LM model with the following behavioural functions (the notation is the one used in this course):

$$C = 10 + 0.8Y_d \quad\quad T = 10 + 0.15Y \quad\quad TR = 20 \text{ m.u.} \quad G = 122 \text{ m.u.} \quad P = P^* = e = 1$$

$$I = 200 - 400i \quad\quad L = 0.2Y - 100i \quad\quad NX = 150 + 350R - 0.5Y \quad\quad i^* = 0.05/\text{u.t.}$$

a) Compute, explaining your calculations, the equilibrium values for output, money supply, and budget balance. [*2.5 marks*]

b) Suppose that the policy authorities in this country decided that public consumption (G) was higher in 30 m.u. Quantify the expected effects of that change on the variables in the previous paragraph. Provide economic foundations for your calculations. [*2.5 marks*]

3. The economy depicted by the behavioural equations below (with the usual notation) is well represented by the IS-LM model and is in a flexible exchange rate regime with perfect capital mobility from and for the rest of the world:

$$C = 0.75Y_d \quad T = 0.2Y \qquad I = 35 - 50i \qquad G = 27 \text{ m.u.} \qquad TR = 0 \text{ m.u.} \qquad L = 0.2Y - 10i$$

$$NX = 30 + 30R - 0.4Y \qquad P = P^* = 1 \qquad i^* = 0.02/\text{u.t.} \qquad M = 29.6 \text{ m.u. (current)}$$

a) Compute equilibrium output, budget balance, and nominal exchange rate index. Provide economic intuition for your calculations. [*2.5 marks*]

b) What would be the effect on the variables in the previous paragraph if public consumption was 3 m.u. higher? Provide economic intuition for your calculations. [*2.5 marks*]

4. "The proof that the Phillips curve is not adequate to describe the relation between the inflation rate and the unemployment rate is the empirical observation that there are periods for which a significant increase in the inflation rate is accompanied by an increase in the unemployment rate." Do you agree with this statement? Explain. [*2.5 marks*]

5. Make a comment on the following statement, explaining your position: "Countries with lower inflation rates tend to exhibit depreciating currencies and higher interest rates." [*2.5 marks*]

6. In the flexible-accelerator model the current investment intentions depend positively on the expected future output. What is the economic reason behind this relation? [*2.5 marks*]