

ISEG - Lisbon School of Economics & Management
Universidade de Lisboa
Macroeconomics I

Normal-Period Written Exam

11 January 2022

Time length 2:30h

Warning:

- Responses to each of the six questions have to be written in separate sheets, i.e. one question per (two- or four-page) sheet.
- Scientific calculators without 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.

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

Variable x	$\text{Corr}(\tilde{x}_{t+k}, \tilde{y}_t)$		
	$k = -1$	$k = 0$	$k = +1$
Private consumption	0.46	0.94	0.47
Net exports	-0.12	0.12	-0.05
Unemployment rate	-0.49	-0.51	-0.67

NOTES: Benchmark computed using the HP filter; y represents GDP.

What can you conclude about the cyclicity of these variables from the information above? Explain your position. [2.5 marks]

2. Consider a small open economy under a fixed exchange rate regime, without capital mobility, that is well represented by the IS-LM model with the behavioural functions below, and where the notation is the one used in this course:

$$C = 15 + 0.8Y_d \quad T = 0.15Y \quad I = 206 - 300i \quad TR = 0 \text{ m.u.} \quad G = 289 \text{ m.u.} \quad P = P^* = e = 1$$

$$L = 0.2Y - 200i \quad NX = 200 + 400R - 0.4Y \quad M = 280 \text{ m.u. (current)}$$

a) Compute, explaining your calculations, the equilibrium values for output and net exports. [2.5 marks]

b) Suppose that the policy authorities in this country intended to use fiscal (G) and exchange-rate (e) policies to obtain an equilibrium output that is higher in 160 m.u. and simultaneously ensure the external balance. Present and quantify the economic-policy measures that make these objectives possible to reach. 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 without capital mobility from and for the rest of the world:

$$C = 0.8Y_d \quad T = 0.25Y \quad I = 27 - 50i \quad G = 35 \text{ m.u.} \quad TR = 0 \text{ m.u.}$$

$$NX = 20 + 25R - 0.3Y \quad L = 0.2Y - 10i \quad P = P^* = 1 \quad M = 29.6 \text{ m.u. (current)}$$

a) Compute equilibrium output, nominal interest rate, 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 1.4 m.u. higher? Provide economic intuition for your calculations and results. [2.5 marks]

4. Consider the following information for a given economy:

Variable	2019	2020
Inflation rate (CPI, %)	3.1	1.8
Unemployment rate (%)	9.4	7.2

Is the evolution observed in this economy between 2019 and 2020, concerning the inflation and the unemployment rates, consistent with the existence of a Phillips curve? Explain your position. [2.5 marks]

5. Make a comment on the following statement and explain your position: "Interest rates are necessarily equal for two small countries with open economies for which there is perfect capital mobility." [2.5 marks]

6. In the beginning of the 1990s, the Swedish government reduced taxes and kept public consumption almost unchanged. However, real GDP in this country eventually decreased by a cumulated 3.5% in two years. Some economists attribute this recession to the effect of expectations on private final expenditure. Explain the economic intuition beyond this position and illustrate it graphically. [2.5 marks]