Economics and Business Information

LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA
1st year
Academic year 2014-2015

Normal examination period
15 June 2015
Duration: 2h30m (150 minutes)

Always use 3 decimal places.

GROUP I

1. A researcher wants to analyse the costs of financing of companies in a given industry. To that purpose collected information on the weight of financial costs with respect to total liabilities of a group of companies, obtaining the following data:

Table: Costs of financing of several companies
(financial costs as % of total liabilities)

3,7%	4,5%	2,8%	5,3%	3,7%	3,5%	4,6%	5,0%	5,2%	3,8%	3,3%	4,7%	3,7%	4,0%	3,9%

Source: Survey

(1,50 val) a) Depict graphically the simple and cumulative frequencies of this distribution.

(1,00 val) b) Compute the mean and median value of the distribution.

(1,00 val) c) Compute the standard deviation and the coefficient of variation of this distribution.

(0,50 val) d) Taking into account the measures computed, analyse and explain the behaviour of the distribution in term of symmetry.

(1,00 val) e) Analyse the behaviour of this distribution using the box and whiskers plot.

2. The following table shows the income distribution by quintiles in two regions A and B.

(2,00 val) a) Analyse and compare the degree of inequality in income distribution of these two regions using the Gini coefficient and the Lorenz curves.

Table: Indicators of income distribution in regions A and B

Quintile	% of total income	
	Region A	Region B
1	50%	35%
2	20%	30%
3	15%	25%
4	10%	6%
5	5%	4%

Source: Statistical office

GROUP II

1. Consider the following information on the evolution of Portuguese GDP (at 2011 constant prices).

Table: Evolution of Portuguese GDP

(at 2011 constant prices)

Year	2010	2011	2013	2014
GDP (million euros)	179 444,8	176 166,6	166 356,9	167 839,3

Source: INE

(1,25 val)   a) If you know that between 2010 and 2012 GDP at 2011 constant prices diminished 5.8%, which was the rate of change of GDP at constant prices in 2013?

(1,00 val)   b) Which was the rate of change of GDP at 2011 constant prices in 2014 and which was the average annual rate of change of GDP at 2011 constant prices between 2010 and 2014?

(1,00 val)   c) Which should be the change of GDP at 2011 constant prices in 2015 in order to have GDP at constant prices in that year equal to the value in 2010?

(1,25 val)   d) Knowing that between 2005 and 2010 GDP at 2011 constant prices increased at an annual pace 2.3 p.p. higher than between 2010 and 2014, compute the GDP at 2011 constant prices in 2005.

GROUP III

1. Besides the info presented in Group II one knows also the following information about the Portuguese GDP deflator.

Table: Information on the evolution of Portuguese GDP deflator

$r_{2011,2010}$	$r_{2012,2011}$	$r_{2013,2012}$	$r_{2014,2013}$
-0,3%	-0,4%	2,2%	1,3%

Source: INE

(1,25 val)   a) Compute for every year the 2010 fixed base index of GDP deflator.

(1,25 val)   b) Compute for those years that you can the value of Portuguese GDP at current prices.

(1,50 val)   c) Compute the value of GDP in 2014 at 2012 prices.

(1,50 val)   d) If in 2015 GDP increases 1.6% in real terms and the deflator increases 1%, compute the value of Portuguese GDP in 2015 at current and 2011 prices.

GROUP IV

1. Assume that the researcher mentioned in Group I is trying to assess to what extent the cost of financing is related to the "financial health" of each company, namely if companies with better financial situation face lower financing costs. To that purpose collected information on the debt ratio (measured by the weight of liabilities on the sum of liabilities and equity) of some of the companies presented in Group I and got the following information.

Table: Information on the cost of financing and the level of debt of some companies

Cost of financing	3,7%	4,5%	2,8%	5,3%	3,7%	3,5%	4,6%	5,0%
Debt ratio	80%	90%	60%	85%	77%	82%	91%	88%

Source: Survey

(2,00 val)   a) Compute the regression line that better represents the relationship between these two variables and comment it.

(1,00 val)   b) Verify if the relationship is strong and taking the results and data into account comment to what extent it seems that there is a risk analysis system in place underlying the costs of financing.