Economics and Business Information Analysis

Second examination period
31 January 2013
Duration: 2h30m (150 minutes)

1st year
Academic year 2012-2013

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DESDE 1911

Always use 3 decimal places.

GROUP I

1. You are analysing the production value per company in a given industry and you collected the following data.

Table: Distribution of production per company (thousand euros)

Production	% companies
100 – 1.000	43
1.000 – 5.000	22
5.000 – 25.000	17
25.000 – 100.000	12
>100.000	6

Source: Sectoral association

(1.00 val) a) Compute the mean and median value of the distribution of production per company.

(1.00 val) b) Compute the standard deviation and the coefficient of variation of this distribution.

(1.50 val) c) Present and analyse the box and whiskers plot of this distribution.

(1.50 val) d) Compute and comment the Gini Index of level of concentration of this distribution.

2. Say and justify whether the following sentence is true or false.

(1.00 val) "Considering the austerity measures that are in place, the net profit of all these companies must be reduced by 6.3%. Consequently, both the coefficient of variation and the Gini Index will also be reduced by 6.3%.".

3. Consider that you know the following measures regarding the distribution of annual returns on stock equities of two of those companies.

Table: Summary measures on the distribution of returns

	Stock A	Stock B
Average	5%	8%
Variance	9%	25%

Source: Market indicators

(1.00 val) Knowing that the risk of a stock is usually measured by the dispersion (volatility) of its returns, compare these two stocks in what concerns their risk.

GROUP II

1. Consider the following information on the production of one of those companies.

Table: Production

	2005	2009	2012
Production (m.u)	2.780	2.985	3.020

Source: Firm reports

(0.75 val)   a) Knowing that between 2009 and 2011 production has grown 3.5%, compute the annual rate of change in 2012.

(0.50 val)   b) Compute the rate of change between 2005 and 2009.

(0.75 val)   c) Compute the annual average rate of change between 2005 and 2012.

(1.50 val)   d) Knowing that between 2000 and 2005 production has increased at an average rate of 2.7%, compute the annual average rate of change between 2000 and 2012.

2. Assume that you read the following statement in the January 2013 firm report: "There are mixed signals in the data regarding the production in January. On one side the chain rate of change was -0.4%, but, on the other side the year on year change was +2.4%."

(1.00 val)   a) Comment the previous values.

GROUP III

1. Consider the following information on the sales of one of those companies.

Table: Evolution of sales

	2008	2009	2010	2011	2012
Prices annual rate of change	3,1%	-1,1%	1,2%	1,3%	0,4%
Quantities sold (units)	56	49	53	51	48

Source: Firm reports

(1.00 val)   a) Compute for each year, both the chain and 2008 fixed base index of sales.

(1.50 val)   b) Knowing that in 2012 sales were 4 689 m.u, compute the value of sales in 2009 at current and 2008 prices.

(1.50 val)   c) In 2013 it is expected that sales change -1.9% in real terms and that prices will be 1,5 percentage points above 2012 level. Compute the expected value of sales in 2013 both at current and 2007 prices.

(1.50 val)   d) Comment briefly the following sentence: "When analysing an economic variable, value, volume and prices, are relevant to understand which factors are underlying the change in the variable.".

GROUP IV

1. Trying to compensate the decrease in investment in this industry, the business association is studying the potential impact of a fiscal incentive on the level of investment. It collected data for incentives and investment in another industry in which exists an incentive system.

Investment	7.950	8.750	8.900	9.467	9.750	9.806	10.450	9.946
Incentive	7,5	8,7	7,9	8,3	9,6	12,6	13,4	13,8

It computed the covariance among the two variables that is 1 500.903.

(1.25 val)   a) Compute the equation of the regression line that represents the relationship between the two variables and analyse it.

(1.00 val)   b) Analyse, considering the appropriate measures the quality of the relationship between the two variables.

(0.75 val)   c) If you expect that incentives increase 10% in the next year, compute the rate of change of investment that you can expect in that industry.