

STATISTICAL LABORATORY

Lecture 4: Frequency Distribution and Measures of Location (Practice)

Yiu Lim LUI, Allen

Lisbon School of Economics & Management
Universidade de Lisboa

allenlui@iseg.ulisboa.pt

Applied Mathematics for Economics and Management
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Exercise 3.1

The wages (in monetary units) of 40 factory workers are presented below:

50	55	85	62
35	70	75	68
90	38	72	70
45	120	50	75
80	50	48	83
38	35	45	92
42	125	150	85
110	115	70	140
100	95	75	145
60	90	155	90

- Group the data into 4 classes of equal width, with the lower bound of the first class set at 35 monetary units, and construct the frequency table.
- Provide a graphical representation of the data.

Exercise 3.1 (Continued)

- c) Present the cumulative frequency function for the class limits and draw the corresponding ogive.
- d) Compute the measures of central tendency for these data.

Exercise 3.2

Consider the information provided in exercise 2.3

- a) Assess the symmetry (or asymmetry) of the distribution using a boxplot.
- b) Determine the new mean salary after a general wage increase of 10%.
- c) Evaluate the concentration of the data.

Exercise 3.3

A sports club measured the weight of its 40 athletes. The observed mean weight was 66.5 kg, the median was 64 kg, and the 1st and 3rd quartiles were 62 kg and 70 kg, respectively. The “extreme” values observed (in kg) were: 40, 51, 53, 53 (on the left tail) and 80, 85, 95, and 101 (on the right tail)

- a) Explain the meaning of the 1st and 3rd quartiles in this context.
- b) Identify and classify the outliers based on the extreme values.
- c) Which measure of central tendency would you consider most appropriate to use? Justify your answer.