

UNIVERSITY OF WARWICK
DEPARTMENT OF ECONOMICS

Diploma Exercise Sheet 1: Descriptive Statistics

1. The table below reports the A-level score in the best 3 A-levels for all leavers from a UK 'old' University in 1993, broken down by gender (where 10 points are awarded for a grade A, 8 points for a grade B, 6=C, 4=D and 2=E):

A-level score	Number of males	Number of females
14	2125	1591
16	2837	2413
18	3538	3262
20	4380	3846
22	4617	4289
24	4597	4241
26	4459	3819
28	3983	3063
30	5673	3057

For both males and females separately:

- (a) Calculate the mean.
 - (b) Calculate the variance and standard deviation.
 - (c) Calculate the median.
 - (d) Calculate the mode.
 - (e) Calculate the interquartile range.
 - (f) What do you think are the interesting points about the distribution of A-level scores for males and females.
2. For a sample of 35 companies, the table below shows the percentage change in output over the last 3 months, grouped into classes.

% change	-2-0	0-2	2-4	4-6	6-8
Number of companies	13	4	8	7	3

- (a) Calculate the mean percentage change in output.
- (b) Calculate the median.
- (c) Find the modal class.

- (d) Calculate the variance.
 - (e) Calculate the standard deviation.
 - (f) Calculate the interquartile range.
3. In question 2 suppose the 1st interval width were -4-0% instead of -2-0% and the last interval were 6-10% instead of 6-8% what would be the effect on the mean and variance of the distribution. In question 2, suppose an innovation in technology means all output grows by 2 percentage points more than previously, what would be the effect on the mean and variance of the distribution. If alternatively as a result of the new technology output increases by 20%, what would be the effect on the mean and variance of the distribution.