

# Descriptive Statistics

Computing

Mean, median, mode and spread — and when each one misleads.

*Measures of centre and of spread.*

| Measure              | Is                             | Misleads when               |
|----------------------|--------------------------------|-----------------------------|
| <b>Mean</b>          | The average                    | There are outliers          |
| <b>Median</b>        | The middle value               | The distribution is bimodal |
| <b>Mode</b>          | Most frequent                  | Data is continuous          |
| <b>Range</b>         | Max – min                      | Only two points define it   |
| <b>Std deviation</b> | Typical distance from the mean | Data is skewed              |
| <b>IQR</b>           | Middle 50% spread              | Rarely — it is robust       |

Mean income and median income differ enormously, and the gap is itself the finding. Quote both.