

8 Time-series and correlation – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	Write it 3 times (English)		
Time-series analysis	_____	_____	_____
trend	_____	_____	_____
seasonal variation	_____	_____	_____
moving average	_____	_____	_____
Correlation	_____	_____	_____
positive correlation	_____	_____	_____
negative correlation	_____	_____	_____

Recall

Firms use data to make better marketing choices. Two simple tools are time-series analysis and correlation.

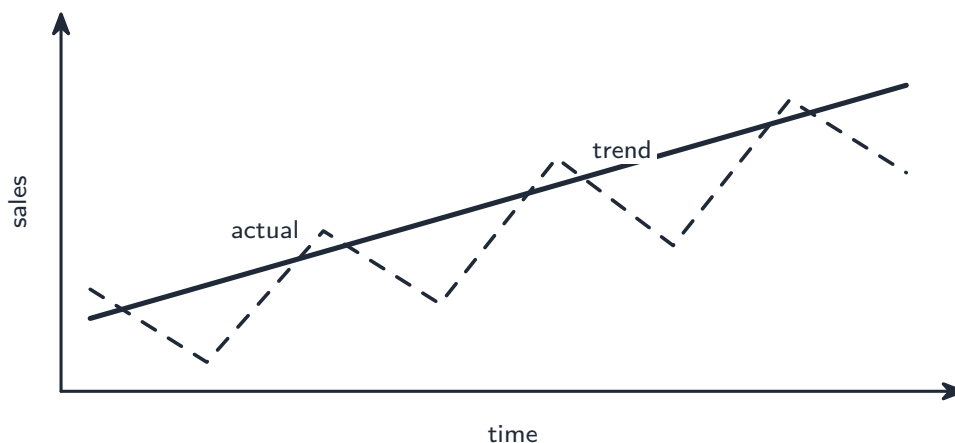
New ideas

Read these first, then do the Practice.

■ 1 Time-series analysis

Time-series analysis

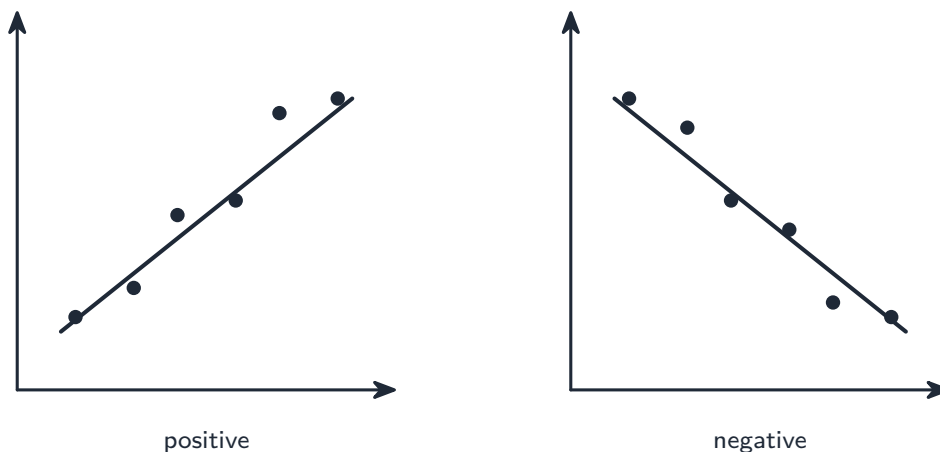
studies past sales recorded over time:



- the **trend** is the general direction over the long run;
- the **seasonal variation** is the regular rise and fall within a year;
- a **moving average** smooths the wobble to reveal the trend.

■ 2 Correlation

Correlation measures how strongly two things move together:



- **positive correlation** – both rise together;
- **negative correlation** – one rises as the other falls.

Watch out: the *trend* is the long-run direction; *seasonal variation* is the regular within-year rise and fall. And correlation is *not* causation – two things moving together does not *prove* one causes the other.

Practice

Try these in order.

8.1 What does *time-series analysis* study? [1]

8.2 What is the *trend* in a set of sales data? [1]

8.3 Ice cream sells more each summer. Is that the trend or the seasonal variation? [1]

8.4 Advertising rises and sales rise too. What kind of correlation is that? [1]

8.5 Does strong correlation prove that one thing *causes* the other? [1]

8.6 Challenge. A firm sees that ice-cream sales and sunglasses sales both rise in summer, and concludes that selling more ice cream *causes* more sunglasses to sell. Explain why this conclusion is wrong. [2]
