Correlation & Causation

Economics

The four reasons two variables move together.

Why X and Y might correlate.

Possibilities

- X causes Y — the claim being made
- Y causes X — reverse causation
- Z causes both — confounding
- Coincidence, especially with trends

Distinguishing them

- Timing — does X precede Y
- Randomisation, where feasible
- Natural experiments and instruments
- Dose-response relationships
- Mechanism that is independently plausible

> Two trending series will correlate strongly with no relationship whatsoever. Detrending before comparing is essential.