Regression

What a regression coefficient means, and what it does not.

Economics

A coefficient gives the average change in the outcome for a one-unit change in that variable.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

$\beta_1 = 2.5$ On average.	**Y rises 2.5 per unit of X_1**
Holding constant	**Only the variables included**
R^2 Not correctness.	**Share of variance explained**

THE COMMON MISTAKE

× **Reading a coefficient as causal**

✓ **It is an association given the model**

Omitted variables, reverse causation and selection can all produce a strong coefficient with no causal relationship.

A high R^2 does not indicate a correct model. It is easily inflated by adding variables or by trending data.