Instrumental Variables

Economics

Finding causal effects when you cannot randomise.

The requirements.

A valid instrument

Relevance — genuinely moves X	Exclusion — affects Y only via X
Independence — unrelated to confounders	Strength — a weak instrument biases badly

Common examples

Distance to a facility for take-up	Weather shocks for agricultural income
Policy changes at arbitrary thresholds	Lottery assignment in programmes

> The exclusion restriction cannot be tested statistically. It is an argument, and it is where most IV papers are challenged.