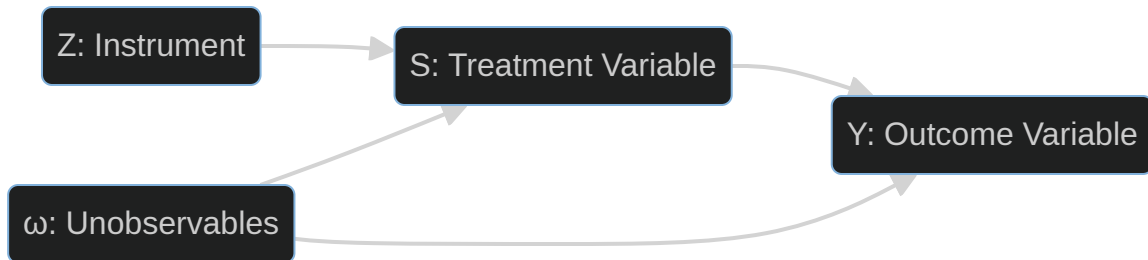# What about LATE?

Applied Microeconomics

Hans-Martin von Gaudecker & Florian Zimmermann

Local Average Treatment Effects (LATE)

- Additional assumption: Uniformity ("Monotonicity")
- LATE: Average treatment effect for compliers

LATE interpretation of 2SLS

- 2SLS developed in constant-treatment framework
- If monotonicity holds, can interpret 2SLS estimate as LATE
- This intuition holds for setup on previous slide

Interpretation complicated in more general settings

- Covariates: Need "saturate and weight" (Blandhol, Bonney, Mogstad, Torgovitsky: "When is 2SLS actually LATE?")

- Multivalued / multiple instruments: Need more general monotonicity conditions (Mogstad, Torgovitsky, Walters: "The Causal Interpretation of Two-Stage Least Squares with Multiple Instrumental Variables")

- Multivalued treatments

  - Ordered (fairly standard, starting with original Imbens-Angrist paper)
  - Unordered (Kirkeboen, Mogstad, Leuven: "Field of Study, Earnings, and Self-Selection")

Equivalence results

- Vytlacil ("Independence, Monotonicity, and Latent Index Models: An Equivalence Result", 2002)

$$S = \mathbb{I}[\mu(Z) + \tilde{\omega} > 0]$$

- Kline, Walters ("On Heckits, Late, And Numerical Equivalence", 2019)