

A Flexible Heterogeneous Treatment Effects Difference-in- Differences Estimator for Repeated Cross Sections

Response to Irene Botosaru

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Thank You!

- We appreciate your clear presentation, comments, and suggestions

Assumptions

- Two additional assumptions
- SUTVA (stable unit treatment value)
- Covariates X evolve exogenously from tx

Testable Implication

- The difference in average outcomes over *pre-treatment* periods across groups is **proportional** to the difference in covariates over *pre-treatment* periods
- Great idea
- Should be easy to implement test
- Works because FLEX fully flexible

Covariate Effects

- Can covariate effects differ between groups at the same time period?
- Yes, FLEX will allow for this heterogeneity
- Good idea to think about test using pre-treatment data

Time-Varying Covariates

- Covariates more complicated in repeated cross section than in panel
- Variation due to random draw of cross-sectional variation
- Some covariates change over time
 - See A3, much vary exogenously to treatment

Bias-Variance Tradeoff

- With many possible covariates (interactions), bias-variance tradeoff
- Regularization (e.g., LASSO) is good idea for future research
- In our experience, concerns about variance have not happened

Taus Shrink towards Zero

- When add covariates and then interactions
- We noticed this too
- Not clear why, good idea to explore further

Forecasted ATE

- Botosaru, Giacomini, Weidner (2023)
- Complementary work
- Ideas important when longer T