Fitting a Curve to the Pre-Trends

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Abstract :

Event-study designs rely on the validity of an identification assumption commonly referred to as Generalized Parallel Trends (GPT). This paper focuses on the problem of performing consistent estimation and statistical inference over the treatment effects when GPT holds only after recursively differentiating the outcome variable. Under this milder assumption, I construct a correction method that yields consistent estimators for the causal effects of interest through linear transformations of an initial vector of estimated treatment effects, and that consequently does not require estimating any new parameters. The correction method also provides a natural statistical test to empirically validate the GPT assumption, which I compare against two other alternative tests commonly employed in practice. Simulations under 12 different DGPs calibrated using top journal papers suggest that my new test always outperforms other two alternatives in every setting, with its power function being up to \$60% greater, while inducing little to none pretesting bias when conditioning the analysis to the non-rejection of the null.