Quantile Treatment Effects in Difference in Differences Models under Dependence Restrictions and with only Two Time Periods

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Abstract

This paper shows that the Quantile Treatment Effect on the Treated (QTT) can be identified using a combination of (i) a Distributional Difference in Differences Assumption and (ii) an assumption on the dependence between the change in untreated potential outcomes and the initial level of untreated potential outcomes for the treated group. The second assumption recovers the unknown dependence from the observed dependence for the untreated group. This result extends previous research that required at least three periods of data for identifying the QTT under a similar setup. We also provide identification results when the assumptions hold only after conditioning on observed covariates. Under an additional assumption, we also show that the QTT is identified when only repeated cross sections are available. Finally, we consider estimation and inference – we develop uniform confidence intervals and show the validity of an exchangeable bootstrap procedure.

Keywords: Quantile Treatment Effects, Copula, Panel Data

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