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# Heterogeneity and Nonconstant Effect in Two-Stage Quantile Regression

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**Abstract:** Heterogeneity in how some independent variables affect a dependent variable is pervasive in many phenomena. In this respect, this paper addresses the question of constant versus nonconstant effect through quantile regression modeling. For linear quantile regression under endogeneity, it is often believed that the fitted-value setting (i.e., replacing endogenous regressors with their exogenous fitted-values) implies constant effect (that is: the coefficients of the covariates do not depend on the considered quantile, except for the intercept). Here, it is shown that, under a weakened instrumental variable restriction, the fitted-value setting can allow for nonconstant effect, even though only the constant-effect coefficients of the model can be identified. An application to food demand estimation in 2012 Egypt shows the practical potential of this approach.

**Key Words:** Two-Stage Estimation, Quantile Regression, Fitted-Value Setting, Non Constant Effect, Partial Identification.

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