TYPE FIXED EFFECTS AND RATIONAL ADDICTION: A GMM FRAMEWORK FOR LATENT TYPE HETEROGENEITY

JORGE A. RIVERO

Abstract. This paper reexamines Rational Addiction (RA) by introducing the type fixed effects (TFE) panel model. The TFE model incorporates heterogeneous coefficients and time-varying patterns of heterogeneity, which reflect differences in preferences and the addiction process. The model assumes the existence of a latent, time-invariant continuous variable referred to as a "type", which drives the heterogeneity in the parameters. Smoothness of the parameters as functions of the type is key to identification, allowing individuals of similar types to have similar parameter values. Correlation between the parameters, covariates, and instruments stem from type heterogeneity. I propose the type fixed effects generalized method of moments (TFE-GMM) estimator and establish consistency. I provide fast computation procedures based on the stochastic gradient descent algorithm. Simulations demonstrate good performance of this estimator. Using yearly household cigarette purchase data to estimate the model shows that most households follow cyclical consumption patterns and insensitivity to prices changes, giving support to educational interventions to curb smoking.

Keywords: rational addiction, cigarette demand, heterogeneous effects, time-varying heterogeneity, panel data, fixed effects, varying coefficients, GMM

JEL codes: C14, C23, C26, H25, I12, I18

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