

Robust Estimation in Conditional Moment Models with Time-Varying Parameters

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Abstract

In a parametric conditional moment model with time-varying parameters, we develop a new integrated conditional moment (ICM) estimator which uses all information from conditional restrictions seamlessly. Our approach builds on the ICM principle originally proposed by Bierens (1982) and combines it with local smoothing to deliver estimates of the time-varying parameters. Under general regularity conditions - including local stationarity and restrictions on physical dependence - we show that our estimator is consistent and asymptotically normally distributed. Importantly, our approach is a one-step approach that is robust to parametrizing - and estimating - the relationship between endogenous variables and instruments. Our simulation study documents the reliability and power of our approach in a variety of cases - and, especially, when the underlying relationship between the endogenous variables and the instruments cannot be reliably estimated - even with flexible time-varying approaches. Our estimation of the traditional Phillips curve that links inflation to unemployment with US data from 1960 to 2024 reveals important fluctuations over time, including the diminishing importance of unemployment, especially after 2006.

Keywords: Instability; Endogeneity; Conditional mean independence; Local estimation; Local stationarity.

JEL Classification: C13; C12.