Regression Models with Mixed Sampling Frequencies

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Abstract

We study some theoretical properties of regression models that involve data sampled at different frequencies and provide a comprehensive forecasting application. We derive the asymptotic properties of the NLS estimators of such Mixed Data Sampling (MIDAS) regression models and compare them with the LS estimators of a traditional model that involves aggregating or equally weighting data to estimate a model at the same sampling frequency. In addition we propose new tests to examine the null hypothesis of equal weights in aggregating time series in a regression model. The empirical application uses an extended set of MIDAS specifications to predict quarterly economic activity using daily financial data. Our findings show that while on average the predictive ability of all models worsens substantially following the recent financial crisis, the models we propose suffer relatively less losses than the traditional ones. Moreover, these predictive gains are driven by financial assets within the classes of government securities, equities and corporate risk.