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Regression models with variables of different frequencies

The financial variables e.g. various interest rates, exchange rates, or the stock prices are used in many contemporary macroeconomic models. However, the empirical data on macroeconomic indicators, e.g. the gross domestic product, aggregate consumption, unemployment, are usually available at much lower frequencies than data on the financial variables. Therefore, in the empirical applications one faces a question how to build and estimate regression models with variables observed at different frequencies.

Empirical examples illustrate that the traditional fixed aggregation approach widely used in applied economics might be inconsistent with data and highly inferior in terms of model precision. We propose a class of flexible parametric aggregation functions which covers both the period and the scale effects of high-frequency data. An empirical example illustrates the relevance of taking into account both types of the effects. These methods could be suggested for practical applications.

Functional data analysis

Functional data analysis (FDA) has been enjoying increased attention over the last decade due to its applicability to problems which are difficult to cast into a framework of scalar or vector observations. Even if such standard approaches are available, the functional approach often leads to a more natural and parsimonious description of the data, and to more accurate inference and prediction results.

We are interested in any projects where functional data analysis could be involved.
We used a functional autoregressive models as a robust predictor of the number and intensity of transactions in a credit card payment systems and to forecast of the future cash flow through various channels (Automatic Tele Machine (ATM) network, Point Of Sale network, Internet and others).

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