

**Estimation of Transfer Function Models
Through Backfitting**

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Abstract

This paper combines two established statistical methods— transfer functions and backfitting, as a new technique in modeling the behavior of a response time series as an additive function of some inputs. The model building process uses transfer functions to account for the contributions of input variables by iteratively introducing each input one at a time into the equation via a backfitting algorithm. Two model variants were constructed for the Philippine Stock Exchange Index (PSEI) and inflation rates as functions of some common macroeconomic indicators. There is an indication that the postulated model may offer better predictive power, or comparable at the least, for both in-sample and out-sample forecasts against that of the usual ARIMA and traditional transfer function models with simultaneous accounting of inputs while being computationally flexible and taking into consideration practical assumptions as opposed to the standard procedural techniques being done in regression-based methods.

Keywords: Transfer Functions, Backfitting, Forecasting