**Projections of Inflation Dynamics For Pakistan: GMDH Approach**

Shahid Iqbal

Department of Statistics, Higher

Education Department Govt. Punjab, Pakistan

Email: shahidiqbal.uos@gmail.com

Maqbool H. Sial

Department of Economics, University of Sargodha, Pakistan

Email: maqsial@yahoo.com

**ABSTRACT**

This study is focused on identifying, based on various forecast accuracy criteria, best inflation forecasting model for Pakistan using the in sample projections for Pakistan inflation from 2006II to 2009II. To resolve the important issue of degree of contribution in forecasting performance of the two monetary aggregates in forecasting inflation, three main predictors: real GDP, interest rate and one out of the two monetary aggregate have been used, thus constructing two models; one with Divisia Monetary Index (DMI) and other with Simple sum monetary aggregate (SSMA). It is revealed that, though both of the monetary aggregates are important predictors in forecasting inflation, but DMAs provide better fit and improved forecasts as compared to their simple sum counterpart. Hence, the evidence is established that monetary aggregates still play a dominant role in predicting inflation for Pakistan economy. The study recommends the construction, publication, and use of high frequency DMAs by the State Bank of Pakistan (SBP) for forecasting inflation in Pakistan instead of SSMAs.

Finally, to identify the improvement in forecast accuracy w.r.t. different forecasts combination, these forecasts have been combined and compared. It is revealed that when the structure of an empirically observed underlying series has complex nonlinear structure then forecasts based on single nonlinear model may fail to capture these diverse complexities. The best strategy is then to use various nonlinear models and combine these forecasts. Further the study concluded that if the complex nonlinear structure of an observed series is, a priory, unknown then universal approximators like Group Method of Data Handling (GMDH)- Polynomial Neural Networks (PNNs) and GMDH-Combinatorially Optimized (CO) could provide outstandingly accurate forecasts yet avoiding ‘overfitting’ even for small sample size. Specifically, it recommends the use of nonlinear non-parametric universal approximators for forecasting inflation in Pakistan by the SBP.

**Keywords**:monetary aggregate, nonparametric nonlinear models, universal approximators, forecasting performance, forecasts combination.

JEL Class: E31, E47, E51, E52.