

Inflation Projections Based on Bayesian Model Averaging

As a central bank implementing inflation targeting, the Bank of Korea projects future inflation with the use of a wide range of information variables and, based on this projection, carries out its monetary policy so that the inflation rate can reach the target rate. For this reason, an accurate inflation projection not only serves as a basis for monetary policy making but also heavily influences the success of that policy.

In this regard, the academic sector and the central bank cooperate to make good use of the differing economic variables, including supply, demand and cost factors, to figure out how to make a more accurate projection with less time and cost. Model averaging, for example, involves the estimation of several inflation models with the use of all the different variables and the combination of their results. For Bayesian Model Averaging, in particular, each weight applied to each model is determined according to Bayesian rules drawing on data used in model estimation, and this helps to reduce the possibility of uncertainty arising from the way results are put together. With reference to existing studies, we examined in this paper whether Bayesian Model Averaging can be used as another way of projecting inflation.

An empirical analysis shows that Bayesian Model Averaging is better than other inflation projection methods using differing as range of economic variables and the simple Phillips curve model, in terms of a medium and long-term projection of consumer prices and core inflation. Bayesian Model Averaging prevents data losses since it never contracts the data on the aggregate demand and supply contained in numerous economic variables. The method also shows strong theoretical unity, since it determines each weight for each estimation model on the basis of statistical theory. Additionally, after comparing the results of projections made through the model, monetary indicators, household debts and employment indicators are, among all the economic variables, those possessing the most important information for medium and long-term projections of consumer price inflation.

Meanwhile, in order to improve the usefulness and predictability of Bayesian Model Averaging, improvements need to be made to make the model more accurate; as discussed in this paper, new variables should be discovered possessing information on inflation and the theoretical unity of variables put into each model and of lag structure decisions needs to be enhanced.