Approximating Fixed-Horizon Forecasts Using Fixed-Event Forecasts

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Survey-based measures of expectations and disagreement have received increasing attention in economic research in recent years. Many forecast surveys ask their participants for fixed-event forecasts. Since fixed-event forecasts have seasonal properties – e.g. the dependence of the forecast error's variance on the month of the survey – which hamper many types of empirical analyses, researchers often use an ad-hoc approach in order to construct fixed-horizon forecasts from fixed-event forecasts. This ad-hoc approach has been employed in many studies, including, for example, Dovern, Fritsche and Slacalek (2012), Siklos (2013) and Lamla and Lein (2014).

In this work, we derive the *optimal* approximation for fixed-horizon forecasts using fixed-event forecasts by minimizing the mean-squared approximation error. Like the approximation based on the ad-hoc approach, our approximation is also constructed as a weighted sum of the fixed-event forecasts, with easily computable weights. However, these optimal weights tend to differ substantially from those of the ad-hoc approach. Moreover, they depend on several known properties of the fixed-event forecasts (for example, whether these refer to growth rates of annual averages or to growth rates of end-of-current-year on end-of-previous-year values), while these properties are ignored in the ad-hoc approach. The optimal weights also depend on an unknown covariance matrix, but are found to be very robust with respect to it. Hence, we propose two simple approaches for estimating this covariance matrix. In contrast to the ad-hoc approach, the optimal approximation can be used to derive weights for the case that more than only two fixed-event forecasts are available. We also investigate the determinants of the theoretical quality of the approximation.

In an empirical application, we approximate the one-year-ahead inflation and growth forecasts implied by the monthly forecasts for annual inflation and growth in the current and in the next year published by Consensus Economics for 13 countries. The performance of the approximations can be evaluated based on the quarterly publications of the one-year-ahead inflation and growth forecasts. It turns out that the approach based on optimal weights yields a lower mean-squared approximation error than the ad-hoc approach in virtually all cases, and that the gains from using optimal weights can be pronounced. Moreover, we apply the optimal approximation to the Survey of Professional Forecasters of the ECB, where survey participants are asked for their forecasts for the current year, the next year and the year after the next year.

JEL-Codes: C53, E37

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