FORECASTING A MACROECONOMIC AGGREGATE WHICH INCLUDES COMPONENTS WITH COMMON TRENDS

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Abstract

The empirical literature on forecasting an aggregate by forecasting disaggregates has usually used low disaggregation levels. The components at the highest level of the breakdown of a macroeconomic aggregate (full disaggregation) often show features which are shared by a significant proportion. In this paper the disaggregation level is treated as a statistical problem that can be approached by estimating common trends. This information on common trends enables to define a disaggregation scheme, by signalling from the full disaggregation all the components, say m, which share the main common trend, these components define the set B, and grouping the remaining components in a sub-aggregate R. The m components of the set B are identified by a testing procedure carried over each of all the possible pairs of components from the full disaggregation. This approach obtains a parsimonious breakdown of the data in m+1 components. A forecasting strategy is proposed, consisting in forecasting each one of the components in B, taking into account the common trend they share, employing a cointegration mechanism for each component and the common trend, and forecasting independently the sub-aggregate R, and then aggregating all these forecasts. This strategy is applied to forecasting Euro area inflation and USA inflation, where a 37% and a 43% of CPI weight shares their common trend, respectively. It is shown that this strategy significantly improves the forecasting accuracy of the corresponding aggregate for all horizons from 1 to 12, this improvement increases with the length of the horizon in the Euro area case and it is constant across horizons for the USA inflation. Additionally, we argue that the out-of-sample accuracy gains implied by our procedure increases with the number of basic components that is full cointegrated. In this approach, it is important to work with the full disaggregation because official breakdowns consist on sub-aggregates which include components from both sets, B and R, so the cointegrated relationships between the official sub-aggregates can be unstable.

Keywords: Common Trends, Disaggregation Level, bi-variately cointegration test, Long Forecasting Horizons, Euro Inflation and USA Inflation