Forecasting Cyprus GDP and its demand components: Applications of dynamic factor models*

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Executive Summary

This paper provides applications of dynamic factor models to balanced and unbalanced quarterly and monthly datasets for the construction of quarterly and monthly common factor series. The estimated quarterly factors are used to augment simple single equation dynamic models such as the autoregressive model (AR) and the autoregressive distributed lag model (ADL). The forecasting performance of the factor-augmented models is evaluated and conclusions on the usefulness of factors for forecasting GDP and its demand components are drawn. Monthly factors from an unbalanced dataset are included in bridge equations for GDP and its demand components in order to construct forecasts for the previous and current quarter (also known as back-casts and now-casts respectively) at the beginning of each month. The forecasting performance of bridge equations is assessed. The paper also investigates whether factor-based indicators extracted from the dataset of all monthly Business and Consumer Survey questions could constitute more informative leading indicators for activity in Cyprus than the Economic Sentiment Indicator computed from a subset of the Survey questions.

Quarterly and monthly common factors computed from large datasets of domestic and foreign/international variables are found to form useful predictors for forecasting GDP growth as well as the growth rate of demand components of GDP such as private consumption and investment. The factors can enhance the accuracy of short-term forecasts from simple dynamic single equation models as well as the precision of projections for the previous and current quarter constructed prior to the official publication of the National Accounts. Furthermore, factor-based indicators could supplement the Economic Sentiment Indicator for monitoring developments in economic activity in Cyprus.

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