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Nowcasting BRIC+M in real time

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ABSTRACT

Given the growing importance of emerging market economies (EMEs) in driving global GDP growth, timely and accurate assessments of current and future economic activity in EMEs are important for policy-makers not only in these countries, but also in advanced economies. This paper uses state-of-the-art dynamic factor models (DFMs) to nowcast real GDP growth for Brazil, Russia, India, China, and Mexico (“BRIC+M”). The DFM framework is particularly suitable for EMEs, as it enables the efficient handling of data series that are characterized by different publication lags, frequencies, and sample lengths. It also allows the extraction of model-based “news” from a data release and the assessment of the impact of such “news” on nowcast revisions. Overall, we find that the DFMs generally display a good directional accuracy and provide reliable nowcasts for GDP growth. Furthermore, the “news” pertaining to domestic indicators is the main driver of changes in nowcast revisions, while exogenous variables play a relatively minor role.

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1. Introduction

The global economic landscape has changed considerably since the turn of the century, with the share of major emerging-market economies, namely Brazil, Russia, India, China and Mexico (henceforth “BRIC+M”), growing from about 21% of global GDP in 2000 to nearly 32% in 2014, in terms of purchasing power parity (PPP) (Fig. 1). The trade and financial linkages between advanced and emerging-market economies (EMEs) have also become much stronger, and the notion that advanced economies have become more dependent on the demand from relatively fast-growing EMEs has gained ground. Thus, timely and accurate assessments of the economic activity of the BRIC+M group are of great importance for policy-makers not only in these economies, but also in advanced economies.

Although the business cycles of major emerging markets share some common characteristics, growth dynamics

also show strong idiosyncratic fluctuations (Fig. 2). This probably reflects not only cyclical factors, but also important differences in economic structure across countries, such as size, the degree of financial and trade openness, the dependence on commodity exports vs. imports, and the pace of structural transformation. These differences pose challenges to the use of a common approach for predicting GDP growth in these countries, and underline the need for a flexible modelling strategy that can be adapted to different country-specific characteristics.

At the same time, the limitations of the data for emerging markets lead to further challenges for the nowcasting of GDP growth, defined here as the prediction of GDP growth in the very recent past, the present and the very near future.¹ For the majority of EMEs, data on GDP and many of the related hard indicators are released with longer lags than is the case for most advanced economies. For example, the first flash estimates of GDP for the United Kingdom and the United States are available 4 weeks after

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¹ Our definition of nowcasting follows (Banbura, Giannone, Modugno, & Reichlin, 2013). The term is a contraction of “now” and “forecasting”, and was first introduced in the context of economic predictions by Giannone, Reichlin, and Small (2008).

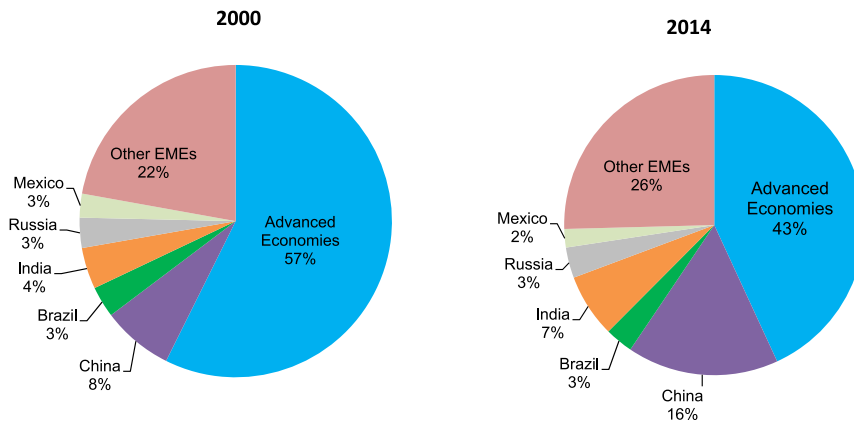


Fig. 1. Shares of global GDP in terms of PPP: 2000 vs. 2014. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)
 Source: International Monetary Fund *World Economic Outlook* database and Haver Analytics.

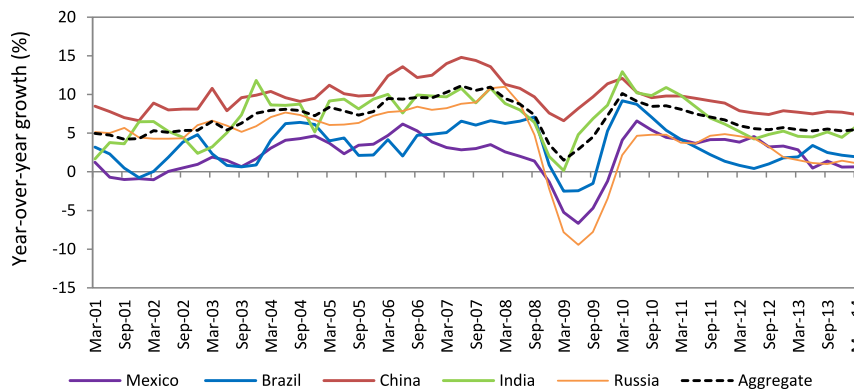


Fig. 2. Real GDP growth for the BRIC+M. Note: Aggregate GDP growth is the PPP-GDP weighted aggregate of the individual countries' real GDP growth. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)
 Source: International Monetary Fund *World Economic Outlook*, Haver Analytics and authors' calculations.

the end of the quarter, compared with 13 weeks for Russia and more than 8 weeks for Brazil, India and Mexico. In addition to the delay in data releases, there are also a number of other data challenges that further underscore the need to develop nowcasting tools for EMEs that are designed to address these issues. These challenges include (1) data published at different frequencies (weekly, monthly or quarterly); (2) unbalanced data patterns at the end of the sample due to non-synchronous data releases (“ragged edge”)²; (3) missing data at the beginning of the sample and relatively small sample sizes, since many macro indicators for EMEs have become available only recently; (4) varying data formats (such as year-over-year versus quarter-over-quarter growth rates); and (5) substantial data revisions. While these peculiarities of the data are not unique to EMEs, they are more pronounced for these countries than for advanced economies.

² “Ragged edges” generally arise in real-time applications when varying numbers of observations are missing at the end of the sample, since different series are released at different points in time and are subject to different publication lags.

The aim of this paper is to nowcast real GDP growth for the BRIC+M, and to exploit our cross-country analysis to uncover the common features of the emerging market data flow. We use the modelling framework of Giannone et al. (2008), based on dynamic factor models (hereafter DFMs) à la Forni, Hallin, Lippi, and Reichlin (2000) and Forni and Lippi (2001), but also rely on several extensions due to Banbura and Modugno (2014). This setup is flexible enough to capture some of the country-specific characteristics, and is also highly suitable for overcoming the data challenges highlighted above. We account for the differences in economic structures across countries by building separate DFMs for Brazil, Russia, India, China and Mexico that utilize a variety of different monthly indicators for each economy. We allow the model specifications to vary across countries. Furthermore, these country-specific DFMs allow us to provide a BRIC+M aggregate nowcast which could be of use to policy-makers in monitoring global economic developments.

Although the DFM framework has become the workhorse model for forecasters at central banks and

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