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On the Measurement and Forecasting of Business Cycles and Growth Cycles in the Global Economy

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Abstract

Composite indexes of business cycle indicators are commonly used to understand cycles and turning points for industrial sectors or overall economy within the national boundaries. They are used to define (with coincident indicators) and to anticipate (with leading indicators) turning points in business cycles. These indicators also help identify growth cycles around a long term trend vs. “classical” business cycles, and help provide useful inputs into macroeconomic forecasting. In this paper, we extend the national business cycle analysis to understand the dynamics of the global business cycle, if it exists. Specifically, we discuss how the composite index approach can be used to understand and define business cycles for the global economy. In addition to understanding the global business cycle, such a global index can be part of an early warning system to anticipate global economic downturns. Can we predict the global cycle with composite indexes that provide summary measures of quantitative and qualitative business cycle indicators? While there has been a lot of research on national economic cycles, defining, measuring and predicting the global business cycle has not received as much attention. That is not surprising because such an undertaking requires comparable and consistent data for the definition of the cycle and the indicators data available for the index approach. Researchers have used metrics such as global aggregates of GDP or industrial production to define the business cycle. Such approaches, however, undermine the multidimensional characteristics of business cycles, analysis of which requires broadly defined metrics that provide estimates for an underlying unobserved business cycle variable. There are few examples

which use aggregations of national business cycle indexes although the OECD regional aggregations of composite indexes of leading indicators are notable exceptions. In order to develop broadly defined metrics we use the coincident and leading economic indexes published by The Conference Board which has developed these indexes for a number of major mature and emerging economies based on the U.S. system of monthly leading economic indexes and a common methodology for selecting and indexing the component data. The thirteen economies in The Conference Board portfolio of indexes (U.S., Brazil, Mexico, Japan, South Korea, China, India, Australia, U.K., Euro Area, Germany, France and Spain) cover over two thirds of the world's GDP. Aggregating these coincident and leading economic indexes provide a view of business cycle developments that are common to the global economy. However, choosing appropriate weighting scheme for such aggregation is of high importance. We compare several different aggregation and weighting methods (based on GDP share and trade data) and discuss their impact on the measurement of the global cycle. We also compare these weighted averages with other methods of estimating unobserved business cycle variables such as those derived from principal components analysis. Moreover, we discuss how decompositions of the global index into sub-indexes of mature economies and emerging economies as well as sub-indexes of financial and non-financial variables can yield insights into the latest developments in the global cycle, the distinction between financial and non-financial developments, the implications for short-term outlook across major global regions. Our global composite indexes can be used in forecast models to determine the probability for a global slowdown or recession and to understand the drivers of the Global LEI, such as financial or non-financial sector dynamics.