Comparison of compilation methodologies for the Composite Leading Indicators of Euro area

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1. Introduction

The aim of this paper is to compare different methods to compile the composite leading indicator (CLI) for Euro area. Section 2 describes two methods, i.e. a method aggregating individual countries' CLIs (indirect method; IM) and another method compiling from the Euro area components (direct method; DM). In section 3, the two methods are compared in terms of various criteria which are determined by their economic and statistical relevance. Finally, conclusions and remarks are given in the last section.

2. Description of methods

In DM, the Euro area components are used to compile Euro area CLI. Thus, the OECD method used to compile the individual CLI is applied to define the turning points and to select component series at Euro area level, e.g. data from Eurostat or the ECB, etc. In IM, we first compile CLIs for twelve Member countries which are then aggregated into an Euro area CLI as a weighted average of the individual CLIs. The weights are calculated from the GDPs in industry and GDP Purchasing Power Parities (PPPs) of the Member countries for 1995.

Reference series: In IM, there is no need for the reference series to be clearly defined to construct the Euro area CLI since the Euro area business cycle is assumed to be a weighted average of those of Member countries. On the other hand, it is crucial to identify the true business cycles for the Euro area in DM since the choice of an optimal set of component series is heavily dependent upon the reference series. At present, there are no official chronology for Euro area business cycle nor consolidated figures for Euro area GDP (index of industrial production; IIP). Eurostat estimates Euro area GDP in constant price (IIP) as a sum (as a weighted average) of individual GDP (IIP) which are converted by using the exchange rates between the currencies of Member countries and ecu in1995.

3. Comparisons of alternative methods

Availability and Timeliness of data Except for a few financial data, data at individual Member country level (used in IM) are at least as timely as ones at Euro area level (used in DM). At the same time, at Euro area level, most data are available for only a limited historical period, which is critical constraint for the fair methodological comparison. Nevertheless, at present, the most commonly used series in the IM have been found to be available for the DM, i. e. data from business survey or share prices, etc. However, more and longer data at the Euro area level are expected to become available in the near future. The biggest drawback for the IM is that CLIs for all the Member countries are needed in order to compile Euro area CLIs more accurately. Thus, the

quality of Euro area CLI from the IM can be affected by the incompleteness of information or by the naive estimation for missing values.

Leads Initial analysis showed that the IM provided the signals of the turning points earlier than the DM, i.e. about 2 months earlier on average. However, the lengths of the leads are similar in both methods for the two latest peaks. The variance in the lengths of lead periods does not seem to be very different in both methods (but the sample size is too small for this result to be robust). The reference series exhibits a minor cycle in mid-80' s. This minor cycle is detected in IM but not in DM.

Convergence/heterogeneity It is expected that the economies of Euro area Member countries would converge [see a report by the National Institute of Economic and Social Research] and so as for the economic statistics of Euro area Member countries. This means that the differences in the set of component series for individual Member country will become smaller and the economies of individual countries will evolve closely one another. As a consequence, DM will become a favourable method.

Interpretation DM enables users to explain the changes of Euro area CLI in terms of the changes in the economic activities of the Euro area as whole, while CLI from IM enables geographical comparison or explanation.

Flexibility or stability of CLIs by including new countries It is easier to examine the effect of inclusion of new country in IM.

4. Conclusions and remarks

While the present study showed that the IM was more favourable, we are not confident on the robustness of the result in the future. It is mainly because of the lack of indicators at Euro area level to be used for the present analysis. At the same time, the economic cycles in individual countries will converge as the economic and social integration of Euro area progresses. Thus, the similar comparisons should be carried out in the future as more indicators with longer historical data at the Euro area level become available.

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FRENCH RÉSUMÉ

Ce papier à pour objectif de comparer différentes méthodes de calcul de l'indicateur composite avancé de la zone Euro. La deuxième partie décrit deux méthodes, c'est à dire une méthode consistant à agréger les indicateurs composites des pays individuels (méthode indirecte) et une autre méthode effectuant le calcul à partir de séries composantes pour la zone Euro (méthode directe). Dans la troisième partie, les deux méthodes sont comparées en se basant sur différents critères retenus pour leur intérêt économique ou statistique. Parmi ces critères figurent les délais de publication et la disponibilité de données historiques, des propriétés concernant l'avance et les comportements cycliques, la disponibilité des composantes à la fois au niveau national et au niveau de la zone Euro, la convergence, l'interprétation, etc. Enfin, les conclusions et les remarques figurent dans la dernière partie.