Should quarterly government finance statistics be used for fiscal surveillance in Europe?

Diego J. Pedregal [a,*], Javier J. Pérez [b]

[a] *University of Castilla-la-Mancha, Spain*
[b] *Bank of Spain, Spain*

Abstract

We use a newly available dataset of euro area quarterly national accounts fiscal data and construct multivariate state space mixed-frequencies models for the government deficit, revenue and expenditure in order to assess its information content and potential use for fiscal forecasting and monitoring purposes. The models are estimated using annual and quarterly national accounts fiscal data, but also incorporate monthly information taken from the cash accounts of the governments. The results show the usefulness of our approach for real-time fiscal policy surveillance in Europe, given the current policy framework in which the relevant official figures are expressed in annual terms.
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1. Introduction

The issue addressed in this paper is how to obtain timely estimates of annual government deficits. The operation of the fiscal policy coordination device in the European Union (EU), i.e. the Stability and Growth Pact, is directly related to an annual multilateral assessment of EU countries' latest budgetary figures and fiscal plans, including targets and projections for subsequent years. The relevant official figures used for this assessment are expressed in annual terms,

using the European System of Integrated Economic Accounts (ESA95) as a conceptual reference method. The first estimates of annual figures for year $t - 1$ are made available by the spring of year t, in line with standard National Accounts compilation practices, while the second estimate is due by the autumn of year t, and is sometimes subject to further revisions in subsequent years (see Bier, Mink, & Rodríguez-Vives, 2004 and Gordo & Nogueira Martins, 2007).

The fact that the multilateral EU system is based solely on annual fiscal data might limit its ability to detect departures from fiscal rules early, and hinder private sector agents and the monetary authority in internalizing fiscal policy shocks in a timely fashion.

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* Corresponding author.
E-mail address: diego.pedregal@uclm.es (D.J. Pedregal).

Thus, a number of EU regulations have developed the mandate to compile quarterly ESA95 fiscal data.[1] Following these regulations, Eurostat started to disseminate quarterly budget balance figures for the EU aggregates and for most member countries in April 2006, while the European Central Bank (ECB) has been publishing euro area aggregates since August 2004 (see ECB, 2004). Quarterly general government accounts present some shortcomings in terms of coverage of revenue and expenditure items, sample size (the period starting 1999Q1, with some exceptions), and timeliness (with at least 90 days delay). In addition, there is still some heterogeneity as regards country availability. For example, Germany and France only publish quarterly figures for the four quarters of a given year, in conjunction with the release calendar of the annual accounts of that year.[2] Nevertheless, the euro area aggregate is published in a timely manner, following a regular quarterly publication calendar.

Even considering all these caveats, it is fair to say that the ESA95 quarterly accounts for the general government, as currently disseminated by Eurostat, represent an important improvement in the matter of timeliness with respect to using only annual ESA95 accounts. Thus, the aim of this paper is to analyze the extent to which using this new set of information might help in improving the monitoring and forecasting of annual ESA95 figures within the current year. Fig. 1 (left panel) shows the annual ESA95 euro area government deficit path over the past 20 years, together with the four-quarter moving sum of quarterly ESA95 figures for the period 1999Q4–2007Q4 (the period for which the quarterly figures are available). The reduction in the sampling interval from 1999 onwards is evident by simple visual inspection.

Fig. 1 (right panel, solid line) also displays another measure of the euro area fiscal deficit, based on monthly cash accounts of governments,[3] that traces the profile of annual/quarterly ESA95 figures over the same period of time. Monthly and quarterly revenue and expenditure cash data from central government and other sub-sectors of the general government have recently been shown to contain valuable information for monitoring and forecasting euro area annual ESA95 fiscal deficits (Onorante, Pedregal, Pérez, & Signorini, in press; Pérez, 2007). They are available with a delay of one to three months, and typically cover long periods of the recent history (i.e., it is possible to find deficit series going back to the 1980s or even the 1970s). We add this set of information to the analysis for three reasons. Firstly, to overcome the short sample problem associated with quarterly ESA95 figures (backcasting). Secondly, to assess its potential use for nowcasting quarterly ESA95 figures. Finally, to assess whether including quarterly ESA95 figures would improve the estimation of annual deficit figures within the year, compared to an approach based solely on intra-annual monthly cash data.

An optimal way to use these data is to build a single model that relates data at all frequencies. In this paper we construct multivariate state space mixed-frequencies models for the euro area aggregate fiscal deficit, revenue and expenditure, based on annual and quarterly ESA95 figures, and on monthly information taken from the cash accounts of governments. Our approach is closely related to that of Harvey and Chung (2000), Mauro and Savio (2005), and Proietti and Moauro (2006).[4] These papers use a temporal aggregation method that relies on the information contained in related indicators observed at the desired higher frequency. The statistical treatment of structural time series models is based on the state space form and the Kalman Filter (see Harvey, 1989). In our case, this approach allows the estimation of a monthly model using annual, quarterly and monthly observations, and permits changes over time arising from an increase in the sample size.

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[1] European regulations (EC) N° 264/2000, 1500/2000, 1221/2002, 501/2004, and 1222/2004.

[2] For details on cross-country coverage and availability, see European Commission (2007).

[3] Comprising the monthly cash deficit of Belgium, Germany, Spain, France, Italy, the Netherlands, Austria, Ireland, Portugal and Finland. The sum of cash indicators has been done for illustrative

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purposes, as cross-country definitions are only approximately comparable. For definitions and further details, see the next section of the paper.

[4] Other approaches for modeling data at different sampling intervals include the methods based on regression techniques (Chow & Lin, 1971; Guerrero, 2003), the MIDAS (MIxed DAta Sampling) approach (see Ghysels, Santa-Clara, & Valkanov, 2006, and Clements & Galvão, 2007), the state space approaches of Liu and Hall (2001) and Mariano and Murasawa (2003), and the ARMA model model with missing observations of Hyung and Granger (2008).