Using Microdata on Turnover and Industrial Production to Derive an Indicator on Inventories

Fabio Bacchini, Annarita Mancini, Enzo Salvatori
Servizio delle statistiche congiunturali dell’industria e delle costruzioni, Istat
e-mail: bacchini@istat.it

Keywords: inventories, industrial production, turnover, business cycle

1. Introduction

In several documents (see for example Quarterly National Accounts Manual- Concepts, Data Sources, and Compilation) International Monetary Fund has pointed out the relevance of short-term statistics on change in inventories to improve quarterly national account estimations based on expenditure approach. For United States, data on inventories are monthly collected by Census bureau but at European level there are no basic quarterly indicators for the changes in inventories (Manual on quarterly non financial accounts for general governments, Eurostat 2006). Moreover the availability of this data should shed lights on particular aspects of the business cycle, particularly on the volatility decline appeared in the recent years (see for example Maccini and Pagan, 2006).

To address these questions we propose an analytical framework to explore the feasibility to derive, for Italy, an estimation on change in inventories of finished goods starting from the monthly data on industrial production and industrial turnover. The general idea is that theoretically sales represented by turnover, should equal production minus change in inventories. After inflating production (or equivalently deflating turnover), from this account equation it is possible to derive a first roughly approximation for change in inventories.

As a novelty of our approach, the traditional macro analysis will be integrated with a micro level analysis based on individual enterprises data. For Italy, it is possible to perform a record-linkage at enterprises level between production and turnover information. In this way we will built up an enterprises panel to improve macro results. Finally the two analytical block will be combined in a unified framework to obtain a final estimation for the quarterly series on inventories.

The derived series will be then compared with the inventory accumulation on the basis of Business Tendency Survey data monthly released by the European Commission.

2. Preliminary results

At this work stage, it has been performed the record linkage only for one important subsection activity of the industry, the machinery and equipment section. After the record linkage, we select more than 300 enterprises with the monthly data on total turnover and industrial production. We refine our selection to look only to the enterprises for which the production ha been collected in quantity (according to the kind
of activity, industrial production information could be collected with different unit of measure). For the panel of linked enterprises, monthly total production and total turnover has been derived.

Preliminary results on the percentage t/t-12, for the period January 2002- November 2007, are presented in Figure 1, where the continuous line refers to the turnover and the dotted line to the production. In the same graph it has been plotted (dashed line) also the chronology for the turning point (TP) of the industrial production derived from Isae (2006). Particularly the period contains three TP: May 2003 (Trough), May 2004 (Peak) and Dec. 04 (Trough).

**Figure 1: Industrial production (volume) and turnover (value) - Percentage change t/t-12**

The figure illustrates three different situation. In 'recession’ zone turnover is higher than production; 'far' from the TP seems to exist a stable relation between the two aggregates; final 'near' a trough, production is higher than turnover.

In the following steps of the research we deeply investigate these evidence looking at all the industrial economic activities.

**References**

