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Monthly industrial output in China 1980–2012☆

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ABSTRACT

Monthly economic indicators are used for a variety of purposes, from studying business cycles to determining economic policy and making informed business decisions. China's published monthly industrial output statistics could hardly be more confusing, with changes in variables, in coverage, in measurement, and in presentation. This paper reviews the available official data and proceeds to construct a monthly industrial output series in nominal terms and in real terms for the period 1980–2012, economy-wide and for the public sector.

1. Introduction

Monthly data on China's industrial sector appear a hopeless jumble. Time series end for no apparent reason in one publication but not in another, then end in all publications while new series begin. A source may report gross output value at constant prices for one month and cumulative value-added at current prices for the next month. Values rise or fall from one month to the next solely due to changes in enterprise coverage.

The National Bureau of Statistics (NBS) began to publish monthly industrial output data in May 1983. Earlier monthly data, starting January 1980, can be found in a magazine published in Hong Kong. No one consistently defined series runs from January 1980 through today. The available monthly industrial output data vary along a number of dimensions:

- variables: gross output value (GOV), value added (VA), sales value;
- coverage: all of industry or some subset of industry;
- valuation: at current or at constant prices;

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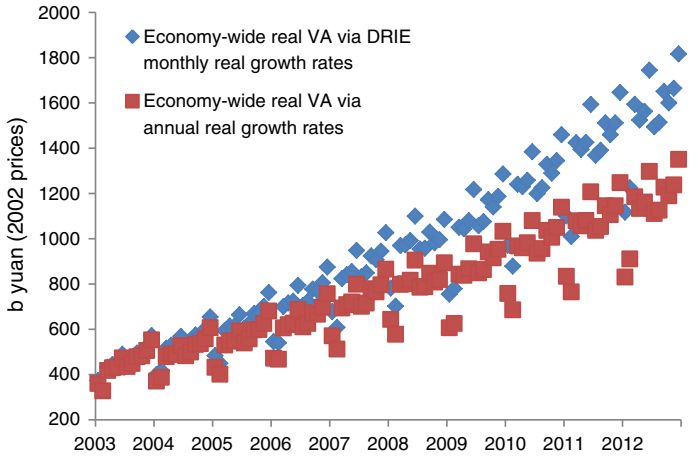

Fig. 1. Monthly real VA. The first series, based solely on monthly values, anchors DRIE real VA growth rates to the 2002 nominal VA values of the second series. The second series is based on nominal annual 2002 VA and annual real VA growth rates, with annual values broken down into monthly values using the DRIE monthly distribution.

- monthly values or cumulative monthly values; and
- data in levels or in growth rates.

The objective of this paper is to construct a consistent monthly series of nominal (current-price) and real (constant-price) output, economy-wide and for the public sector (state-owned and state-controlled enterprises, SOSCEs). The period covered runs from 1980 through 2012 and the series can easily be extended into the future.[2]

The four constructed series can be subjected to a de-seasonalizing procedure. They can be turned into month-on-month (MoM) growth rates (for example, November this year compared to October this year) or year-on-year (YoY) monthly growth rates (for example, November this year compared to November last year). Values for the non-state sector can be obtained as differences of the economy-wide values and the public sector values.

In order to derive the four series, a variety of official data have to be spliced or transformed. How one proceed, matters. For example, the first series in Fig. 1 (diamond symbol) shows an economy-wide monthly real VA derived from VA YoY real growth rates of the directly reporting industrial enterprises (DRIEs) applied to economy-wide 2002 monthly VA. In the literature, the DRIEs, explicitly or implicitly, are often taken to represent all of industry.[3] The second series (square symbol) shows economy-wide annual industrial real VA split into monthly real values using the monthly distributions of DRIE VA. The second series—based on annual economy-wide industrial real VA—in recent years grows much slower than the DRIE series.

Consistent monthly industrial output series are needed in statistical analyses on topics ranging from business cycles to money demand. While consistent monthly data are available for a great number of variables (including, for example, financial sector variables, trade statistics, and prices), this is not the case for output. The series constructed here fills a significant gap that hampered if not impeded statistical analyses using monthly data. For quarterly analysis, both the nominal and the real series are easily aggregated. Industrial output—or its growth, or the output gap, or the share of the state or the non-state in industry—may itself be the variable of interest, or equally serve as control. With industry accounting for half of China's GDP, these series may also proxy for non-existent monthly economy-wide output values.

The series constructed here do not provide the most short-run information (except for the public sector real VA series) as they rely on annual data. For the very short run, one cannot avoid using the limited official DRIE data, with limited meaning and limited consistency over time, as this paper illustrates. It is in economic modeling and forecasting where the series created here are most useful. The series also help shed light on specific events of the past, whether that is the 1989–1992 retrenchment period, the 1998–2000 state-owned enterprise reform period, or the 2008 financial crisis.

The paper proceeds in three steps. The over time changing coverage of monthly output data is discussed first. This is followed by a description of the available data and of minor manipulations of some of the available data. The core sections of the paper describe how the four monthly series are constructed.

2. Changing coverage of monthly output data

All monthly industrial output data suffer from incomplete enterprise coverage and frequent changes in this coverage, while the definition of the public sector evolved over time.

[2] There appears to be no attempt in the literature to construct any form of monthly industrial output series for public use. Keidel (1991) comes close with a table of seasonally adjusted MoM growth rates of industrial output for June 1980 through July 1990. Keidel (2008) uses quarterly industrial real growth rates starting 1981.

[3] A recent example is Koech and Wang (2012). The authors compare growth in industrial output to industrial electricity consumption in 2011 and 2012. Citing the NBS as data source, the industrial output data are implicitly limited to DRIEs, the only enterprise group for which the NBS publishes monthly industrial output data.