

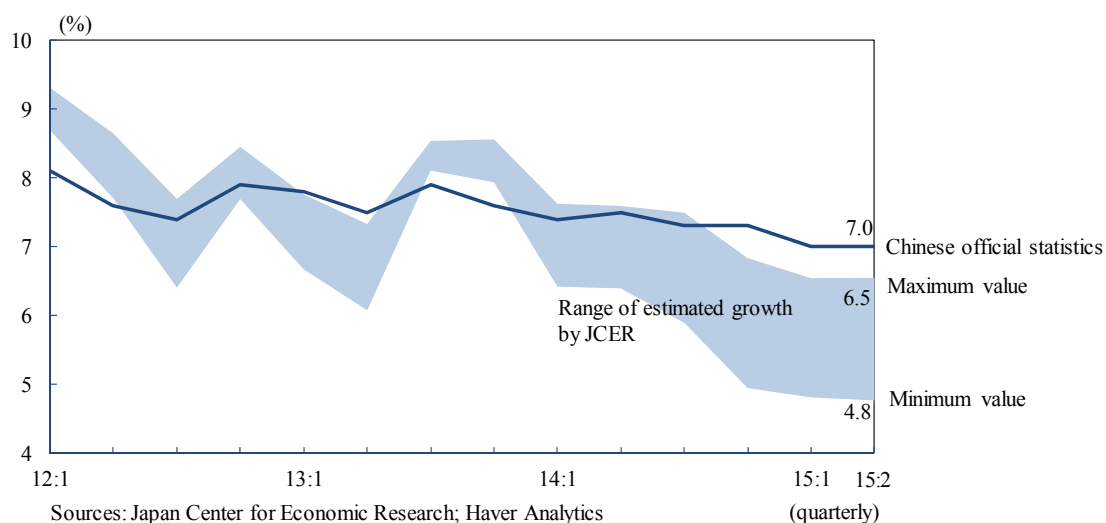
China’s True Growth Rate: Is It Really 7%?

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- The paper examines China’s announcement of 7% real GDP growth during April–June 2015 in two ways: (1) a recalculation of the GDP deflator and (2) with reference to the Li Keqiang index. As a result, we found that the true growth rate is probably 0.5 to 2.2 points lower than the official figure (as shown in Figure 1).
- Even if government statistics are to be trusted, 1.4 points of the 7% growth in April–June came from the financial sector. Given the Chinese stock market crash, the economy is unlikely to have maintained 7% growth in July–September.
- Contributing to market instability is the dearth of disclosed GDP-related statistics. Chinese authorities need to enhance the transparency of its data.

GDP figures disclosed by the National Bureau of Statistics of China are quite deficient by international standards, and their correlation with other economic indicators is unclear. In the following, we assess the validity of the government’s 7% GDP growth announcement from two angles: a recalculation of the GDP deflator and with reference to the Li Keqiang index.

Figure 1: Estimates of China’s real GDP growth



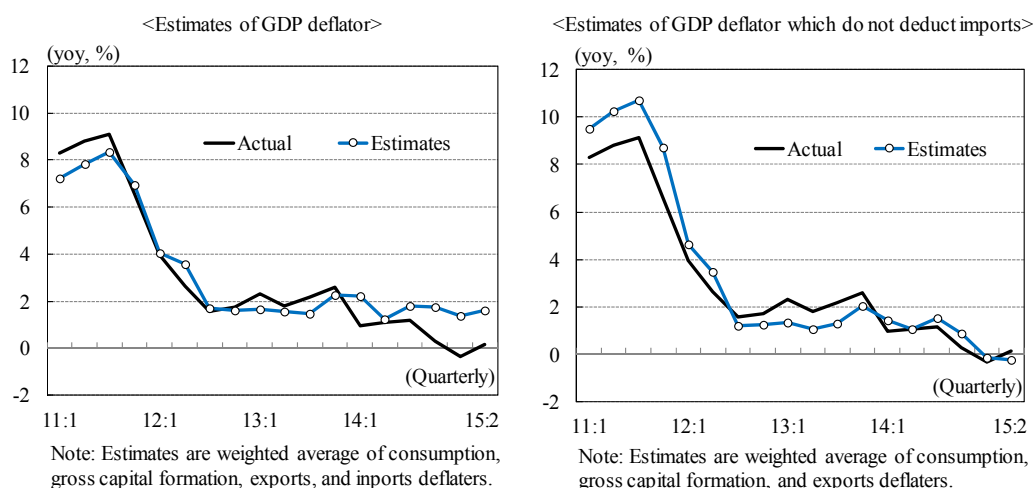
Assessment 1. Examining the GDP Deflator

Capital Economics, a London-based economic research consultancy, suggested the possibility that China's GDP deflator may be understated, having failed to account for the decline in import prices¹. If this is true, then the announced GDP figure, in real terms, will have been too high. Capital Economics calculates that economic growth in January-March 2015 was actually 1 to 2 points lower than the published figure.

Doubts about Beijing's announcements emerge because the components of the GDP deflator (such as the respective deflators for consumption, investment, exports, and imports) are not disclosed. Below in Box, we outline our attempts to calculate deflators for various components of GDP and compile our own GDP deflator for China, comparing it with the official figure.

A comparison of Beijing's official GDP deflator and our estimate is shown in Figure 2. The figure at left is the synthesis of our estimates for the consumption, investment, export, and import deflators—that is, all the demand components of GDP that should be included. It is higher than the official GDP deflator from April–June 2014, being 1.7 points higher in January–March 2015 and 1.5 points higher in April–June. Interestingly, when the import deflator is left out, estimates closely approximate the official figure, as shown at right. This leads us to suspect, as suggested above, that China has failed to take import price fluctuations into account in calculating its deflator.

Figure 2: Estimates of GDP deflators



Deducting the estimated GDP deflator growth from the official nominal GDP growth generates estimates of real GDP growth, which are below the official figures for recent quarters. The estimates show real growth was 5.3% in January-March 2015 and 5.5% in April-June instead of official "7%".

¹ Bloomberg, on 16th July 2015 "How China's Slowdown Is Worse Than You Think"
<http://www.bloomberg.com/news/articles/2015-07-17/how-china-s-slowdown-is-worse-than-you-think>

Box: How Quarterly Deflators Were Calculated

Step 1: Calculating Levels of Real GDP by Component

China does not publish GDP deflators for the various demand components (Table 1), so our task began by estimating GDP values in real terms for each component. We used 2010 as the base year (when the real and nominal GDP figures were the same) and calculated real values using the figures for the contributions each component made to overall growth (which China does publish).

Table 1: Data availability of China's GDP components

		【Calendar Year】			【Quarter】			
		Level	YoY growth rate (%)	contribution to GDP growth (%)	Level	YoY growth rate (%)	contribution to GDP growth (%)	QoQ growth (Seasonally adjusted)(%)
Total GDP	Real	○	○	—	○	○	—	○ (From 2011)
	Nominal	○	○	—	○	○	—	×
	Deflator	○	○	—	○	○	—	×
Components by Industry	Real	○	○	○	○	○	○	×
	Nominal	○	○	○	○	○	○	×
	Deflator	○	○	○	○	○	○	×
Components by expenditure	Real	×	×	○ (※)	×	×	○	×
	Nominal	○	○	○ (※)	×	×	×	×
	Deflator	×	×	○ (※)	×	×	×	×

Notes: ○ shows available (or easily calculable), × shows unavailable data.

※Only net exports are available and export/import are unavailable.

Components by expenditure include final consumption, gross capital formation, and net exports.

Components by industry include primary, secondary, and tertiary industry.

are the items that are estimated in this report.

Sources: National Bureau of Statistics of China, Haver Analytics

Step 2: Determining Export and Import Figures from Net Exports, Ascertained in Step 1

Regarding the components of nominal values and contributions to real GDP growth, which we used in Step 1, the only figures China releases in the area of trade are net exports; Beijing does not provide a breakdown of exports and imports. We thus referred to the exports and imports of goods and services in international balance of payments statistics, regarding them as the nominal export and import components of GDP. To ascertain the export and import deflators needed to obtain real term figures, we referred to price indices for exports and imports. The resulting real net exports were slightly different from our calculations in Step 1, so the discrepancies were split and apportioned evenly to exports and imports.

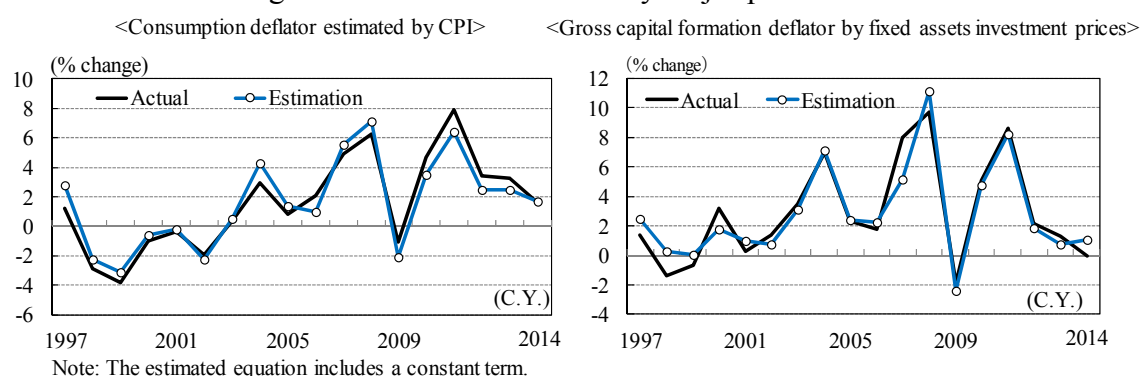
Step 3. Calendar-Year Deflators for Demand Components

We then created annual deflators for each of the GDP demand components, based on the published nominal statistics and our calculations (made in Step 2) of the real figures.

Step 4: Quarterly Deflators for Demand Components

The calendar-year deflators deduced in Step 3 were then used to estimate quarterly deflators for each demand component. Specifically, we first estimated the relationship between the annual deflator and various price indices, calculating the consumption deflator with reference to the consumer price index and the investment deflator with the price index for fixed asset investments. The estimates by price indices seem to fit well with the deflator calculated in Step 3 as shown in Figure 3. Second, we calculated quarterly deflators using quarterly price indices and the parameters estimated from calendar-year data.

Figure 3: Deflators estimated by major price indices



Step 5: Verifying the Quarterly Deflators

Finally, we worked out a GDP deflator by compiling the quarterly deflators for each demand component, calculated in Step 4. This process applied the relative weights of each demand component, deduced in Step 1.

Assessment 2: Reference to the Li Keqiang Index

Chinese Premier Li Keqiang revealed in 2007—when he was the Party Committee Secretary of Liaoning—that the GDP figures in the province were unreliable and that he thus used three other indicators: electricity consumption, the railway cargo volume, and loans disbursed by banks. These three indicators were combined into what has come to be known as the Li Keqiang index.

Fernald et al. (2013) regresses China's real GDP between October–December 2000 and July–September 2009 on two explanatory variables: (1) the Li Keqiang index, as explained above, and (2) the lag (four quarters) in the GDP growth rate. The results were then used to extrapolate real GDP growth since October–December 2009. The lag is used to refer to past GDP trends for the factors not covered by the Li Keqiang index. In other words, the analysis is an attempt to ascertain current real GDP growth in terms of past GDP statistics and recent economic indicators. The authors conclude that the

official data through 2012 are consistent with the relationship observed in the past.

Based on their research, we have attempted a similar calculation, using the same inferential parameters for the period up to July–September 2009 to update the extrapolation through April–June 2015. We made two estimates for the Li Keqiang index, (1) a simple average of the year-on-year growth in electricity consumption, railway cargo volume, and bank loans and (2) a synthesis index through principal component analysis (Table 2).

Table 2: Regression results of GDP growth by Li Keqiang index

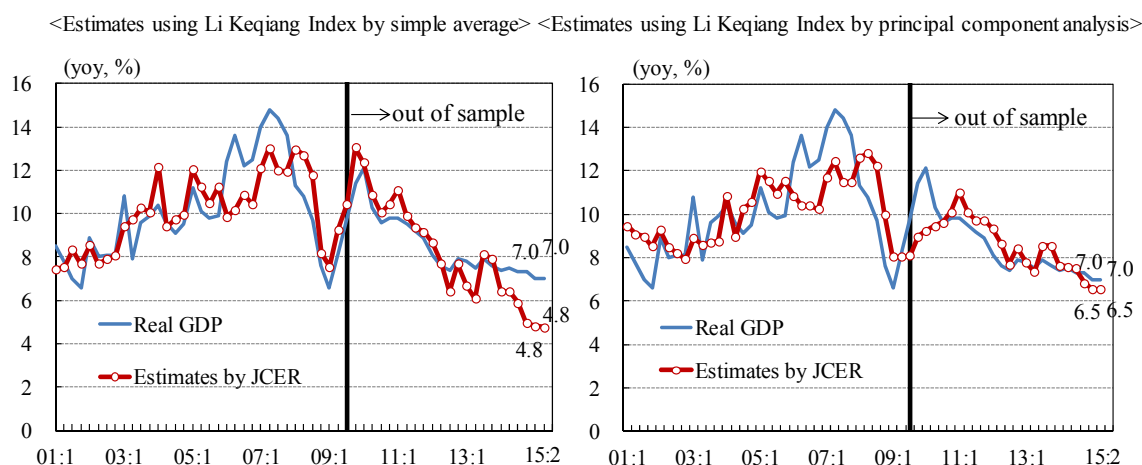
Explained variable : year-on-year growth rate of real GDP

Explanatory variable	Estimation (1)		Estimation (2)	
	Coefficients	Standard errors	Coefficients	Standard errors
Growth rate of Real GDP-4	0.608	(0.167) ***	0.576	(0.223) ***
Li Keqiang index	(Simple average)	0.398 (0.083) ***		
	(Principal component analysis)		0.121 (0.040) ***	
Constant term	▲ 0.770	(1.778)	3.674	(2.015) *
Number of Samples	35		35	
Adjusted R-squared	0.559		0.418	
S.E.of regression	1.495		1.717	

Note: Standard error are those of Newey-West

*** means significance at 1% level, * means significance at 10% level

Figure 4: Real growth estimated by two variants of Li Keqiang indices



Notes: The estimated period is from 2001 through 2009Q3.

Figures of 2009Q4 and after are extrapolated using the regression results.

Sources: Haver Analytics, CEIC

Our calculations were lower than Beijing’s official GDP figures for the most recent two quarters (Figure 4). With index (1), our estimates closely approximated official figures

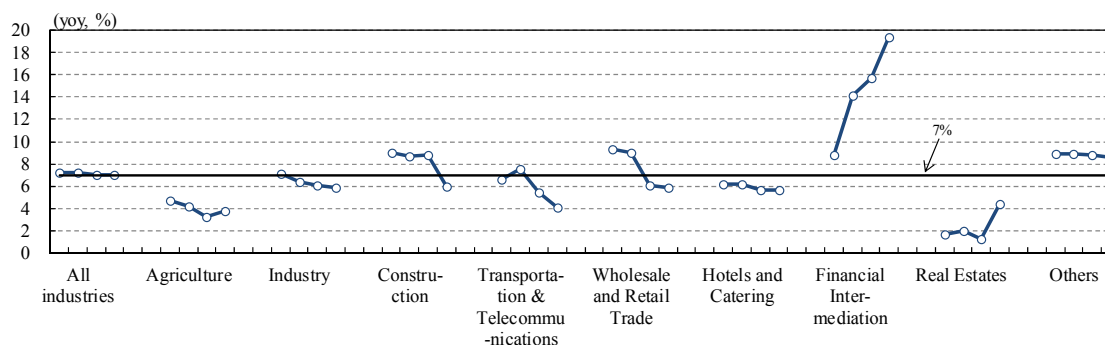
through 2013 but was significantly lower in 2014, dropping to between 4.5% and 5.0% in the first half of 2015. Using index (2), we found that the economy grew by 6.5% in the first half of 2015, which is still lower than the official figure of 7%.

There are limitations to the Li Keqiang index, of course, for it does not present a full picture of economic conditions in China. Production may increase even when electricity consumption is flat, for example, if factories begin using more energy-efficient equipment. None of the three indicators, moreover, adequately reflects the rapid shift of the Chinese economy toward the service sector.

Dwindling Contributions from the Financial Sector

Even if official statistics are to be trusted, a breakdown of GDP by industry reveals that 7% growth in the first half of 2015 was achieved thanks to special factors. A stock market bubble led to a jump in transactions, pushing up the financial sector's GDP by nearly 20%—as compared to a more moderate 6% for manufacturing and the wholesale-retail sector (Figure 5). Since there is a strong correlation between share prices and the financial sector's GDP, the market bubble likely helped to push up China's GDP to 7% (Figure 6).

Figure 5: Real GDP growth by industry



Notes: Figures are calculated based accumulated amount from the beginning of the year, ratio to the same quarter of the previous year.
The period is from 2014 Q3 through 2015 Q2.
Sources: Haver Analytics

Our calculations show that in April–June 2015, the financial industry contributed 1.4 points to the 7% growth—a 0.9-point jump over year-ago levels (Figure 7). Given the ensuing market crash, such contributions will likely have dissipated, making 7% growth difficult to achieve in July–September.

Figure 6: GDP of finance industry and stock prices

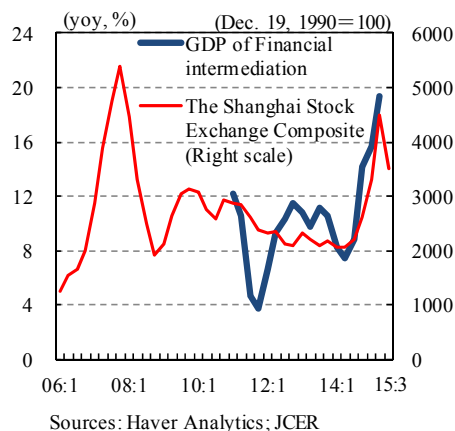
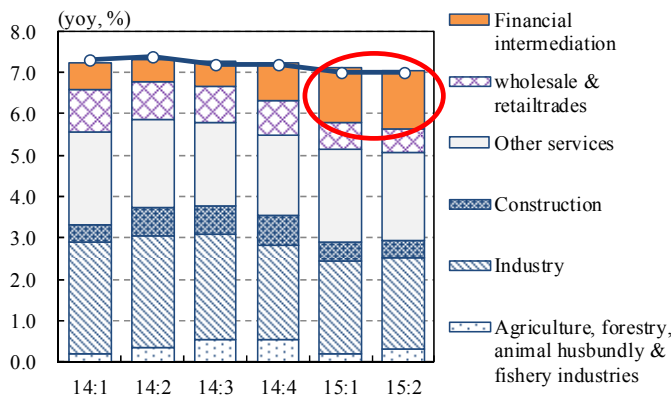


Figure 7: Contribution to real GDP growth by industry



Need for Greater Transparency

This paper analyzed China’s real GDP growth from two approaches: (1) a recalculation of the GDP deflator and (2) reference to the Li Keqiang index. The first approach yielded a growth rate of 5.5% for April–June 2015, and the second 4.8%–6.5%—both of which are lower than the official figure of 7%. And even if official statistics are to be trusted, since 1.4 points of the 7% came from the financial sector, the subsequent stock market crash is likely to have driven down GDP growth during July–September.

The dearth of official GDP statistics released by Beijing is a source of market instability and is fueling uncertainties about the future of the Chinese economy. As such, it is damaging to the authorities’ own wishes. If China seeks to become a true economic power, it must enhance the transparency of the statistics it discloses.

Reference

Fernald, J., Malkin, I., & Spiegel, M. (2013) “On the Reliability of Chinese Output Figures,” *FRBSF Economic Letter*, 2013-08.