

2-13-2000

To: GDP enthusiasts

From: Tom Rawski

Re: Revision and interpretation of GDP calculations for 1997/98

Many thanks for your comments and suggestions regarding my effort to use income-side data to produce an estimate of China's GDP growth in 1997-98. I'm particularly grateful for Bert Keidel's detailed response which uncovered a major error in my calculation and sent me scurrying to the library to study the 1993 GDP manual.

The error is the mistaken inclusion of interest paid to non-household recipients as part of GDP. The attached excel file eliminates all such interest payments. I've also revised the figures for bank profits (initially based on results one big bank; I now have information for 2 banks).

As Bert anticipated, removing the interest on bank loans paid by non-financial companies increases estimated growth because interest paid to non-household recipients (especially to banks) is large and also drops sharply in 1997/98. This major change (the effect of the other adjustments is minute) shifts the results, which now show 4.6 % nominal growth (with or without imputed depreciation and rental for residential housing) and 5.8 percent real growth (5.7% without housing) for 1997/98.

The question remains: how do we evaluate China's economic performance in 1997/98 and beyond? Before responding to various suggestions regarding the original calculation, let me sketch the background as I now see it.

I. The official data for 1997/98 are riddled with inconsistencies.

- NBS publicly rejected the provincial growth figures for 1998.
- Official figures show real output growing by 17% between 1996 and 1998 while energy consumption declines by 2.1% [Yearbook 1999, pp. 57, 247].
- Real output in the agricultural sector is reported to have grown by 6.0 percent (including 4.9% for farming) in 1997/98 despite floods that make the list of China's top 10 natural disasters in the 20th century and reportedly knocked 0.5% off annual GDP [Yearbook 1999, p. 386; *Zhongguo tongji* #8 (1999), p. 38 (top 10); *Xiangzhen qiye* 4/1999, pp. 34-35 (1/2 percent)].
- Real output in industry is reported to have grown by 10.75% in 1997/98 even though only 14 of 94 major products attained double-digit growth and 53 showed negative growth [Yearbook 1999, pp. 424, 445-46].

- Investment spending is reported to have grown by 13.9% in 1997/98. However consumption of steel rose by only 4% and production of cement increased by only 4.7% [Yearbook 1999, pp. 183, 446; increased steel consumption of "about 4 percent" from *Zhongguo wujia* [China Price], no. 3, 1999, p. 8].
- Retail sales reportedly advanced by 6.8% in 1997/98, but urban and rural garment sales plunged by 7.6 and 10 percent [Yearbook 1999, p. 546; for garment sales, see *Zhongguo gongye jingji* [China Industrial Economy], no. 9 (1999), p. 34].

For additional commentary in this vein, see Meng (1999).

II. Chinese sources indicate big problems with false reporting beginning in 1998

Here are several relevant quotations (using my own rough translation)

Whenever the leaders insist on accelerated growth or when accelerated growth becomes the content of evaluation, the wind of overstatement flourishes. . . . In recent years, some regions pursue high growth output and high speed and high results and high indicators. As long as the figures are high, nobody queries the details. Some regions base their high growth on false statistics. . . . When statistics determine bureaucratic outcomes, the intensity of supervision by officials increases, and the frequency of their interference increases. In some regions, in order to meet the indicators set by the upper levels, the officials place their main emphasis on the statistical departments rather than on the operating divisions, and the statistical indicators suffer serious distortion. . . . Some of the targets that come down from the higher levels are objectively impossible to reach, but since the leaders demand high speed, then the operating departments split up the responsibilities, and, in order to ensure the achievement of the result specified by the upper levels, the lower levels apply more pressure with the result that the indicators become seriously divorced from reality. . . . [Gan and Li 1998]

Since career prospects of cadres depend on "political marks," if these political marks are now substantially determined by economic growth outcomes, there will be a tendency to produce distorted reports, which leads to national and systematic distortion and ???, wrecking the statistical system, increasing the seriousness of the difficulties. . . . The final problem, which is also the worst and the most likely to arise, is universal falsification of statistics, as a 'statistical bubble' works its way up through the system, and provides mistaken reportage to the decision-making levels. [Meng 1999]

Last year, completing economic growth targets was made a political requirement. Even though the [Guangzhou] municipal party committee and the city govt made special efforts to help the local NBS protect the quality of economic statistics, various social ??? weighed on the local NBS, which came under great pressure. But the city NBS from top

to bottom maintained a clear attitude: the first demand was under no circumstances manufacture statistics. . . . The issue facing NBS director Hua - if the target cannot be met, can you resist pressure to manufacture data? His answer . . . I'll never manufacture data! At the beginning of this year, the provincial NBS investigated the city's figures. The outcome was clear: the figures were objective, there was no instance of people manipulating the data. [Wu and Huang 1999]

Zhang Sai. . . a former head of the State Statistical Bureau is very concerned about administrative interference with statistical work. . . . the challenge of keeping statistics accurate was particularly difficult last year. . . . if administrative departments involve themselves too much in statistical work, it will be hard to avoid introducing errors into the data. . . . Zhang Sai commented on the directive from the Central Committee that this year's economic growth figure is predictive and advisory and not a target [as in 1998]. . . . Zhang Sai said that will help avoid the pitfall of "exaggerating the size of the task as the order works its way down level by level and the exaggeration of economic performance level by level as economic data works its way towards the center." . . . Zhang Sai stressed that an end must be put to the phenomenon of "officials make statistics and statistics make officials" and "using exaggeration to win an official position". Deceiving the nation and tricking the people can lead to untold disasters. Zhang Sai asked . . . Didn't the Great Leap Forward of 1958 teach us a hard enough lesson? [S&T 1999]

III. **I anticipated that income-side calculations would produce a plausible alternative** to the official data even if the analysis included yearbook data that might be tainted by the "wind of overstatement" described above. The revised income-side total showing 5.8 percent growth for 1997/98 is substantially below the NBS figure of 7.8 percent. It fits with Bert Keidel's expectation that my initial 3.6 percent real growth estimate for 1997/98 was too low, "perhaps by several percentage points." The revised result also comes closer to Harry Wu's back-of-the-envelope calculation and to the expectations of several well-informed people with whom I have discussed this matter.

IV.

I see the current position as one in which well-informed people rely on instinctive judgments about growth, and nobody has enough evidence to convince a fair-minded skeptic that 3.6 percent is closer to reality than 5.8 percent or vice versa. Under these circumstances, we need to consider the direction and potential scale of biases inherent in the 5.8 percent results. Here are some thoughts on this matter, starting with reaction to comments by Bert Keidel and Barry Naughton.

V. **Direction and Potential Size of Bias in the Income Side Calculations**

1. Incomplete coverage of income from urban private business. Both Barry and Bert raise this point, with which I entirely agree. My impression is that survey work - whether by NBS, by academic researchers, or anyone else - invariably falls short in this area.

The specific difficulty is that the urban survey may focus on households of people classified as "workers and employees" (*zhigong*), i.e. people with regular work in the formal sector of the urban economy. The result may be to overlook incomes from private business, "especially at the high end" (Keidel). Such omissions will lead to an underestimate of the GDP level, which is not relevant to the question of 1997/98 growth. The real question arises from Bert's expectation that omitting a large chunk of private business incomes, which he sees as "the most dynamic part of urban household remuneration," leads the income-side calculations to underestimate annual growth. There are two issues: 1) how big might the omission be? And 2) how fast might private business earnings have risen during 1997/98.

I have nothing to offer on the question of size. The problem, I fear, is that no survey adequately captures this income segment, with the result that we don't know how big it might be. Any suggestions?

On earnings growth, it is my impression -- and here I seem to disagree with Bert -- that 1998 was generally a bad year for private business. The main evidence (aside from conversations with people who talk about the failures encountered by friends who have "jumped into the sea" of private business) concerns a possible slowdown of investment. The yearbook figures indicate (nominal) investment growth of 13.9 percent overall, 17.4 percent in the state sector, 10.0 percent for the rest of the economy, including 8.9% for collectives, 9.2 percent for individual business (within which 44.0% urban and -0.4 percent rural), etc. [Yearbook 1999, p. 183].

Chinese writers pay little attention to these figures. In December 1998, *China Daily* reported that "the non-state sector. . . is expected to record zero growth in fixed-asset investment" during 1998 [Xu Binglan 1998]. Fan Gang says that "various indicators show that investment outside the state sector, particularly in the medium and small enterprises outside the state sector. . . may have had zero growth in 1998" [*Jingji yanjiu* 1/99, p. 4]. In another essay, Fan writes about medium and small firms (which I take as a reference to private enterprise) being crowded out [*Caimao jingji* 6/99, pp. 3-5]. Zheng Xinli, a spokesman for the State Development Planning Commission, said that fixed asset investment in the non-state sector "grew by a mere 1.1 percent" in 1998 [Bao Daozu 1999]. Other authors state that investment by "non-state units" (*fei guoyou danwei*) grew by 1.1 percent in 1997/98, with investment by collective units declining 3.5 percent [Zhang Guoyun and Li Songping, *Touzi yanjiu* 10/99, p. 7].

Low investment by private business presumably reflects weak profit opportunities looking forward. Weak future profit opportunities seem inconsistent with strong current profit growth. Falling average wages among (formal) enterprises under "other types of ownership" [Yearbook 1999, p. 160] also seem consistent with weak profits. With private firms operating in an environment of widespread excess capacity, persistent deflation, and continued exclusion from promising service-sector businesses (i.e. those with with excess demand and rising prices; see Guo Kesha 1999), it seems entirely

possible that fuller coverage of private business might lower rather than raise estimated growth.

The conclusion here is that 1) there is probably a (big?) gap due to substantial omission of urban business income from the urban survey results. However 2) I don't have good ideas about how to fill in the gap. Furthermore 3) I don't share Bert's expectation that filling in the gap would raise the growth rate for 1997/98. However 4) evidence supporting this view is weak and unlikely to persuade Bert or any other fair-minded skeptic to adopt my view.

2) Bert points out that the yearbook data on profits for industry (definitely) and trade (probably) are not comprehensive and exclude small enterprises. No disagreement here. On the urban side, this loops us back into the previous discussion about omission of profits.

On the rural side, Bert cautions about deriving aggregates by applying total population to income figures from the standard surveys (which is what I have done), especially because NBS "is having compliance problems at the higher-income end of the households reporting." No disagreement here. The position is the same as with urban profits. 1) let's not be too quick to assume that profits at the high end are growing fast when those at the low end are not; and 2) is there a plausible alternative to the unlovely method that I have employed?

3) Bert suggests that the 1998 profit data for TVEs may have omitted important components. He is working with the 1999 TVE Yearbook which is not available to me. I can't respond except to say that the issue is sure to be complex because, as Bert's notes indicate, TVEs data can be classified in many ways and the data for 1997 may have been revised. I would add that the TVE data were notable for low quality (weak statistical personnel on the ground, deteriorating administrative systems, big changes in enterprise structures) and for widespread falsification long before 1998. When we remember that the data on profit are likely to be residuals, for instance

$$\text{profit} = (\text{reported GVIO}) * (\text{a standard value-added coefficient}) - \text{wage costs}$$

and that the (already considerable) prevalence of overstating GVIO surely escalated in 1998, it is evident that this issue will not be easy to resolve.

Caution: Bert suggests that the figures I used for 1998 may have omitted profits from private and individually-run firms amounting to RMB293.4 billion. Some of this could have been caught by the rural survey. Bert's expectation (above) is that much of this profit is not captured in the surveys. Bert doesn't comment on the coverage of the profit figure I used for 1997. However note that adding RMB200 billion to the TVE profit total raises the growth rate for the revised income-side calculations to exactly 7.8 percent!!

4. Barry also suggests that a survey focused on households of "workers and employees" may overlook a substantial portion of income flows from pensions, stipends for furloughed workers, and unemployment compensation.

Another category that is likely to be overlooked by the combination of formal wages and survey data that I have used is earnings of urban informal workers who do not have urban residence permits. Barry points out that yearend employment in private and getihu businesses jumped by over 5 million in the 12 months ending in December 1998.

I have no specific suggestion here. The key point, already noted earlier, concerns the scope of the urban survey and the associated dangers of "grossing up" average figures taken from the survey results. Clearly, the possibility of significant omission is present.

I'd add several items to the list of issues raised by Naughton and Keidel.

A. My calculations rely on yearbook data that appear to have escaped the main pressures for political manipulation of statistics. Although such pressures seem greatest at the local and provincial levels, we cannot be certain that NBS operations succeeded in maintaining integrity. The possibility of bias creeping into the urban and rural surveys, for example, cannot be dismissed. On this point, I am reassured to find that the rural survey shows **decreasing** per capita net income from household business operation during 1997/98 in 13 provinces, including Helongjiang and all the Yangzi provinces from Hubei on down to Shanghai [Yearbook 1998, p. 347; 1999, p. 340]. This provides a far more plausible picture of the flood-stricken farm economy than the rosy output statistics mentioned above.

B. As mentioned in my initial draft, tax collections may have been overstated in 1998. If, as one informant suggested, 25% of the reported increase in revenue represents false reporting, estimated growth of real GDP would drop by 0.9 percentage point to 4.9%

C. My Keidel-inspired study of the National Income accounting manual raised further issues that might affect GDP calculations:

C1. Is there any link between bad bank debt and GDP calculations?

The manual is uncharacteristically vague on the definition of "operating surplus," which is defined as [System 1993, p. 162]

Op. Surplus = value added - employee compensation - (taxes - subsidies on production)

The Chinese banks report substantial profits even though they have large quantities of bad assets and no substantial loan loss reserves. Lardy comments that the "reported earnings of banks are vastly overstated" [1998, p. 170]. A sensible business regime would impose huge "special charges" on any earnings, transfer available funds into loan loss reserves, and report massive negative earnings - as the Japanese banks have done.

Bank loans outstanding at yearend 1998 amounted to RMB8.6 trillion [Yearbook 1999, p. 624]. The bad debt ratio increased in 1998 as did the unpaid portion of scheduled interest repayment on loans [Xie Ping 1999, p. 24; Ren Kan 1999, p. 5]. A one percent increase in bad loans would involve RMB 80 billion - slightly more than 1% of nominal 1997 GDP.

Question: does standard GDP practice call for some adjustment to reflect increases in the volume of bad debt or in outstanding interest payments?

C2. Chinese banks receive massive aid from the state: "More than 70 billion yuan. . . have been put up to write off non-performing loans and bad debts" [Zhao Shaoqin 1999, p. 3]

Question: does the use of government funds to capitalize asset management firms that purchase non-performing loans at face value with a mixture of cash and (mostly) bonds constitute a subsidy that standard national income calculations should take into account?

C3. Chinese firms, especially in the state sector, accumulate large pension liabilities. These liabilities are largely unfunded. They increase with the aging of the workforce and with any increase in wages paid to current workers. Pension liabilities presumably decrease when workers leave the system via resignation, death, dismissal or (perhaps) furlough (*xiagang*).

According to the manual, compensation of employees has two components: current payments (in cash or in kind) and the value of social contributions "payable" by employers (which may be actual or imputed; see System 1993, p. 166).

Question: how would standard national income procedures treat the Chinese system of pensions, in which employers typically have no accumulation of pension assets but are expected to pay retirees from current revenue streams?

D. This leads to a semi-philosophical issue. The question: "how fast did China's economy grow in 1997/98" could have multiple answers. One answer is what the Chinese accounts, free of distortion, might have shown. Another is what the Chinese accounts, free of distortion and adjusted for gaps between Chinese national income methods and "standard international practice" might be expected to show.

I've been hoping to move in the direction of the first type of answer. From that perspective, possible adjustments for bad bank debts, unfunded pension liabilities, and perhaps even imputed rental and/or depreciation on residential housing may be irrelevant.

VI. What about 1999?

Here's a quick sketch of relevant points for 1999:

- unlike 1998, growth targets were not tagged as political responsibilities. A well-informed NBS official told me that problems experienced in 1998 were "under control" and that there would be no repetition of the 1998 fiasco.
- However the data now emerging suggest that NBS has again rejected provincial claims in compiling a national growth figure. The national total for 1998/99 is 7.1%. Provincial figures that I have seen -- Beijing 10%; Shanghai 10.2; Zhejiang 10; Guangdong 9.4 -- suggest a repeat of last year's situation in which the provincial figures imply a much higher growth rate than the NBS figure. Plan targets for provincial growth in 2000 suggest more of the same. In addition, while NBS announced that retail sales rose by 6.8% in 1998/99, Chen Dongqi of the State Development Planning Commission writes that "social retail volume [in 1999] was unchanged from the year before" [Chen Zhiming 1999, Chen Dongqi 2000]. My tentative conclusion: the "wind of overstatement" persists.
- Preliminary NBS reports about 1998/99 indicate that, compared with 1997/98, annual growth rates declined for investment spending, industrial output, agricultural production, foreign investment, and retail sales. Growth of tax revenue stayed about the same. Growth of exports and imports increased (partly because a crackdown on smuggling that shifted many imports from illegal to legal channels); profits of state enterprises also increased. These figures -- especially the big reduction in investment growth -- point to a decline in growth that could easily exceed the decline shown in the official figures.

Discussion of 1998/99 outcomes might plausibly begin by applying the proportional decline in growth contained in the NBS figures to the 5.8% figure for 1997/98 that emerges from the revised income-side calculations.

An initial guess for 1998/99 real growth would then be $(7.1/7.8) * 5.8\% = 5.3$ percent.

VII. Final thoughts

Two items:

1. The foregoing discussion shows that my income-side calculations are rather fragile. Removing interest paid on bank loans pushed estimated real GDP growth for 1997/98 from 3.6% to 5.8%. A change of RMB60 billion -- a rather small figure when Bert Keidel can plausibly suggest that I may have overlooked RMB 300 billion of TVE profits -- shifts the estimated growth rate by 1 percentage point.
2. Official figures showing real growth of 7.8% and 7.1% for 1997/98 and 1998/99 are too high. The idea behind these income-side calculations is to provide a

systematic approach to the question of how big a downward adjustment seems appropriate. I fear that the outcome is inconclusive - everything depends on the direction and magnitude of various biases and omissions linked to the income-side results.

My own hunch is that figures of 5.8 percent real growth for 1997/98 and 5.3 percent for 1998/99 are likely to overstate actual results, perhaps by a large margin. Here are three items that reinforce this belief:

"Per capita income in urban and rural areas continued to fall in the first quarter of this year" [i.e. 1999; Wang Chuandong 1999].

"A report from National Bureau of Statistics indicates the Chinese people are uncertain about their near-future incomes. In October [1999], 66 per cent of consumers said their household incomes had either remained unchanged or had decreased during the previous 12 months" [Bu Ran 1999]

Chinese airlines engaged in massive price cutting during 1998. Despite big reductions in the absolute and relative price of air tickets, passenger traffic volume (in passenger-km) rose by only 3.4 percent overall and 2.3 percent on domestic routes [Yearbook 1999, p. 527].

Each of these reports seems flagrantly at odds with real growth of 5.8 percent for 1997/98 and 5.3% for 1998/99 (from the revised income-side calculations) or 7.1% and 7.8% (from NBS reports).

Sources

Bu Ran 1999. "Increased Renting Expected." *China Daily Business Weekly*, 6 December 1999, p. 6.

Chen Dongqi 2000. "Looking to the Future," *China Daily* 12 January 2000, p. 4.

Chen Zhiming 1999. "GDP Grows at 7.1 % in 1999," *China Daily* 30 December 1999, p. 1.

Gan Xinmin and Li Tongyin, "To Control Falsification, We Must Control its Foundations," *China Statistics*, November 1998, pp. 21-22.

Guo Keshu, "Aggregate Demand or Structural Problems? How Distorted Economic Structure Constrains China's Economic Growth." *Jingji yanjiu* no. 9, 1999, pp. 15-21.

Meng Lian, "Analysis of Economic Situation and Policies of the Past Several Years," *Gaige* 3 (1999), 73-82.

Ren Kan 1999. A Central Bank Chief Reaffirms Money Policy, @ *China Daily* 30 July 1999, p. 5.

S&T 1999. internet translation of A Corruption Should Be Opposed in Statistics Too! @ *Keji ribao* [Science and Technology Daily], 7 March 1999, courtesy of David Cowhig.

System 1993. EC, IMF, OECD, UN, World Bank, *System of National Accounts 1993*. Brussels, 1993.

Wang Chuandong 1999. "State to Bolster Demand." *China Daily* 29 April 1999, p. 1.

Wu Xiaobing and Huang Chaohui. "Plowing and Reaping: A Visit to the Guangzhou NBS" *Zhongguo tongji* 8-99, 12-13

Xie Ping 1999. A Challenges Facing China's Financial Reform, @ *Zhongguo gongye jingji* [China Industrial Economics] no. 4 (1999).

Zhao Xiaoqin, "Profits - Not Red Ink - To Colour State Firms," *China Daily* 26 January 2000, pp. 1, 3.

Yearbook. *Zhongguo tongji nianjian* [China Statistics Yearbook]. Beijing, annual.