



What is happening to China's GDP statistics?

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Abstract

This paper argues that official Chinese statistics contain major exaggerations of real output growth beginning in 1998. The standard data contain numerous inconsistencies. Chinese commentaries castigate widespread falsification at lower levels and question the authenticity of figures emanating from the central statistical authorities. The author speculates that cumulative GDP growth during 1997/2001 was no more than one-third of official claims, and possibly much smaller. © 2002 Elsevier Science Inc. All rights reserved.

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1. Introduction

During a May 2001 conversation with several Chinese economists in Beijing, I expressed doubt that China's recent GDP statistics reflect actual economic performance. Without missing a beat, a Chinese colleague said, "Nobody believes recent GDP statistics." According to the *New York Times*, "many economists say the country's real economic growth rate is, at most, half of that reported" (Smith, 2001).

What is going on? I believe that, beginning with 1998, standard GDP data contain exaggerations that extend far beyond the technical difficulties addressed in recent studies (e.g., Maddison, 1998; Meng & Wang, 2000; Ren, 1997). This comment focuses on three matters: quantitative inconsistencies, qualitative information from Chinese commentaries, and suggestions about the possible magnitude of overstatement.

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2. Quantitative inconsistencies

Official figures for recent GDP growth appear in the top row of Table 1. The yearbook figures imply that real GDP grew by 24.7% between 1997 and 2000. During the same 3 years, energy consumption dropped by 12.8%. The implied reduction of 30% in unit energy consumption over 3 years seems implausible, despite the rapid growth of computer manufacture and other activities with low unit energy consumption. Rapid growth of energy efficiency is not a hallmark of China's economy: in 1997/1998, for example, the efficiency of energy conversion in producing thermal electricity, coke, and refined oil products all declined, and the "total efficiency of energy conversion" was no better than the average for 1983/1984 (*China Statistical Yearbook*, 2000, pp. 55 and 246; *China Statistical Abstract*, 2001 pp. 7 and 130).

International comparisons highlight the implausibility of recent Chinese growth claims. Table 2 presents capsule summaries of several Asian economies during comparably short time periods going back to the 1950s. China's recent official growth story is an obvious misfit: in every other instance, including China's own experience 10 years earlier, substantial GDP growth coincided with increased energy use, higher employment, and rising consumer prices.

Returning to recent Chinese data, the clash between output and energy trends is only one of many unlikely elements. The figures for 1997/1998 bristle with inconsistencies. Could farm output increase in all but one province despite floods that rank among China's top 10 natural disasters of the 20th century?¹ Could industrial production rise 10.75% even though only 14 of 94 major products achieved double-digit growth and 53 suffered declining physical output?² Could investment spending jump 13.9% even though steel consumption and cement output rose by less than 5%?³ Skeptical Chinese analysts point to many such puzzles (e.g., Meng, 1999).⁴

Subsequent figures seem equally dubious. Data on consumption, which Chinese accounts identify as "a major driving force in the rapid development of the economy," are especially problematic (GDP Growth, 2000, p. 1). Table 3 compares national data on retail sales growth with survey figures showing changes in per capita outlays by urban and rural households. With one exception,⁵ national figures for retail sales grow

¹ Agricultural output data are from *China Statistical Yearbook* (1999, p. 382). For the classification of the 1998 floods among the top 10 natural disasters of the 20th century, see *Zhongguo tongji* (*China Statistics*, no. 8, 1999, p. 38).

² Industrial output value and physical commodity output for 1997/1998 are from *China Statistical Yearbook* (1999, pp. 424 and 445–446).

³ Investment spending and cement output from *China Statistical Yearbook* (1999, pp. 183 and 446); increased steel consumption of "about 4%" from *Zhongguo wujia* (*China Price*, no. 3, 1999, p. 8).

⁴ For further examples, see Meng (1999).

⁵ The exception is the figure showing that that rural per capita cash expenditure on consumption rose by 12.2% during 1999/2000. This result is inconsistent with reports that rural per capita net income rose by only 1.9% during 1999/2000 (*China Statistical Abstract*, 2001, p. 96). There is also an internal inconsistency in the source, which shows a drop in per capita cash outlay of RMB 197.7 or 8.4% during 1999/2000 together with increases of RMB 80 and RMB 140.1 in expenditure on production and on consumption respectively (*China Monthly Indicators*, 2001, pp. 88–89).

Table 1
Chinese GDP and related data, official and alternate figures, 1998–2001 (percentage change)

	1998	1999	2000	2001	Cumulative growth (1998–2001)
Real GDP					
Official	7.8	7.1	8.0	7.9	34.5
Alternate	–2.0/+2.0	–2.5/+2.0	2.0/3.0	3.0/4.0	0.4/11.4 ^a
Energy use	–6.4	–7.8	1.1	1.1	–5.5
Urban formal employment	2.3	1.6	1.2	1.2	0.8
Consumer price index	–0.8	–1.4	0.4	–0.5	–2.3

Figures for 2001 cover only the first two quarters. The cumulative growth calculations assume no change for the second half of 2001. Alternate figures are author's guesses—see text.

Sources: Data for 1997–2000 are from *China Statistical Yearbook* (2000, p. 21, official real GDP, and p. 118, urban employment) and from *China Statistical Abstract* (2001, p. 130, energy, and p. 84, prices). Figures for 2000/2001 are from *China Monthly Indicators*, vol. 16 (2001, July, pp. 14, 15, 32, and 70). The energy data for 2000/2001 refer to production rather than consumption.

^a Endpoints of cumulative growth range based on low and high annual growth figures.

more rapidly than per capita expenditure figures shown in household budgets. The difference is far too large to attribute to population growth, which is approximately 1% per year.

A further difficulty is that, particularly in rural areas, retail sales rise more rapidly than household income, implying an increase in the average propensity to consume—i.e., the share of consumption spending in household income. However, recent studies find a declining trend in the average propensity to consume among both urban and rural households through 1998 (Tao, 2000; Zhang, 2000); subsequent reports indicating that “moderate income growth has intensified people's tendency to save money” (Bing, 2001) point to a continuing

Table 2
Episodes of growth in Asian economies, 1957–2001 (cumulative percentage change)

Cumulative change in	Japan, 1957/1961	Taiwan, 1967/1971	Korea, 1977/1981	China, 1987/1991	China, 1997/2001
Real GDP					
Official	52.8	49.7	21.6	31.8	34.5
Alternate					0.4/11.4
Energy consumption	40.1	85.2	33.6	19.8	–5.5
Employment	4.6	17.0	9.4	23.2	0.8
Consumer prices	10.6	20.6	111.7	46.6	–2.3

Sources: Japan: Ohkawa and Shinohara (1979, pp. 282, 389, 393) and www.stat.gov.jp/english/1431.htm (Table 9-20); Taiwan: *Statistical Yearbook of the Republic of China for 1982* (1983, p. 103, employment, and p. 209, power consumption) and www.stat.gov.tw; Korea: www.nso.go.kr/eng; Chinese data for 1987/1991 are from *China Statistical Yearbook* (2000, pp. 55, 118, 239, and 289); data for 1997/2001 are from Table 1.

Table 3

Growth of retail sales and per capita income and expenditure, 1997–2001 (percentage change, nominal amounts)

	1998	1999	2000	2001	Cumulative growth (1997–2001 ^a)
Aggregate retail sales	6.8	6.8	9.7	10.3	38.0
<i>Urban data</i>					
Retail sales	7.1	7.1	10.6	11.6	41.6
Per capita ^a					
Income	5.2	7.9	7.3	6.7	30.0
Living expense	3.4	6.5	8.2	4.6	24.6
<i>Rural data</i>					
Retail sales					
County	5.2	5.7	8.3	9.3	31.6
Below county	7.0	6.6	8.3	7.4	32.7
Per capita ^a					
Net income	3.4	2.2	1.9	–7.5	–0.4
Cash outlay					
Series A	0.8	–0.9	–8.5	–6.8	–14.8
Series B	–1.5	–1.5	–0.7	–6.8	–10.2
Cash outlay for consumption					
Series A	0.2	1.4	12.2	6.6	21.5
Series B	–1.7	–0.8	5.9	6.6	10.1

Figures for 2001 cover only the first one or two quarters. Calculated values for cumulative growth assume no change for the remainder of 2001.

Sources: Data for retail sales are from *China Monthly Indicators*, vol. 16 (2001, July, p. 34). Urban income data for 1997/2000 are from *China Statistical Abstract* (2001, p. 94) and measure total income. The figures for 2000/2001 are from *China Monthly Indicators*, vol. 16 (2001, July, p. 88) and cover two quarters of 2001 and refer to disposable income. Rural income data for 1997/2000 are from *China Statistical Abstract* (2001, p. 100) and measure net income. The figures for 2000/2001 are from *China Monthly Indicators*, vol. 16 (2001, July, p. 88) and measure cash income and cover only the first quarter of 2001. Urban outlays for living expenses from *China Statistical Abstract* (2001, p. 93) and (for the first half of 2001) from *China Monthly Indicators*, vol. 16 (2001, July, p. 81). Rural cash outlay and cash outlay for consumption: Series A is from *China Monthly Indicators*, vol. 16 (2001, July, pp. 88–89). Series B is from *China Statistical Abstract* (2001, p. 98, for 1997/2000); the figure for 2000/2001 is taken from Series A.

^a Indicates data from household surveys.

decline in the ratio of consumption spending to income — the exact opposite of what the retail sales data imply.

3. Information from Chinese commentaries

Beginning in 1998, Chinese analysts complain that the statistics system has become enmeshed in a “wind of falsification and embellishment” [*jiabao fukuafeng*]. Extensive

commentary in Chinese sources, including many specific and detailed accounts,⁶ leaves no room to doubt that intentional falsification of economic performance indicators is commonplace throughout the business community and at every level of government. The result 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, p. 78). Premier Zhu Rongji complained in March 2000 that “falsification and exaggeration are rampant” (Nation Moves Boldly Forward, 2000, p. 5).

Starting in 1998, the National Bureau of Statistics (NBS) has rejected provincial data on economic growth, which it dismisses as “cooked local figures” (Xu, 1999). Despite recent efforts to create statistical networks that bypass local, and provincial governments, the Bureau lacks the capacity to collect data outside normal information channels, particularly since survey research remains subject to interference from lower-level officials (e.g., Hu, Chen, & Zhou, 2000, p. 24).

Chinese policy discussions often ignore the official growth scenario. A July 2001 account cites Wu Jinglian’s view that “China has reversed its downward momentum in economic growth, which started in 1997” (Factors Favour Economy in Latter 6 Months, 2001). An August 2001 summary of views on fiscal policy notes that deficit spending “was introduced in 1998 to overcome insufficient domestic demand and dwindling exports,” and then observes that because “the economy has been revived, some economists say that the positive policy should be weakened” (Jia, 2001, p. 1). But official projections show that growth in the “revived” economy of 1999/2001 is slower than in 1997 and no greater than in the endangered economy of 1998. These (and other) texts suggest that prominent Chinese economists base their analysis on private maps of recent trends that differ substantially from the official picture sketched in Table 1.

In addition, many Chinese accounts directly contradict official figures. For example: “Per capita income in urban and rural areas continued to fall in the first quarter of this year” (Wang, 1999). “In October (1999), 66 per cent of [apparently urban] consumers said their household incomes had either remained unchanged or had decreased during the previous 12 months” (Bu, 1999). “In recent years, rural incomes have gone down year by year [*zhunian xiajiang*]” (Wang, 2000).

4. Toward an alternate view of recent GDP growth

Since abandoning provincial growth reports, the NBS has offered no public explanation of how its central office derives the figures that serve as official estimates of China’s national growth. Pressure to affirm official growth targets overwhelms local and provincial statistical bureaus, Chinese economic analysts, and even international bankers and market researchers whose firms pursue business ties with Chinese government agencies. Can we believe that the central offices of the NBS remain untouched by these circumstances?

⁶ For further examples and discussion, see Rawski (2001a, 2001b).

For readers who share this author's discomfort with the official data, analysis of recent economic trends must begin by exploring alternatives to the official figures in Table 1. The size and diversity of China's economy pose formidable obstacles to any such effort.⁷ Nonetheless, China's civil aviation industry offers a starting point for reassessing recent GDP growth.

Airline travel appeals to a high-income clientele. Since rising inequality is a prominent feature of China's economy in the 1990s (e.g., Xu & Zou, 2000), income growth among the airlines' prosperous clientele surely exceeded the norm, probably by a large margin. A fierce price war slashed ticket prices during 1998.⁸ Airlines routinely offered discounts of 30–40% to travelers on domestic routes. With customers' incomes rising and ticket prices plunging, passenger traffic should have grown well ahead of disposable income and aggregate consumption, the largest components of aggregate income and expenditure. Yet the data for 1997/1998 show that passenger miles rose by only 2.2% on domestic routes and 3.4% overall.⁹

In the absence of major shifts in the structure of GDP, the elementary economics of demand and consumption points to 2.2% as a generous upper bound for overall real growth during 1997/1998. Declining energy use, output reductions in many branches of industry, mass layoffs, widespread excess capacity, inventory accumulations, and the impact of major floods make this a far more plausible measure of 1997/1998 GDP growth than the official figure of 7.8%. And 2.2% is an upper bound. The actual result could have been far lower, perhaps even negative.

The (entirely plausible) qualitative picture presented in Chinese reports indicates that GDP growth declined slightly in 1998/1999 and improved thereafter. The continuation of excess supply, downward price pressure, near-zero employment creation, widespread excess capacity, inventory build-up, and large-scale accumulation of idle bank deposits indicate that real growth remains well below the 7% level needed to absorb new urban labor force entrants (Ge, 1999).

These considerations underline the proposed alternate figures for GDP growth shown in Table 1. These figures represent little more than guesses about China's recent GDP performance. They are not firmly grounded in empirical data. But unlike the official figures, the alternate series does seem consistent with Chinese policy discussions and with official data on changes in employment, prices, and energy consumption.

Official performance measures for recent years imply that China's economy has entered an unprecedented interlude that combines high-speed growth with declining energy use,

⁷ Commenting on an earlier paper (Rawski, 2001a), an NBS official said something like: "If you believe that we at NBS cannot measure China's GDP, what makes you think you can do better?"

⁸ In February 1999, "the CAAC [Civil Aviation Administration of China] and the State Development Planning Commission issued an urgent circular that put a halt to selling domestic air tickets at unreasonable discount prices" (Zhao, 1999).

⁹ Note that both the number of overseas travelers arriving in China and China's income from international tourism increased during 1997/1998, although more slowly than in prior years (*Zhongguo tongji* [China Statistics], no. 11, 2000, p. 48).

falling prices, minimal employment growth, widespread excess supply, rampant over-capacity, low expectations, and large-scale pump-priming. Even though recent growth claims defy economic logic and clash with a broad array of credible information from Chinese sources, economists both within and outside China have continued the long-standing practice of routinely adopting official figures. This “business as usual” approach is a recipe for bad policy and flawed research.

The alternative is to hypothesize that the NBS has run afoul of the same political pressures that have caused local authorities to become “obsessed with ... GDP growth rates—the leading criteria for evaluating cadre performance” (Gilley, 2001, p. 18), to conclude that official data showing 7–8% real GDP growth for recent years reflect official objectives rather than economic outcomes, and to continue the search for alternate figures that can provide a realistic appraisal of China’s recent economic performance.

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