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## MEASURING CHINA'S RECENT GDP GROWTH: WHERE DO WE STAND?<sup>1</sup>

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### Introduction

China's explosive growth during the twenty years following the onset of economic reform in the late 1970s is a major event in global history. No one doubts the achievement of massive gains in aggregate and per capita income during these decades. Several researchers have suggested downward adjustment of official growth claims for this period, mainly because of upward bias in reported industrial growth. While the 1995 census confirmed that industrial output figures are overstated, the proposed revisions to GDP growth, summarized in Table 1 of Professor Ren Ruo'en's paper, are not convincing. The main difficulty is that there is no detailed study of the service sector, which the official figures appear to undercount on a massive scale. Overstatement of farm incomes at the start of reform imparts a smaller, but not inconsiderable element of downward bias to the official figures.<sup>2</sup> As a result, the official figures, while far from perfect, seem to represent the most plausible measure of China's GDP growth between 1978 and 1997.

Confidence in official GDP measures ends abruptly in 1998. In that year, China's government, faced with twin dangers from a weakening domestic economy and the Asian financial crisis, launched a series of policy measures aimed at maintaining rapid growth. This program mandated multiple cuts in interest rates, large increases in deficit spending, massive public sector wage increases, expansion of public holidays, and an unprecedented campaign to achieve 8 percent GDP growth in 1997/98.

The growth campaign, which became a "great political responsibility" as well as an important economic task, unleashed a torrent of false reporting which Chinese authors describe as a "wind of falsification and embellishment" (*jiabao fukuafeng*). Falsification of data, although not new, became so widespread that the National Bureau of Statistics (NBS) publicly rejected provincial estimates of GDP growth for 1997/98, and substituted its own, more modest estimate of national economic growth of 7.8 percent for 1997/98, a figure smaller than the claims of virtually every province.

This pattern has continued since 1998. Every year, NBS provides official growth figures that fall substantially below a weighted average of provincial claims. Two questions arise. First, since China's statistics system is based on vertical reporting, how does NBS compile its estimates of GDP growth after rejecting the provincial data? Second, are the NBS figures believable? Since NBS has provided no information on the derivation of recent figures for GDP growth,<sup>3</sup> public discussion has focused on the plausibility of recent official growth claims.

My review of available information has convinced me that official growth claims for 1998 and 1999 are totally divorced from reality, and that actual growth amounted to a maximum of about two percent (and possibly much less) annually for these years, with negative growth a real possibility. Beginning in 2000, performance has improved substantially. The economy is surely growing, but, in my view, at something like half of the officially claimed rate. While official figures show real GDP growth of one-third between 1997 and 2001, my own belief is that actual growth amounted to no more than about 12 percent, and may have been considerably smaller.<sup>4</sup>

It is no surprise that these findings, which are based on extrapolation from a few specific pieces of information rather than any large-scale data analysis, have provoked extensive controversy. Interestingly, reactions among American-based specialists are quite similar to the response of Chinese economists. On both sides, some observers endorse my views, some (like Stanford Professor Laurence J. Lau) reject them in favor of the official NBS data, and others (like Dr. Nicholas Lardy of the Brookings Institution), while agreeing that the official figures overstate actual growth, regard my proposed adjustments as excessive. The following discussion begins by reviewing specific criticisms of the low growth scenario and continues with a summary of evidence supporting this low-growth perspective.

### **Specific Criticisms of the Low-Growth Scenario for Recent Years**

Critics of this author's low estimates of recent GDP growth have pointed to specific evidence that, in their view, undercuts my arguments. I comment briefly on three areas: energy, fiscal revenue, and imports.

**Energy.** Official claims of real growth in the 7-8 percent range appear to conflict with reports of falling energy consumption. Several authors, including Professor Ren Ruoan, argue that the energy and output figures are not necessarily inconsistent, and therefore that comparison of energy and GDP data cannot provide conclusive evidence that official measures overstate actual GDP growth. Although Professor Ren's insistence on applying PPP conversions burdens his analysis with an unnecessary layer of complication, I share this conclusion. Indeed, I have never regarded the energy-GDP comparisons as conclusive evidence that recent GDP figures overstate growth. On the production side, attempts to curtail the operation of small coal mines probably create a downward bias in official measures of coal production.<sup>5</sup> On the consumption side, the rapid spread of air conditioners and other household appliances imply that official data showing absolute declines in household energy consumption are surely mistaken. A recent review finds that the quality of China energy statistics "has declined since the mid-1990s" (Sinton 2001). Although reports of falling energy consumption surely support the low-growth perspective, we cannot rely on official energy figures to reach firm conclusions about GDP growth.

**Fiscal Revenue.** Nicholas Lardy, noting the universal link between trends in national output and in fiscal revenue, argues that "the claim that Chinese economic growth has

slumped badly over the past few years is difficult to reconcile with the backdrop of . . . robust growth in tax revenue,” which reportedly increased by 90 percent between 1997 and 2001 (Lardy 2002). The principle that output and revenue move together is surely valid. However, two difficulties arise. First, the revenue data are not exempt from the problem of *shuifen* (exaggeration). A well-informed Chinese specialist has suggested to me that perhaps one-fourth of the reported revenue increase for 1997/98 involved false reporting. Chen Xiwen (2001, p. 13) writes that “most. . . counties and towns in hinterland lack new economic growth points and are plagued with financial difficulties. . . . it is common for them to make false reports on financial revenue increase.” Chinese publications explain how officials can manipulate accounts by shifting funds to exaggerate fiscal revenues: “in some localities, the high rate of increase reported for tax revenue represents empty circulation. . . . no sooner is the tax money paid than it is returned. . . the taxes appear to show a very high increase. . . but in reality there is not even enough to guarantee normal expenditures” (State Planning Commission 2001, p. 6).

A second, possibly more important issue arises from the presence of large “non-budgetary” revenues. The 90 percent increase refers to “budgetary revenue.” As pressure to raise revenue increases, what prevents fiscal authorities at all levels from transferring funds from “non-budgetary” to “budgetary” accounts? Such transfers could create large short-term increases in budgetary revenue even if total fiscal revenues remain sluggish. For this reason, Lardy’s argument, although not implausible, cannot carry much weight without further analysis.<sup>6</sup>

**Imports.** Lardy also points to big increases in imports, which reportedly rose by 70 percent between 1997 and 2001, as inconsistent with this author’s low growth scenario. Although lower tariffs and a strong U.S. dollar (and hence a strong *renminbi*) may have caused some substitution of imports for domestic goods, Lardy (2002) makes the reasonable claim that “the most plausible explanation for the rest of the growth in imports is expansion in GDP.” This is potentially a powerful argument. There is, however, one difficulty: smuggling. The argument that imports and output move in tandem applies to total imports. But available data cover only legal imports. Forceful official efforts to curtail smuggling have diverted substantial flows of imports from illegal into legitimate channels in recent years. This creates the possibility that official measures of legal imports have grown much faster than total imports – the sum of legitimate and smuggled trade flows. The issue revolves around the success of anti-smuggling efforts. A finding that, after adjusting for price effects, total imports rose by 30 or 40 percent during 1997-2001 would severely undercut the low-growth scenario. In the absence of reliable information on the scale of smuggling, we can only recognize the potential importance of Lardy’s argument while remaining unable to evaluate its strength.

### **Evidence Supporting the Low-Growth Scenario for Recent Years**

I begin with quantitative evidence, which is strongest for 1998, when even NBS representatives agree that official growth claims were “problematic.”<sup>7</sup> The official figures for 1997/98 are riddled with inconsistencies that defenders of the NBS data have

hardly begun to address. The reported growth of agriculture, industry, and investment runs far ahead of relevant physical indicators. Annual data seem inconsistent with reports for the first two quarters.

Civil air traffic offers particularly convincing evidence of a big growth slowdown in 1998. Professor Ren cites historical data to show that air travel and GDP need not move in lockstep. This is surely correct, but Ren's discussion overlooks the unique feature of the market for domestic air travel in 1998: big discounts on ticket prices, which continued until "the ban launched by the CAAC and the State Planning Development Commission (SPDC) on sales of tickets at any discount in January" of 1999 (Xue Cheng 1999).

We can crudely project changes in civil air traffic with the following model:

$$\Delta T = e \cdot \Delta P + E \cdot \Delta Y \quad [1]$$

where  $\Delta T$ ,  $\Delta P$ , and  $\Delta Y$  represent the annual increase in passenger-kilometers, decrease in average ticket price, and increase in personal income of potential air travelers, all measured in percentage terms, while  $e$  is the (absolute value of) the price elasticity of demand and  $E$  represents the income elasticity of demand. In the absence of detailed information about Chinese ticket demand, I apply the values  $e = 0.6$  and  $E = 1.7$  taken from the "Europe-Asia" market segment of an aircraft investment analysis (Wingrove, Gaier, and Santmeier 1998, p. 18).

Steep price discounts were routine in 1998, often amounting to 30-40 percent of standard fares. The 1999 annual report of China Eastern Airlines shows that "passenger yield" (revenue per passenger-kilometer) on domestic routes declined from 0.70 to 0.64, a drop of 8.6 percent, between 1997 and 1998 (see <http://202.66.146.82/listco/hk/chinaeast/annual/99/ar99.pdf>, p. 13; note that China Eastern's passenger yield increased in both 1996/97 and 1998/99). Even if the price elasticity of demand was as low as 0.4,<sup>8</sup> price-cutting alone accounts for the entire 3.4 percent increase in 1997/98 air traffic (Abstract 2002), leaving no room for expansion arising from income growth.

But official data show urban incomes rising by 6 percent in 1997/98. "Long-standing high prices have restricted China's air passengers to officials and those in the high income bracket" (Jiao Xiaoyang 2000). Since all observers agree that income inequality is on the rise, potential air travelers surely enjoy income growth well above the urban average. If we follow the official growth story and guess that the associated value of  $\Delta Y$  might have been 8 or 10 percent, we find that, assuming that the price changes on China Eastern's domestic routes were typical and assigning a low value of 8 percent for  $\Delta Y$ , our (conservative) projection is far too high:

$$\Delta T = 0.6 \cdot 8.6\% + 1.7 \cdot 8\% = 18.8\% \quad [2]$$

Although we cannot expect forecasts like [2] to deliver pinpoint accuracy, the massive gap between this projection and the 3.4 percent increase in passenger-kilometers is

surprising. We know that air travel grew slowly in 1997/98. We know that steep price discounts prevailed. Unless China's travel market is wildly eccentric, we know the approximate magnitude of the demand elasticities for air tickets. The biggest unknown factor here is  $\Delta Y$ , the annual percentage increase in income for potential travelers. Detailed information about the values of  $e$ ,  $E$ , and  $\Delta P$ , data that are no doubt familiar to managers within China's airline industry, can sharpen this analysis. For the moment, we conclude that rough calculations based on information about price and quantity in China's market for air travel conflict with official claims of 6 percent income growth in urban China during 1997/98. These preliminary results strongly support the alternative view that income growth was far lower than 6 percent. Low growth of urban household incomes appears to offer the only plausible explanation slow expansion of airline traffic in the face of sharply reduced ticket prices.

Although this analysis of air travel applies only to 1998, problems with official data on urban household incomes extend to more recent years. Official data indicate that urban incomes grew by 8.5 percent (in real terms) during 2001. These figures conflict violently with survey results:

The survey, conducted by the China Economic Monitoring Centre, found that. . . . in Beijing, nearly half of those surveyed believed their income and expenditure will increase this year. . . . in Shanghai. . . only 20 per cent of those surveyed said their income will increase this year. (Fu Jing 2002).

The finding that over half of Beijing residents and astonishing 80 percent of Shanghainese expect no growth in their incomes during 2002 clashes head-on with standard official data. If this report is the product of a well-designed sample survey, researchers should be prepared to reject the official data on recent changes in urban household income.

Similar difficulties arise in the rural sector, where Chinese researchers have publicly challenged official claims of modest income growth. In the January 2001 issue of *Dushu*, Lu Xueyi, a researcher at the Chinese Academy of Social Sciences argued that "ever since 1997, farmers' incomes have not increased; in fact they have declined."<sup>9</sup> A year later, Zhang Xiaoji, a senior researcher in the State Council's Development Research Centre, said that "The official statistics say that peasants' income is going up but my opinion, and that of a lot of people that I have spoken to, is that actually their income is falling" (Kynge 2002b). An NBS economist writes that rural incomes rose in 2001 "after having been frozen for four years," even though official data show per capita net incomes of rural households rising by 17.0 percent in nominal terms between 1996 and 2000 (Yan Xianpu 2002, Agriculture Yearbook 2001, p. 437).

In a July 2002 article, a senior analyst with the National Bureau of Statistics quotes official data showing steep gains in urban and rural incomes, but then offers an explanation that revolves around a "decline in residents' incomes" (Guo Tongge 2002). The author goes on to observe that "reduced incomes coupled with rising unemployment have changed the consumption habits of residents. A large number of residents are

choosing to save their money in case of a rainy day. . . . Due to the rise in savings and drop in consumption, prices in the third quarter [of 2002] are expected to keep falling.”

In addition to contradicting official measures of income growth,<sup>10</sup> this statement highlights a contradiction between evidence of a decline in the ratio of household spending to income and reports of buoyant increases in retail sales. Studies by Chinese economists find steep reductions in the average and marginal propensity to consume (Tao Chunmei 2000, Zhang Ping 2000).<sup>11</sup> Chinese press reports echo the point: “Today, the government can not expect Chinese consumers to spend a lot since they have big financial worries. . . . the vast rural population does not have enough money because of slow income growth in recent years” (Chinese Academy of Social Sciences economist Yuan Gangming, quoted in *China Daily* 23-24 February 2002, p. 3). There are many similar comments.

If spending propensities are low and declining, what accounts for the consistently rapid growth of retail sales depicted in official reports? The contradiction is particularly acute for retail sales in rural areas, where village households are the chief source of purchasing power.

In addition to difficulties surrounding specific segments of recent official data, there is a striking dissonance between official descriptions of an economy bounding forward at a high annual rate of 7-8 percent and the broad streak of pessimism that permeates commentaries by well-informed Chinese economists. Thus:

Ni Hongri, a research fellow with the Development Research Centre under the State Council, said China’s economy has been slowing down month by month since the beginning of [2001], as a result of falling demand both at home and abroad. . . . “If the decline continues, the economy may face the danger of recession,” Ni said (*China Daily*, 30 November 2001, p. 5).

“The performance of China’s economy has been very lousy recently,” said Xu Hongyuan, director with the economic forecast division under the National Bureau of Statistics’ State Information Centre (quoted in *China Daily Business Weekly* 29 January – 4 February 2002, p. 4).

Why such gloom in the face of 7-8 percent annual growth?

My suggestion is that widespread concern over recent economic performance arises from a persistent pattern of declining commodity prices, near-zero employment growth, sluggish consumer demand, low expectations on the part of Chinese households, slow growth of private investment, repeated postponement of plans to wind down fiscal pump-priming, and widespread excess supply of both commodities and production capacity. All these phenomena are real. None is in dispute. And none is consistent with the historic experience of high-speed growth in Japan, Taiwan, Korea, Hong Kong, Singapore, Southeast Asia, and, prior to 1998, in China.

Reports that, despite the government's substantial efforts to improve business opportunities for private entrepreneurs, "no high expectations can be placed on the country's private investment" and that "small and medium-sized enterprises have shown their reluctance in making new investment" are particularly noteworthy (Wei Yihua 2002, Zhong He 2002). If the economy were truly growing at 7 or 8 percent, we should expect newfound legitimacy to spur accelerated growth of private investment.<sup>12</sup>

If economic expansion really amounted to 7 or 8 percent, why should employment growth hover near zero? If official claims accurately describe economic reality, why should consumer spending consistently fail to meet expectations? In short, why do we see so many phenomena that economists associate with economic slowdowns rather than with high-speed growth?

A final and significant point is that statements from the highest levels of authority repeatedly cast doubt on the validity of official growth figures.

During a March 2002 press conference, Premier Zhu Rongji defended his administration's record, insisting that "had we not adopted a proactive fiscal policy and a prudent monetary policy, the Chinese economy may have collapsed" (Zhu Rongji 2002). From another source, we learn that "figures from the National Bureau of Statistics indicate that proactive policy contributed 1.5 percentage points to the GDP growth in 1998, 2 percentage points in 1999, 1.7 percentage points in 2000 and 1.8 percentage points in 2001" (Xu Dashan 2002a). Thus without the proactive policy,<sup>13</sup> the official tally would place annual GDP growth at 6.3 percent in 1997/98 and 5.2 percent in 1998/99 – figures that do not remotely resemble an "economic collapse." By suggesting that, without timely intervention, growth might have fallen toward zero, Premier Zhu's remark appears to buttress the low-growth scenario advocated here.

In his government work report delivered in March 2000, Premier Zhu complained that that "falsification and exaggeration are rampant" [Nation 2000, p. 5].

Zhang Sai, the retired head of NBS, was quoted in the *Science and Technology Daily (Keji Ribao)* in March 1999 saying that "the challenge of keeping statistics accurate was particularly difficult" in 1998. He added that "deceiving the nation and tricking the people can lead to untold disasters."<sup>14</sup>

A December 2000 article by Guan Yixin, a researcher with the Chinese Association of Development Strategy Studies, noted that "the pursuit of a high growth rate used to be the overall target of the government and a main criterion for judging achievements of the governments at all levels. As a result. . . many problems, including. . . forging false statistics, surfaced. The hurdles, though not as rampant as in previous years, still haunt the country's economy" (Guan Yixin 2002).<sup>15</sup>

In a November 2001 speech, current NBS Director Zhu Zhixin said: "We cannot seek superficial fame but must focus on reality. The most important aspect of GDP growth is

to express the growth of people's living standards. To raise the GDP growth rate with no increase in the people's living standard is just empty talk." (Zhu Zhixin 2001).

In February 2002, Xiong Zhennan, NBS Director of Policy and Regulations, told a reporter for the *Financial Times* that "there are some problems that cannot be solved by our bureau alone, especially when they are linked to politics" (Kynge 2002a).

In May 2002, NBS Director Zhu Zhixin gave a lengthy interview to *China Daily*. In discussing "the current problems of China's statistics," Director Zhu began by stating that "the statistics system cannot effectively resist intervention" (Xu Dashan 2002b).

## Conclusion

Commenting on the turmoil surrounding recent Chinese statistics, NBS Deputy Director Qiu Xiaohua said that "The doubts of some economists, scholars and organizations were groundless" because "China's basic statistics reflect the facts" and "China's figures are reliable" (Economy 2002).

These sentiments are premature at best. This commentary has shown that doubts about the validity of China's recent growth statistics rest on many strands of evidence and gain support from well-informed observers within and outside China, including some at the highest levels of China's government.

It is also clear that this author's low-growth scenario for recent years, while supported by substantial evidence, cannot be regarded as firmly established. In particular, Nicholas Lardy's arguments focused on rapid growth of fiscal revenue and imports, while far from conclusive, have the potential to undercut the low-growth scenario.<sup>16</sup>

In reality, the recent growth of China's economy remains uncertain.<sup>17</sup> Three views contend for acceptance: the high growth picture described in official sources, this author's low-growth scenario, and a middle view espoused by Lardy and others. Each position can claim support from well-informed researchers, but none can provide enough evidence to build a fully persuasive case.

This extended standoff is most unfortunate. The uncertainty surrounding China's macroeconomic performance imposes large costs on Chinese policy-making and hinders research on many dimensions of Chinese economic structure and performance. China's large and growing role in the global economy means that data uncertainty creates difficulties for international economic researchers and for official decision-makers throughout the Pacific Rim and in many international organizations.

All participants in this debate will endorse Professor Ren Ruoan's call for improving the data and methods used to analyze China's economic growth. This review points to energy, air transport, fiscal revenue, and imports as plausible focal points for future study.

Professor Ren complains that my analysis is “too simple.” Under normal circumstances, I would agree that using information about individual sectors to gauge the growth of China’s huge and heterogeneous economy is indeed too simple. However, with NBS complaining of widespread data manipulation by local and provincial leaders, and with top national leaders casting doubt on the integrity of official growth measures, China’s present circumstances are far from normal.

Let us hope for an early return to conditions in which debates about Chinese statistics can focus on definitions, scope, coverage, survey methods, and other technical issues that surround quantitative information for all economies. For the moment, progress toward this objective awaits a detailed explanation of how the National Bureau of Statistics has calculated GDP growth since 1998, when it abandoned traditional procedures based on vertical reporting. In the absence of such information, Chinese and foreign observers will continue to speculate that politics rather than scientific analysis may determine key national statistics. Full publication of procedures underlying official growth estimates seems essential to preserve the Bureau’s hard-earned reputation for improving Chinese economic statistics. Opening the books on recent GDP figures offers the best prospect for establishing a firm foundation for future studies of China’s economic performance.

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## NOTES

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<sup>2</sup> Official data on rural incomes for the late 1970s come from small and unrepresentative surveys. The survey results for 1978 and 1979 overstate national average figures for collective income by 19.4 and 17.4 percent respectively.

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<sup>3</sup> I am aware of no document or report explaining how NBS has derived its official GDP estimates for 1998 and beyond without relying on data from provincial and local statistics bureaus. Numerous Chinese colleagues who work in this area assure me that they have seen no “internal” (*neibu*) materials that provide such documentation.

<sup>4</sup> For details, see the author’s web site: [www.pitt.edu/~tgrawski](http://www.pitt.edu/~tgrawski)

<sup>5</sup> This could happen if local officials, anxious to preserve employment, allow proscribed mines to continue production, but refrain from reporting the resulting output. See Sinton (2001).

<sup>6</sup> A further question arises: why does China’s Ministry of Finance continue to apply intense pressure to secure higher revenues when increased tax collections undercut efforts to stimulate domestic demand?

<sup>7</sup> Discussion at preliminary conference on “Key Issues in China’s Economic Development and the Use of Statistical Data,” Stockholm, 16 September 1999.

<sup>8</sup> Zero or near-zero price elasticity is unlikely as long as “cheeky travel agents seeking to boost passenger numbers on internal flights in China are continuing to slash ticket prices” despite threats that the authorities will “harshly punish any agent or company” who flouts pricing rules. The agents are “claiming [price discounting] is a necessary move to prevent near-empty planes from taking to the skies” (Guo Aibing 2002).

<sup>9</sup> David Cowhig kindly provided an English translation of this essay.

<sup>10</sup> For additional references to declining incomes, see Ni Hongri (2001), Pay Hikes (2001), and Xiao Hu (2002).

<sup>11</sup> News reports about “the weakening. . . consumption propensity” (Pump-priming, 2002) extend the results of these studies, which terminate in 1998.

<sup>12</sup> Current measurement procedures are likely to underestimate the level, and possibly the growth of investment by domestic private businesses, perhaps by very large margins.

<sup>13</sup> Chinese economists agree that expansionary monetary policy has had little impact on GDP growth (e.g. Zhang Zhonghua 2002, p. 29).

<sup>14</sup> David Cowhig kindly provided an internet translation of this news item.

<sup>15</sup> Overall growth targets persist, and with them the pressures that encourage false reporting. For example, “Minister of the State Economic and Trade Commission (SETC) Li Rongrong called for combined efforts from all sectors. . . to guarantee a 9 per cent industrial growth rate next year [i.e. in 2002]. ‘We should step up all possible efforts to reach the goal’. . . said Li” (Fu Jing 2001).

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<sup>16</sup> The same arguments (and others supporting a high-growth perspective) appear in Zhao Xiao et al (2002).

<sup>17</sup> The debate over economic performance in recent years concerns the growth of aggregate output within the unavoidably incomplete framework of measurement established by the National Bureau of Statistics. Official measurements omit substantial segments of the service sector, especially those involving migrant workers, as well as the “black” or “underground” economy populated by agents who deliberately avoid official notice. A complete measure that encompassed these missing elements would certainly raise the level, and quite possibly increase the growth rate of China’s GDP.