

DO OFFICIAL STATISTICS EXAGGERATE CHINA'S GDP GROWTH? A REPLY TO CARSTEN HOLZ

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Holz thinks China's official national accounts are free of systematic bias, and that efforts to increase their international comparability are reprehensible. They should not be challenged because "they are based on the efforts of tens of thousands of statistics personnel." His Manichaeian view is that official statistics are good, and downward adjustments are evil. He targets my *Chinese Economic Performance in the Long Run* (1998a). Other sinners are Harry Wu who dared to adjust the official series for industrial production and Alan Heston for using my estimates in Penn World Tables. Xu Xianchun, the chief official statistician, is reprimanded for not refuting me.

My book was a quantitative history of China since the Sung dynasty. Holz has a narrower perspective. His interest is directed entirely to growth performance since 1978. He is not concerned with earlier growth and makes only passing reference to measurement of GDP *levels*.

There are several good reasons for adjusting official figures:

- (1) It is normal practice in scholarly cross-country assessments of economic performance to eliminate national idiosyncrasies in official statistics to enhance comparability of the inter-temporal and inter-spatial results. It has long been my habit to do this. I made such adjustments for many countries in Maddison (1995, 1996, 2001, 2003). Holz is less fastidious.
- (2) Until 1985, China used the Soviet material product system of accounts which systematically overstated growth, and excluded a large part of service activity (see Table 1). In the turbulence of the cultural revolution, the statistical office was abolished in 1968 and its staff dispersed. It was reestablished in 1972, but most of the old personnel had disappeared and many old records had been destroyed. No new graduates with the requisite training had been produced in the years when the universities were closed. The World Bank reported that the central staff had only 200 people in 1981 compared with 400 in 1966 (see Maddison, 1998a, p. 101). Although it adopted standard SNA guidelines in 1985 and has since constructed input-output tables which make it possible to get a better idea

Note: I am grateful to Professor H. X. Wu for comments and permission to use his latest estimates of value added in Chinese industry.

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TABLE 1
OFFICIAL AND ALTERNATIVE ESTIMATES OF SOVIET GROWTH (ANNUAL AVERAGE COMPOUND GROWTH RATES)

	Official			Alternative		
	1913–50	1950–78	1978–90	1913–50	1950–78	1978–90
NMP/GDP	6.1	7.7	2.4	2.1	4.4	1.2

Source: Maddison (1998b, p. 313).

TABLE 2
OFFICIAL AND MADDISON ESTIMATES OF CHINESE GDP AND GDP PER CAPITA (1990 INTERNATIONAL GEARY–KHAMIS \$)

	Official GDP million \$	Maddison GDP million \$	Official. per cap GDP \$	Maddison. per cap GDP \$
1950	<i>139,197</i>	239,903	255	439
1952	177,401	305,742	312	537
1978	748,811	935,884	783	979
1990	2,109,400	2,109,400	1,858	1,858
2003	7,177,032	5,659,200	5,570	4,392

Source: Official volume movement 1952–78 from Maddison (1998a, p. 161), 1978–2003 from *China Statistical Yearbook* (2005, p. 53). Maddison estimates for 1950–90 from Maddison (1998a, p. 137), updated from 1990 for agriculture, construction, transport and communications, and commerce from *China Statistical Yearbook* (2005); industrial value added from the latest estimates by Harry Wu, and value added in non-productive activities assumed to move parallel to mid-year employment in this sector. The official estimates do not include 1950. The italicized “official” figures above for 1950 are based on my estimate of the 1950–52 movement.

of value added, there are still major problems arising from this heritage. Statistical reporting at the base level reaches NBS through several levels of aggregation in the administrative hierarchy. Because of the shakiness of the price reports it receives, the NBS distinguishes between current and “comparable” prices instead of current and “constant” prices as other countries do. State enterprises use price manuals specifying 2,000 items to help them differentiate their price reports. Many reporting units in the private sector cannot or do not distinguish between current and comparable prices. This is an important reason for overstatement in the official statistics. Holz makes no reference to this heritage or these problems.

- (3) A third reason for adjusting the official volume measures is their implausibility. Taking my level estimate for 1990 as a common benchmark, backward extrapolation of the official measure produces a per capita level far below subsistence in 1952, and puts the GDP level in 2003 at 85 percent of that in the U.S. (see Table 2). Thus they are implausibly low at the beginning and implausibly high in 2003.
- (4) International comparisons require estimates of purchasing power parity (PPP). Holz does not discuss this aspect of my work.

In his 68th footnote, Holz refers to my work as if it were a kind of prestidigitation—“complex data manipulations” which it took him months to “comb through,” and too obscure to be refuted by the statistical office. In fact, Xu Xianchun, director general of national accounts in the NBS and Ye Yanfei, former head of the social division did comment as follows in *National Accounts for China* (OECD, 2000, pp. 16–17) of which they were the main authors:

There can be no doubt that China’s official national accounts are regarded with suspicion by many users outside China. Professor Maddison’s 1998 study raised serious questions about both the levels and growth rates of China’s GDP. His criticism carries particular weight because it is based on a careful reworking of the GDP estimates and because he consulted widely with Chinese scholars who have first-hand knowledge of economic developments in China . . . The sheer size of China, together with the limited resources currently devoted to national accounts and the continuation of MPS-oriented statistical procedures, inevitably means that the official GDP estimates are subject to margins of error that are somewhat bigger than for other developing countries and substantially larger compared with most other OECD countries . . . A reasonable assessment might be that the official growth estimates represent an upper bound and the Maddison estimates a lower bound, with the true growth rates lying somewhere between the two.

Holz makes no reference to other studies which confirm my view that it is useful to test the validity of official statistics by careful and transparent construction of alternative measures. In fact, there is a sizeable group of scholars doing this. Holz seems to have missed a compendium of 13 papers which appeared in 2004, edited by Yue Ximing, Zhang Shuang and Xu Xianchun, with a foreword by myself. It includes papers by Ren Rouen, Lawrence Klein, Harry Wu, Xu Xianchun, Albert Keidel, Tom Rawski, Allen Shiao and a research group at the Chinese Academy of Science. Wang Xiaolu and Meng Lian’s estimates by industry of origin are included in this volume and are very close to mine (see Table 3).

Maddison (1998a) contained new estimates of GDP by industry of origin for agriculture, industry (mining, manufacturing and utilities), and “non-productive” services. The net impact of my adjustments was to reduce the official rate of GDP growth by a quarter for the 1978–95 period. I also made several upward adjustments to the official levels of output by sector. The net effect was to raise the 1978 GDP level by 29 percent above the official estimate in yuan (see Table 4). Holz hardly mentions the level adjustments. However, interaction between the two types

TABLE 3
OFFICIAL AND ALTERNATIVE ESTIMATES OF CHINESE GDP GROWTH (ANNUAL AVERAGE COMPOUND GROWTH RATES)

	Official	Maddison	Wang and Meng
1952–78	5.9	4.4	4.0
1978–97	9.8	7.5	7.9
1952–97	7.6	5.7	5.7

Source: Wang and Meng (2001) and Maddison (2003), updated as in Table 2.

TABLE 4
MADDISON AND OFFICIAL ESTIMATES OF CHINESE GDP LEVEL (MILLION 1987 YUAN)

	Agriculture	Industry	“n. prod” Services	Other Services and Construction	GDP
<i>Maddison</i>					
1978	225,079	231,738	131,448	79,292	667,557
2002	663,522	1,856,335	517,765	720,803	3,758,425
<i>Official</i>					
1978	190,577	188,214	58,972	79,292	517,055
2002	558,581	2,516,986	650,820	720,803	4,447,190

Source: Maddison (1998a, pp. 157, 163; updated as in Table 2).

of adjustment must be kept in mind in analyzing why my results diverge from the official estimates.

- (1) I made my own estimate of gross value added for farming, using price and quantity data of the Food and Agriculture Organization for 125 crop and livestock items, adjusted for changes in farm and non-farm inputs. The difference between my growth results and those of NBS was negligible, and I have used the official growth figures in updating my estimates.
- (2) For transport and communications, commerce, restaurants and construction I used the official figures.
- (3) I used Harry Wu’s (1997) estimates of gross value added in industry, which showed an annual average compound growth rate of 8.6 for 1978–94 compared with the official 12 percent. Wu (2002) presented a bigger sample covering more products and prices, and explained in detail why the official figures exaggerate growth. He has since updated his estimates to 2002, and they show a growth rate of 9.2 percent a year for 1978–2002 compared with the official rate of growth of 11.42 percent for this period. I have used his latest results in updating my estimates.
- (4) In the old Soviet-style national accounts so-called “non-productive services” were excluded from “material product.” These are banking, insurance, housing services, administration of real estate, social services, health, education, entertainment, personal services, R&D activities, the armed forces, police, government and party organizations. They are now incorporated in the Chinese accounts. All are measurement resistant. The international standardization manual *System of National Accounts* (1993, p. 134) recommends valuation of non-market output by the cost of labor input minus intermediate consumption. NBS credits them with improbably high rates of growth of labor productivity (4.38 percent per annum per person employed for 1978–2002).

In Maddison (1998a) I assumed that there was no increase in productivity in these activities and used employment as the indicator of growth in real value added. Holz considers this an egregious error, and suggests I should have assumed a 5–6 percent per annum increase in labor productivity. However, the evidence he produces does not warrant such a conclusion.

His Table 4 on labor productivity in OECD countries uses a database where labor inputs are not standardized or adjusted. They are different from those in the

TABLE 5
GDP PER PERSON EMPLOYED IN OECD COUNTRIES, 1973–90 (ANNUAL AVERAGE COMPOUND GROWTH RATES)

	Agriculture	Industry	Non-productive Services	Other Services
Denmark	6.42	2.24	0.26	1.76
France	5.22	3.01	0.98	1.84
Germany	5.48	1.83	1.00	2.62
Italy	3.35	3.14	0.00	1.12
Netherlands	4.25	1.63	-1.00	1.60
Spain	6.26	4.74	1.35	2.15
Sweden	3.84	2.12	1.60	1.71
U.K.	3.77	2.79	0.57	1.25
U.S.	2.95	1.20	-1.00	0.77
Average	4.62	2.52	0.06	1.65

Source: van Ark (1996, pp. 109–15).

annual OECD publication, *Labour Force Statistics*, which are clearly and consistently defined and available back to 1950 (see Maddison, 1996, pp. 47–8). My Table 5 shows van Ark’s much more reliable and carefully documented estimates of productivity performance in OECD countries, with a breakdown specifying “non-productive” activities more clearly than his Table 4. I may have gone too far in saying that zero productivity assumption was general practice, but the average for these activities in these countries is very close to zero (0.06 percent a year).

His Table 5 is shakier than he thinks. He argues that “one can *expect* each of the two variables,” i.e. GDP and employment by sector, “to be defined consistently over time and across country.” This euphoric expectation is unreasonable, and Tarantino (2004) explains why. The average response rate to ILO questionnaires for 1991–2002 was 30 percent of its member countries. The sectoral employment figures for more than half the 72 countries Holz cites are based on econometric imputation. There is also a problem in knowing whether the sector breakdowns used by ILO and the UN are compatible.

Nevertheless, it is worth considering the implications of his Table 5. The average productivity growth in “non-productive” services is only 0.63 percent a year. If I had assumed such a productivity growth in these activities for 1978–95, output of this sector would have been 11.3 percent higher in 1995, GDP would have been less than 2 percent higher and my average growth GDP growth rate would have been 7.62 percent a year. I could live with this.

Holz has other arguments. He claims that transition economies have shown particularly high productivity growth in these activities, e.g. Kazakhstan, Slovakia and the Ukraine. I have never scrutinized the estimates for these countries, but suspect that their official figures of performance are subject to much greater mis-measurement than China’s. His other argument is that my measure of labor input in these activities is understated. Here this evidence is murky.

My general conclusion is that Holz makes some interesting points which should encourage further scrutiny of the official accounts. My own results are susceptible to improvement, but are certainly not as wide of the mark as he suggests. Holz is a cavalier comparativist, who puts too much faith in hunches which should

be better documented. Thus he concludes, without a shred of evidence, that though official “data” “may well be incorrect,” “I subscribe to a substantial margin of error—a subjectively determined standard deviation in annual GDP growth of about 1.5 percentage points—but no aggregate systematic bias.” He seems to mean that the official measure of GDP growth, which averaged 9.9 percent a year for 1978–95 is probably correct, but for any year within this period is as likely to understate growth by 1.5 percent or overstate it to the same degree.

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