The Beijing Bubble: Inequality, Trade and Capital Inflow into China

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Abstract

This paper explores the relationships between inequality, trade and capital flows into China since the early 1990s. We show that the rise in inequality in China since 2000 has more to do with the speculative activities associated with China's building boom, notably in Beijing, than with the massive growth in manufacturing employment and in Chinese exports since China joined the WTO in 2001. The paper also reports further research on the likelihood of large speculative inflows of capital into China via the current account. An earlier argument for this phenomenon based on inspection of apparent export unit values by sector did not withstand scrutiny in more detailed data sets. Rather, it is the flow of profits from the export boom that has, most likely, fed the speculative fires in the capital and elsewhere.

This paper explores the relationships between inequality, trade and capital flows into China since the early 1990s and particularly in the first years of the present decade. We show that the rise in inequality has more to do with the speculative activities associated with China's building boom, notably in Beijing, than with the massive growth in manufacturing employment and in Chinese exports since China joined the WTO in 2001. Nevertheless, it is the flow of profits from the export boom that has, most likely, fed the speculative fires in the capital and elsewhere.

By all accounts, inequality rose rapidly in China beginning in the early 1990s (Riskin *et al*., 2001). Measurements by Galbraith, Krytynskaia and Wang (2004) showed that much of the rise in that decade could be attributed to the relative gains of just one province and two municipalities: Guangdong, Shanghai and Beijing, and to the relative earnings gains of just three sectors: transportation, utilities and banking. Major regional losers in relative terms included the Northeast (Manchuria) and the Southwest (Sichuan); across sectors the major losers included manufacturing, farming and trade.[i]

Figure One presents a broad overview of the evolution of pay inequality in China, overall and by region and sector, through 2005. The method consists of calculating the contribution of each sector within each province to the between-groups component of a Theil T statistic for the whole country, and then aggregating the components by sectors and by provinces to achieve measures of inequality between and within provinces. The figure shows that while during the 1990s inequality between provinces and inequality within provinces (that is, between sectors) both rose, in the 2000s the behavior of these two dimensions of inequality has diverged. Inequality

between provinces peaked early in the decade, and has actually declined since 2001. In contrast, inequality within provinces continued to rise.
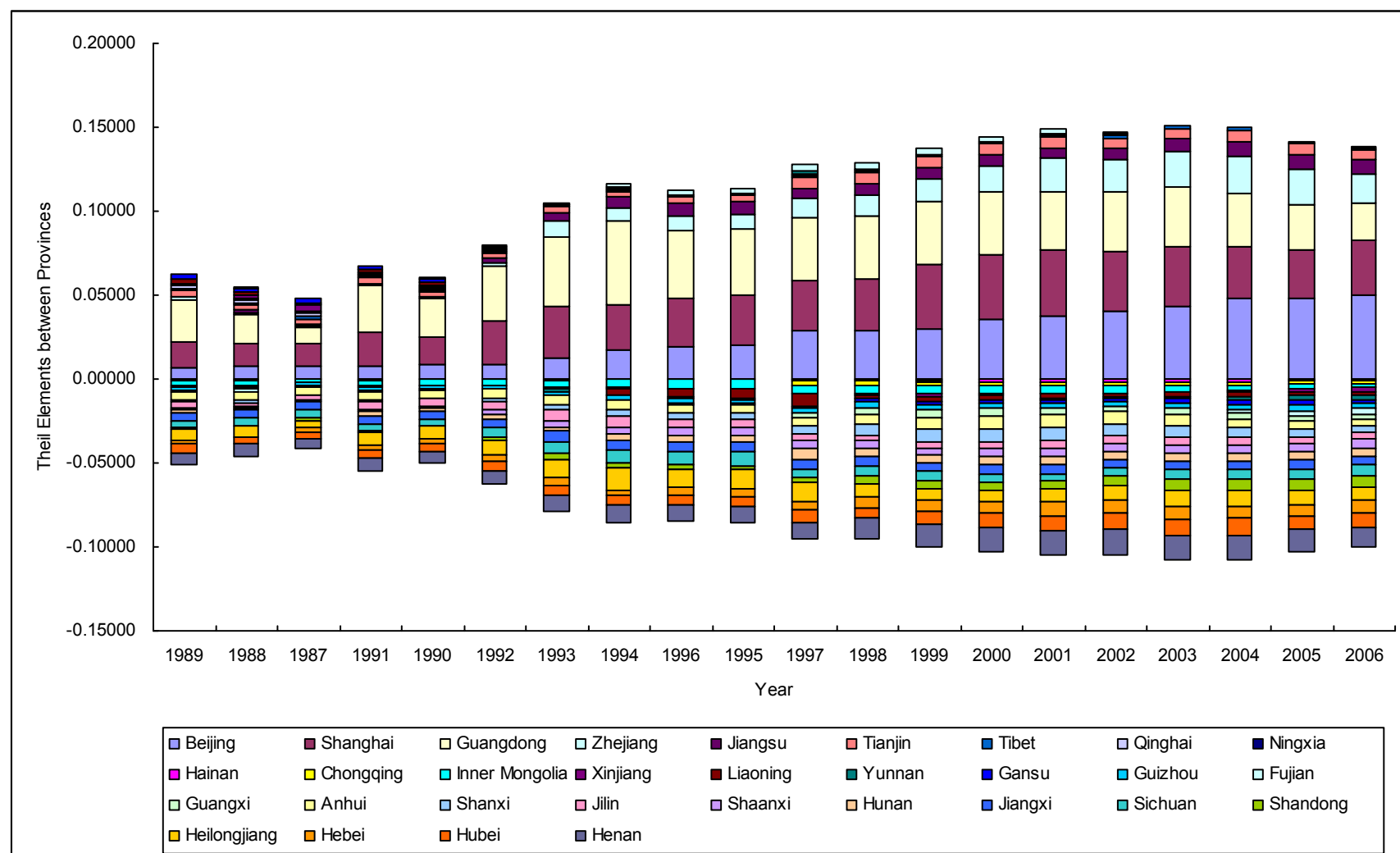
Figure 1. Inequality between and within provinces in China, 1987-2006.
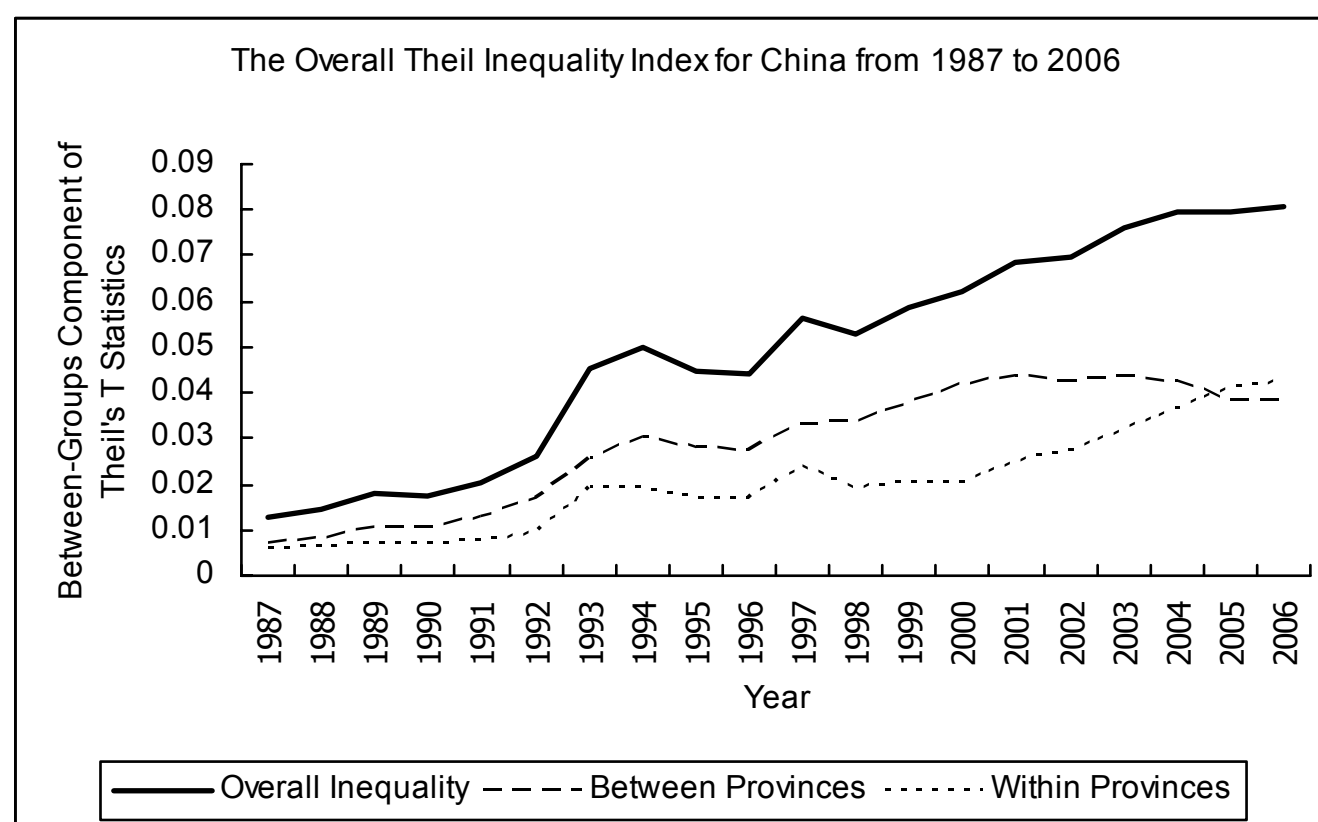
Source: China Statistical Yearbook and authors' calculations

Figure Two breaks out the changing inter-regional dimensions of Chinese inequality in a stacked bar graph. Each bar represents a year and each segment represents the "contribution" of a province to overall inequality in that year. Each segment reflects both the population weight of the province (measured by observed employment) and the ratio between average provincial income and national average income. Contributions greater than zero indicate provinces with mean incomes above the national average. Contributions below zero indicate provinces with incomes below average. Overall inter-provincial inequality is measured by the sum of all the elements in a given year; however the statistic is so constructed that longer bars represent higher inequality and vice versa.

Figure 2. Contribution of provinces to inter-provincial inequality in China, 1987-2006.

Beijing	Shanghai	Guangdong	Zhejiang	Jiangsu	Tianjin	Tibet	Qinghai	Ningxia
Hainan	Chongqing	Inner Mongolia	Xinjiang	Liaoning	Yunnan	Gansu	Guizhou	Fujian
Guangxi	Anhui	Shanxi	Jilin	Shaanxi	Hunan	Jiangxi	Sichuan	Shandong
Heilongjiang	Hebei	Hubei	Henan					

Source: China Statistical Yearbook and authors' calculations

The figure shows that the enormous *relative* contribution of Guangdong province to overall inequality in China actually peaked as far back as 1994, while that of Shanghai reached its zenith around 2000 or 2001. Despite their respective positions as the seat of Chinese export trade and the financial center, both were regressing moderately toward mean income by 2005 -- as incomes elsewhere rose. Uniquely among the big three, the relative contribution of Beijing continued to rise, reflecting in part, no doubt, the acceleration of a program of urban reconstruction and a speculative building boom in advance of the 2008 Olympics. The recent rise of a fourth contender – Zhejiang province – rounds out the contrasting picture of convergence and

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divergence as the great Chinese coastal development boom matures. able One presents some evidence on trends in manufacturing employment across China during the early years of the new millennium. The table shows that in most Chinese provinces manufacturing employment declined from 2002 through 2006. But there are great exceptions: Guangdong, Zhejiang, Fujian, Jiangsu and Shandong, where manufacturing employment rose by a cumulative total of 4.9 million jobs during these four years. All are deeply involved in China'integration into world markets following accession to the WTO. Their expansion offset a net decline in manufacturing employment of 1.5 million jobs spread across the rest of the country, giving China as a whole a net gain in manufacturing employment exceeding ten percent in that period. Or, in four years these five Chinese provinces added manufacturing jobs equal to thirty-six percent of the remaining manufacturing employment in the United States as of April, 2008.

Table 1. The total number of manufacturing workers by provinces (10000 persons)

Source: State Statistical Yearbook

The total number of manufacturing workers in the major export provinces (10000 persons)						
Year/Region	Jiangsu	Fujian	Shandong	Guangdong	Zhejiang	Rest of country
2002	216	134	272	255	97	1933
2003	217	152	270	282	109	1869
2004	223	181	280	315	152	1810
2005	245	198	334	357	201	1762
2006	281	215	342	387	240	1786

It is obvious that these gains in manufacturing employment are closely tied to exports. After rising at just over 10 percent per year, on average, from 1999 through 2001 (two years of boom and one of recession in the US), China's exports started to surge in 2002. They rose 21 percent that year, and then 35 percent in each of the two following years, before settling back to a reported rate of 28 percent in 2005 and 27 percent in 2006. Overall the reported increase in

exports in dollar terms from 2002 to 2006 amounts to a staggering 264 percent. There is no question that a large part of this is "real," in the sense that reported quantities surged, alongside manufacturing employment in the key exporting provinces.

It is interesting that, apart from the rise of Zhejiang, the post-2001 export boom in China had little effect on inequality as measured between provinces. The explanation is however not far to seek. Though manufacturing in China is a low-wage sector, in high-wage provinces pay in manufacturing can be close to, or even slightly above, national average pay rates. Thus an increase in the manufacturing share of employment would not necessarily increase overall inequality in China: the contribution of a sector whose average pay is close to the national average to overall inequality is necessarily small. This is sufficient to explain why strong growth in export-oriented manufacturing employment need not have had a dramatic impact – one way or the other -- on the inequalities of Chinese society. In contrast, the much higher incomes in banking, utilities, government and real estate in Beijing have a powerful effect on inequality; there is little else in the country quite like them.

Table Two presents the Chinese current account, as officially reported. It may be considered in light of one of the most basic principles of international macroeconomics, that the growth of imports depends on the domestic growth rate, while that of exports depends on growth in external markets. Thus when a developing country experiences a prolonged period of high internal growth, it is normal for a trade deficit to emerge. This is especially likely if the country in question is an importer of food and fuel, and if commodity prices are rising. Innumerable cases can be cited; exceptions, *per contra,* are rare, and in the modern record largely confined to

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countries that maintain rigorously undervalued exchange rates and repressed domestic consumption, while rapidly improving the composition and quality of their exports.

Table 2. China's Balance of Trade, 1998-2006.

(Billions of USD)

	Exports of Goods	Imports of Goods	Balance of Trade
1998	184	140	44
1999	195	166	29
2000	250	225	25
2001	266	244	22
2002	323	295	28
2003	438	413	25
2004	593	561	32
2005	762	660	102
2006	969	791	178

Source: China Customs

Seen from this perspective, Table Two is astounding. China has been running reported internal real growth rates of eight percent or so for three decades, during which time OECD growth rates averaged less than half of that figure (WDI Online). And while during most of this period China reported small trade surpluses, in the most recent years China's exports have exploded. China's imports also rose sharply during this period, but exports measured in dollars grew even more, nearly quadrupling from 2000 to 2006: a rise of nearly three-quarters of a trillion dollars. Thus China reported a trade surplus of $103 billion in 2006 in goods and services taken together; the figure for goods alone was $178 billion. Given a dollar value of Chinese GDP at the prevailing exchange rate on the order of three trillion dollars in 2006, exports amounted to nearly a third of GDP by that time and trade openness (exports plus imports) to over half.[ii]

We have examined a number of explanations for this extraordinary turn of events. First, we find no trace of any transformation in *unit prices* of Chinese exports. Information on the unit prices of imports from China are maintained by European authorities, while the U.S. reports price indices of imports in general. Nothing of consequence seems to have happened in either dataset; indeed dollar prices of Chinese manufactures imported into Europe fell (not surprisingly, given the rise of the euro against the dollar).

Although data we analyzed in a previous working paper (Galbraith, Hsu and Li, 2007) suggested that there was a large (and suspicious) increase in reported *unit values* of Chinese exports after 2002, further research has deflated this conclusion. Our original hypothesis was that quantity units reported by major product category in OECD summary data could be assumed to be reasonably consistent over short time periods, permitting us to use aggregated, heterogeneous quantities as a rough index of actual shipments. Inspection of the underlying data tables from Comtrade reveals that large changes in reported units did occur (in some instances shifting from actual units to thousands of the same units); thus in most (though not all) categories the hypothesis of extraordinary changes in unit value cannot be sustained.

There have been modest shifts in the composition of exports toward higher-valued goods, notably an increase of about three percentage points per year in the export share of the machinery and transport equipment sector. But this increase had been going on for a long time, and the gains after 2002 are not out of line with past experience. So while China is always in the process of upgrading its manufactured exports, the major push behind the post 2001 boom has been

expansion in reported shipments (quantities) rather than in the value-added associated with particular units (price or quality change).

A fourth possibility appears to have better traction: the decline of the dollar. China exports to both Europe and the US, and while the relative stability of the dollar/RMB exchange rate assures that the dollar value of Chinese exports to the US does not fluctuate with the dollar itself, this is not true for Chinese exports elsewhere. Notably, if prices in the final markets do not change, then the euro's rise would automatically generate larger per-unit dollar earnings for China. But the same effect would work on imports from outside the dollar zone, so it is difficult to see how this artifact of the reference currency would strongly affect the rise in China's trade *surplus*.[v]

A fifth possibility concerns the processing trade, a large share of China's manufactured exports. China could be importing increasingly high-value goods (from, say, Japan) in order to finish them and export them again. But if this were the case, then reported unit values of Chinese *imports* in manufacturing would also be increasing, and so would the share of the processing trade in total trade. Neither of these things appears to have occurred. Although there is a slight progression in import prices in manufacturing from 2001 onward, no dramatic increase is observed. Moreover, processing trade accounts for about 55 percent of Chinese exports, and that figure remained stable after 2001.[vi] If the rise in total export values were due mainly to rising unit value of processed goods, the share of the processing trade in total exports should have risen.

From the remarkable boom in manufacturing employment, coupled to the increase in unit sales, it appears plain that after 2001 China's exporters took full advantage of their position as a WTO-

compliant country, and greatly multiplied their efforts and their results. This calls to mind a comment in Galbraith (2006), following a discussion of the difficulties of making a profit on the manufacture of wage goods for the home market, given the hyper-competitive climate for light industry in China:

> "Is there any way for the Chinese manufacturing firm to turn a profit? Yes: the obvious alternative to selling on the domestic market is to export. And export prices, even those paid at wholesale must be many times those obtained at home."

It would not be surprising, therefore, if an export boom should lead to a profits boom, followed by the speculative concentration of profit incomes in, for example, Beijing real estate. This would appear to be the fundamental mechanism of rising inequality in China in the post-WTO environment.

But if something can be done, it can also be overdone. Since China still maintains capital controls, perhaps Chinese exporters have been over-reporting exports to the Chinese authorities, for the purpose of bringing foreign capital into the country? Perhaps they have been over-invoicing the exports they actually made? Or perhaps they have been, even more simply, reporting exports to the authorities that were never made at all? The next section of this paper considers this possibility, which has been discussed at least to some extent by Chinese officials.

There are straightforward reasons why it would be in the interest of Chinese firms to behave this way, if they could get away with it. The incentive stems from China's property and stock market

booms, and from two regulatory facts: the continued enforcement of controls over capital inflows *per se* in China, and the legalization, in late 2002, of unlimited foreign currency accounts held in China by Chinese firms. The simple solution from the firm's point of view in this situation would be regulatory arbitrage: to launder the capital inflow through the current account.

At this point, we are unable to present estimates of the extent to which disguised capital inflow may be occurring; as noted the preliminary estimates in earlier work already cited did not withstand further scrutiny. Detailed forensic work, case studies of the relevant sectors, shipping data, measures of unit imports from the advanced countries, and insider accounts would now appear to be necessary to establish whether regulatory arbitrage is really a large issue. We therefore restrict ourselves, for now, to examining the enabling conditions.

Changes in the Financial Environment

In 2003, there were several changes in China's financial sector which made the environment more favorable to capital inflows. The interest rate began to look more attractive vis-à-vis the dollar, while the NDF premium began to decrease, indicating expectations of RMB appreciation against the dollar (Ma and McCauley (2007, p. 16). Table Three illustrates the interest rate trends.

Table 3: RMB Less Dollar Yields

(Percent)

	Average 3-month Chinese Repo less US Treasury Yield	Average 3-month CHIBOR less USD LIBOR
1998	1.96	2.23
1999	-1.17	0.95
2000	-3.4	-2.46
2001	-0.83	0.03
2002	0.54	1.6
2003	1.59	1.66
2004	1.35	1.71
2005	-1.44	-0.77
2006	-2.41	-2.57

Source: CEIC, US Treasury Statistics, British Bankers Association

Further, in October 2002, the central government gave permission for all companies to hold foreign exchange accounts. Controls over foreign exchange purchases were relaxed for many businesses, including exporters, while the ability to open foreign exchange accounts was extended to firms outside bonded zones (Lehmanbrown.com, 2002). The goal of this measure was to liberalize the current account, facilitating trade and reducing the state presence in credit markets. Not surprisingly, Table Four shows that foreign exchange transactions within China increased tremendously beginning in 2003.

Table 4: Foreign Exchange Transactions within China

(100 Million Units)

	Overall Turnover (in USD)	USD Trading Volume	HKD Trading Volume	JPY Trading Volume	EURO Trading Volume
2001	750.3	741.3	30.6	613.9	N/A
2002	971.9	951.1	108.8	730.8	1.1
2003	1511.3	1478.2	186.3	761.6	3.0
2004	2090.4	2044.1	244.9	1349.6	1.9

Source: People's Bank of China

Thus, the regulatory and investment environment was ripe for injecting capital inflows into China. Exporting companies with a willing partner simply had to overstate or over-bill exports, and foreign exchange could be transferred into their bank accounts, from which it could be converted into RMB and used in domestic capital markets.

Did they do so? The recent crackdown on short-term foreign exchange accounts, and the punishment of both foreign and domestic banks for the violation of exchanging currency outside of controls, has revealed how loose controls over foreign exchange accounts had become. Further evidence comes from the recent exposure and punishment of a large underground bank headquartered in Shenzhen, which exchanged foreign currency and maintained foreign exchange accounts. All of these measures are attempts by the central government to curb hot money inflows and illegal foreign exchange transactions, in order to maintain better control over the current account[viii].

Part of the flow, too, may stem from over-billing exports to receive additional Value-Added Tax [ix](VAT) rebates after the January 2002 legislation loosened restrictions over VAT rebates.

However, in our calculation, we do not see a large unit price increase for the year 2002, which would indicate that VAT abuses due to the legislation have not been very large.

Profit and Capital Inflows Into Speculative Sectors

We now examine the extent to which these funds – both licit and otherwise -- may have contributed to China's building boom and particularly to the "Beijing Bubble." A clue to the phenomenon at hand may possibly be found in the percentage change in gross capital formation. This figure increases sharply in the post 2002 years, while the share of capital formation in GDP rises by seven percentage points between 2001 and 2004. This is the result of an enormous increase in the construction of fixed assets such as plant and equipment, offices and housing. The increase in gross capital formation reflects the construction boom that is everywhere visible in urban China. Table Five gives the basic information.

Table 5: Gross Capital Formation

	GDP (billions of current US$)	Gross capital formation (billions of current US$)	Percentage change in gross capital formation	Share of Gross Capital Formation in GDP
			(%)	(%)
1996	856.1	346.2		40
1997	952.7	361.5	4	38
1998	1,019.50	378.2	5	37
1999	1,083.30	398	5	37
2000	1,198.50	420.9	6	35
2001	1,324.80	480.5	14	36
2002	1,453.80	550.5	15	38
2003	1,641.00	676.1	23	41
2004	1,931.70	835.7	24	43
2005	2,243.90	971	16	43
2006	2,668.10	1,085.80	12	41

(Current US Dollars or Percent where indicated. Source: WDI and authors' calculations)

An inflow of export profits, an increase in the profit share in total income, and any foreign capital would need to show up as reported profits in Chinese industry – not only directly but in the sectors ultimately targeted by investment and speculation. This too we observe. To take a specific instance, the Beijing real estate industry operating income and profit moves sharply from negative to positive numbers in 2003, a dramatic increase. Table Six gives the data.

Table 6: Beijing Real Estate Statistics

(Million Yuan)

	Real Estate Industry Operating Income	Real Estate Industry Total Profits	Investment in Office Buildings	Commercial Buildings Sold
2000	-1862	-1303	4521.9	424.84
2001	-1046	-215.3	7199.3	1245.8
2002	-1026	-587.1	9732.6	2595.3
2003	895.9	1743.3	14275	5177.9
2004	8661.1	10701	18789	5883.4
2005	6184.4	8131	19617	12085
2006	11053	14959	21674	16256

Source: CEIC

Caveats and Qualifications

We note several further qualifications, arising from Chinese economic statistics as noted in other literature. First of all, there are problems with Chinese GDP, particularly with the overstatement of GDP for political purposes, and with the notorious stability of reported Chinese GDP growth rates. There are well-known problems with the trade statistics, due to the treatment of re-exports from Hong Kong[x]. There are also problems with achieving continuous measures of trade activity over recent years, due to shifts in statistical classifications, e.g. as several export categories were broken into sub-categories, while some were discontinued. However, this did not affect trade statistics within the larger SITC categories.

Conclusion

While the rise in Chinese inequality seems to have slowed in the middle of the first decade of the twenty-first century, a significant force for continued increases remained, associated with the

property boom and other speculative activities that concentrated on the national capital, Beijing, during the period immediately before the 2008 Olympics. The most likely mechanism behind the flow of funds into these sectors is a profits boom associated with the extraordinary increase in Chinese exports that followed WTO accession in 2001. There is reason to suspect that some additional speculative flows occurred by the device of laundering capital inflow through the current account, but despite concentrated efforts we have no firm estimates to offer.

Appendix

Tables Seven, Eight and Nine present the sectors with the largest proportionate increases in quantities and values exported. Interestingly, the largest quantity increases are in the metals sectors—rolled steel, pipe, aluminum -- followed by certain electronics sectors. We have no way of judging, *a priori*, whether an eleven-fold increase in flat-rolled steel exports in four years is plausible or not; we only note that in this and other important sectors the numbers appear to be remarkably high.

These sub-sectors show increases that are very large for such a short time frame, though they are not beyond the bounds of possibility.

Table 7: Top 15 Categories (SITC 6 through 8) of Changes in Quantities Exported, 2002-6

SITC Category	SITC Description	Change in Quantity, 2002-6	Dollar change in value 2002-6 (in millions)
673	Flat-rolled products of iron or non-alloy steel, not clad, plated or coated	1126%	7220.2
7643	Transmission apparatus for radio-telephony, radio-telegraphy, etc	653%	29707.5
679	Tubes, pipes and hollow profiles, and tube or pipe fittings of iron or steel	521%	6213.7
7722	Printed circuits	461%	5847
7764	Electronic integrated circuits and micro-assemblies	414%	17148.6
7843	Other parts and accessories of the motor vehicles of 722 and 781-3	380%	7008.8
77812	Electric accumulators (storage batteries)	340%	3677.2
77121	Static converters (e.g., rectifiers)	272%	-14721.9
6531	Fabrics, woven, of synthetic filament yarn (not pile and chenille fabrics)	268%	7937.6
684	Aluminum	251%	5144.9
8943	Video games of a kind used with a television receiver	242%	2795.9
747	Taps, cocks, valves, etc; pressure-reducing, thermostatically control valves	229%	4186.5
7725	Electrical apparatus for switching, protecting electrical circuits, for $\leq$ 1000 V	227%	3543.7
7649	Parts or accessories suitable for use solely or principally with apparatus of 76	217%	22511.2
763	Sound recorders or reproducers; television image and sound recorders	215%	14825.7

Source: UN Comtrade

Table 8: Top 15 Categories (SITC 6 through 8) of Changes in Unit Values of Exported Goods, 2002-6

SITC Category	SITC Description	Change in Unit Value, 2002-6	Dollar change in value 2002-6 (in millions)
87193	Other optical devices, appliances and instruments	1201%	12379.2
793	Ships, boats (including hovercraft) and floating structures	841%	6185.2
761	Television receivers	493%	10563.2
751	Office machines	270%	4637.1
752	Automatic data processing machines and units thereof	220%	72885.1
7641	Electrical apparatus for line telephony or line telegraphy	195%	6701.3
6531	Fabrics, woven, of synthetic filament yarn (not pile and chenille fabrics)	188%	7937.6
673	Flat-rolled products of iron or non-alloy steel, not clad, plated or coated	186%	7220.2
671	Pig-iron, spiegeleisen, sponge iron, iron or steel granules and powders	179%	2026.1
684	Aluminium	171%	5144.9
773	Equipment for distributing electricity, nes	168%	5378.3
747	Taps, cocks, valves, etc; pressure-reducing, thermostatically control valves	163%	4186.5
7649	Parts or accessories suitable for use solely or principally with apparatus of 76	162%	22511.2
844	Women's or girls' outerwear, of textile fabrics, knitted or crocheted	161%	7399
759	Parts and accessories (not covers, carrying cases, etc) for machines of 751-52	157'\%	20756.9

Source: UN Comtrade

Table 9: Top 15 Categories (SITC 6 through 8) of Changes in Volume-Weighted Unit Values of Exported Goods, 2002-6

SITC Category	SITC Description	Change in Volume-weighted Unit Value, 2002-6	Dollar change in value 2002-6 (in millions)
87193	Other optical devices, appliances and instruments	6265%	12379.2
673	Flat-rolled products of iron or non-alloy steel, not clad, plated or coated	1304%	7220.2
793	Ships, boats (including hovercraft) and floating structures	1190%	6185.2
761	Television receivers	897%	10563.2
679	Tubes, pipes and hollow profiles, and tube or pipe fittings of iron or steel	351%	6213.7
752	Automatic data processing machines and units thereof	341%	72885.1
6531	Fabrics, woven, of synthetic filament yarn (not pile and chenille fabrics)	319%	7937.6
751	Office machines	285%	4637.1
684	Aluminium	248%	5144.9
7764	Electronic integrated circuits and micro-assemblies	213%	17148.6
7641	Electrical apparatus for line telephony or line telegraphy	208%	6701.3
671	Pig-iron, spiegeleisen, sponge iron, iron or steel granules and powders	206%	2026.1
747	Taps, cocks, valves, etc; pressure-reducing, thermostatically control valves	205%	4186.5
7843	Other parts and accessories of the motor vehicles of 722 and 781-3	204%	7008.8
773	Equipment for distributing electricity, nes	191%	5378.3

Source: UN Comtrade

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[i] These results are drawn from data on pay and employment in the State Statistical Yearbook. They are consistent with, but considerably more revealing than, surveys which have tended to characterize the growing gap in Chinese incomes as "urban/rural" or "coast/interior."

[ii] The IMF's world economic outlook pegs nominal GDP for China in 2006 at $2 trillion, in comparison to which the official trade statistics look even larger. http://www.econstats.com/weo/index_glweo.htm. We have not tried to unravel the discrepancy, except to say that all such comparisons are clearly open to skeptical appraisal.

[v] Were the reference currency switched to the euro, the rise in China's export earnings would appear lower, since the country's exports to the U.S., measured in euro, would have been sharply cut by the dollar devaluation. Similar effects would apply on the import side: China's eurozone imports would not have risen so much, while its dollar-zone imports would have risen considerably more.

[vi] http://www.mofcom.gov.cn/tongjiziliao/tongjiziliao.html

viii In addition, the real appreciation of the RMB in terms of the dollar in December 2006 signals a change in the desirability of purchasing RMB with dollars.

ix VAT rates range from 5-17%. The standard VAT rate is 17%.

x Green writes that the US exaggerates value-added in Hong Kong as around 25% of China's goods value, while China tends to understate these values. He believes the US-China deficit may be the average of the two records. In any case, China's understatement of Hong Kong re-exports has not changed over time, so does not affect the general unit value trend.