Industrial Growth in China and India

A Preliminary Comparison

Using independent estimates of China's industrial output, this paper compares the performance of the manufacturing sectors in China and India over the past half century at a disaggregated level. It finds that China's industrial growth rate is close to one and half times that of India's over the entire period, with the gap widening gradually. But Indian growth has been more stable. China's superior performance seems understandable in terms of its faster agricultural and exports growth. Does it mean there is little prospect of India catching up with China in the foreseeable future? China seems to suffer from huge excess capacity, misallocation of resources and a gross wastage of capital – as evident from the persistently high capital-output ratio. China's impressive industrial edifice seems to be built on somewhat shaky microeconomic and institutional foundations. In comparison, India's relatively strong foundations and domestic entrepreneurial capital seem to have the potential to improve performance, with a sounder macroeconomic environment: a step up in fixed investment to augment infrastructure supply and agricultural productivity, revival of long-term finance to boost industrialisation, and easier credit delivery to small and medium enterprises.

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Compared to China, India's economic performance during the last two decades has consistently been subject to critical examination. In fact, one of the unstated motives of the economic reforms in 1991 was 'to catch up' with China's (east Asian-like) market-driven effort to speed up economic growth. It is now widely believed that India's performance is not better even after a decade of reforms because the policy changes have not been carried out to the same extent as in China. In trying to understand the relationship between policy and performance, this paper makes a modest attempt at providing a firmer empirical basis by comparing industrial growth in the two countries over the last half a century.

China and India are two of the largest agrarian economies in the world accounting for the bulk of the world's poorest people. There are many similarities in their 'initial conditions', as well as broad policy orientation. Both countries started off with similar levels of living with wide geographical variations, and economic and social diversities. Both countries embarked on the course of planned economic development roughly around the same time, after being led to political freedom by two of the most influential political leaders of the 20th century, Mao and Gandhi.

Both countries opted at roughly around the same time, for the heavy industrialisation strategy as the quickest route to sustained economic development. However, China sought to follow the 'Soviet model' much more closely than India, and China was practically closed to external economic interaction until the late 1970s. The Indian economy, on the other hand, was largely in the private sector (with a well-developed indigenous entrepreneurial class and the institutional framework of a market economy) in which the state sought to increasingly influence the rate and pattern of economic development. Both countries periodically faced food and foreign exchange constraints in the course of their industrialisation effort.

China responded to the crisis it faced in the late 1950s (accentuated by the political rift with the Soviet Union) by emphasising the Chinese characteristics of its socialism, which meant decentralisation of economic decision-making and seeking regional self-sufficiency for augmenting food production and rural industrialisation by utilising the nation's most abundant resource: labour.

Faced with food and foreign exchange crises around the mid-1960s, India sought to shift the policy focus from machine building to food production, and in the 1970s to insulate the economy from external energy-related shocks by investing in oil production and import substitution in chemical fertilsers.

Confronted with the task of feeding its growing population and high level of inefficiency in its industrial sector (due to extreme forms of import substitute industrialisation and lack of external technology), China embarked on 'four modernisations' in 1978. India too sought to give a greater role to private initiatives in its economic decision-making, and to modernise the industrial sector by loosening controls on domestic output and investment from around 1980. This effort picked up speed in 1991 when faced with the external payment crisis. In China, external orientation gathered momentum after 1992 when it was discovered that the domestic market-based industriliastion would not be adequate to acquire modern technology and organistion to compete in the world market. Evidently, China and India followed a

Economic and Political Weekly, Vol. 40, No. 21, May 21-27, 2005, pp. 2163-2171.

Figure 1: Industrial Growth in China and India

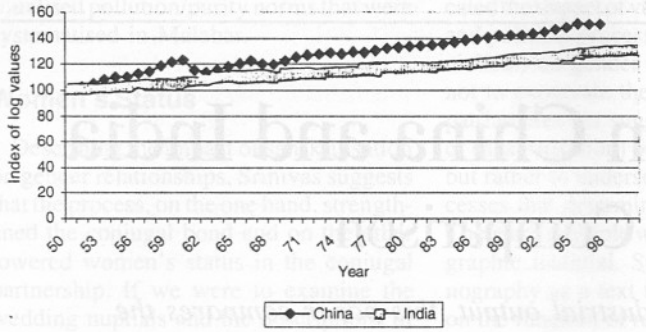
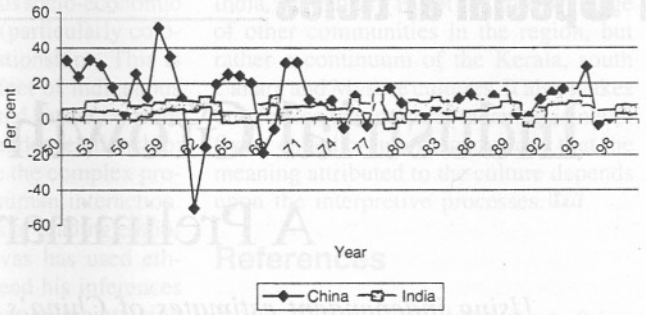


Figure 2: Industrial Growth in China and India



gradualist policy of a reform process in response to emerging challenges, given domestic economic constraints and the demands of political stability.

But, the economic outcomes in the countries have varied significantly, both during the era of planning as well as in the period of reforms. However, there seems to be a growing consensus that China has outperformed India in every respect, with little hope left for catching up in the forerseeable future. In other words there is a wide consensus that compared to India, Chinese were better 'socialists' during the planning era, and better 'capitalists' during the reform era [Bardhan 2003]. While such an assessment, based on widely used aggregate economic performance, may be broadly correct yet, there is perhaps a need for greater nuance in understanding their comparative economic performance for the following reasons:

(1) As is widely acknowledged, Chinese economic data overestimate the growth rates, and there is a need for a realistic assessment of the differences in performance between the two countries. Such an attempt provides a firmer basis for more detailed industry/firm/region specific studies to understand the factors responsible for the observed differences.

(2) Admitting that China's industrial performance is superior, there is perhaps a need for caution considering the limitations in its institutional, legal and technological basis. Moreover, there are perhaps reasons to believe that the microeconomic performance of Chinese industries may be hiding many deficiencies of the economic system, which perhaps need to be reckoned with.

This paper is a preliminary attempt at documenting the pattern of industrial growth in China and India roughly during the second half of the last century, using independent estimates of China's industrial output. Based on such an exercise, we try to understand the strengths and limitations of the industrialisation experience of the two countries.

The structure of the paper is follows. Section I discusses the data problems, Section II presents the comparative trends and Section III very briefly reviews the factors responsible for China's industrial performance. While industrial growth in China has been superior, Section IV looks at the infirmities in the Chinese growth record and contrasts them with Indian strengths in Section V. Section VI contains the conclusions of the study.

I
Limitations of Chinese Data

As is widely acknowledged, the official output data (value added) in China tend to be overestimates for two reasons [Maddison 1998]. One, price deflators underestimate inflation under the Soviet 'comparable price' approach; and two, the official data-reporting system tends to be close to that given as targets, since there are minimal systems of cross-verifying output estimates [Holz 2003]. These problems were perhaps more acute during the period of planning, though they seemed to persist later as well. Another shortcoming has to do with the material balancing approach to accounting that was prevalent during the period of central planning, which is a very different from the system of national accounts that is consistently followed in the market economies.

However, since the reforms China's State Statistical Bureau (SSB) has reportedly made considerable effort in rectifying many of these shortcomings. But, the problem seems to persist. Recently, Harry Wu (2002) has provided new and independent estimates of GDP originating in the industrial sector by reworking the official data on the physical output of commodities. A close perusal suggests that the study has used widely accepted statistical methods to overcome some of the known shortcomings of the official estimates. The new estimates are available for the period 1949 to 1997, for 17 disaggregated industry groups at constant prices.

A comparison of the official SSB figures and Wu's independent estimates are revealing. According to Wu, industrial growth during the planning period was overestimated by 1.2 percentage points per year (on a trend basis) and 3.3 percentage points per year during the reform period. However, Wu found that in spite of this correction, industrial growth in the post-reform period is higher by 1.6 percentage points per year compared to the plan period.

In this paper we use Wu's estimates for China, and India's official estimates of GDP originating in total manufacturing as given in *National Accounts Statistics*; both measured at constant prices in local currencies. In India, total manufacturing output consists of production in the registered and unregistered sectors, depending upon the size of enterprise. Output of all factories employing 10 or more workers on a regular basis is recorded

Table 1: Trends in Growth and Fluctuations in Manufacturing Output in China and India, 1950-97

(Per cent per year)

Period	China	India
1950-97	8.9 (114.7)	5.7 (79.1)
1950-77	8.7 (65.0)	
1950-80		5.4 (44.8)
1978-97	10.2 (58.6)	
1981-97		7.3 (36.1)

Source: Wu (2002), *National Accounts Statistics*, various issues.

in the *Annual Survey of Industries*. Output of factories employing less than 10 workers is captured as a product of (benchmark) estimates of value added per worker and estimated number of workers in each industry. The benchmark estimates of value added per worker are periodically revised on the basis of independent surveys of these industries. Indian estimates are far from perfect, though the extent of the problem may not be as severe as in China [Nagaraj 1999]. Therefore, we accept the Indian data to be valid and compare them with Wu's independent estimates in this study.

II
Industrial Performance

Trends in Output Growth

Table 1 shows the trends in growth rates of value added in manufacturing sector in China and India during the period 1950-97.[1] During the entire period, the annual growth rates for China and India are 8.9 per cent and 5.7 per cent, respectively. China improved its growth rate after the reforms by about 1.5 percentage points; India too improved its performance by roughly the same margin after 1980-81. However, it needs to be mentioned that we have not made any tests to ascertain if the differences in growth are statistically significant. For a visual presentation, the indexes of log values of industrial output are plotted in Figure 1. It suggests no change in the trend growth rate after the reforms in China. However, it does show that China's growth rate has been consistently higher than India's, and the gap seems widening. Chinese growth rates, before and after the reforms, are about one and half times that of India's.

Table 2 (i) and (ii) provides estimated trend growth rates for disaggregated industry groups for China and India for periods before and after the economic reforms. In China, industry groups that performed above average in the pre-reform period are (i) paper and printing, (ii) chemicals and petroleum, (iii) rubber and plastic, (iv) metals, (v) electrical and (vi) non-machinery, and (vii) transport equipment. In the post-reform period, (i) food, (ii) beverages, (iii) textiles and (iv) clothing have joined the group of above average performers, while chemicals and petroleum dropped out of the list.

In India, in the pre-reform period, (i) wood, (ii) paper, (iii) leather, (iv) chemicals, (v) rubber, (vi) non-metallic minerals, (vii) metals, (viii) machinery and (ix) transport equipment recorded above average growth rates. In the post-reform period, industry groups performing above average were only (i) chemicals, (ii) rubber, (iii) non-metallic minerals, and (iv) electrical equipment. The comparison shows that while the industrial growth was much more evenly spread in the pre-reform period in India, it was so in China in the post-reform period.

Yearly Fluctuations in Output

Figure 2 depicts the yearly growth rates of manufacturing output for the entire period. Evidently Chinese growth has been more variable compared to India's. However, the variations in China have come down substantially in the post-reform era, though they continue to be higher than in India. For a summary measure Table 3 provides coefficient variation in yearly growth rates in the two countries. The high level of output fluctuations during 1955-65 in China is probably the result of significant policy shifts (caused by political uncertainties due to break-up of the economic relationship with the Soviet Union) and domestic political disturbances.

The foregoing trends unambiguously suggest that China's industrial growth has been consistently higher than India's by nearly one-and-half times over half a century, though the difference is lower than that suggested by China's official estimates. However, Indian growth has been more stable, perhaps reflecting greater continuity of policy – both during the period of planning as well as after the reforms.

Industrial Composition

Tables 4(i) and (ii) provide the composition of manufacturing output in the two economies over the last five decades. Though the classification followed in the two countries does not seem to be strictly comparable, they seem broadly similar. Therefore we thought it fit to use data to understand the evolution of output composition in the two countries. Manufacturing output in China was much more diversified even in the initial years. Moreover, the share of food and beverages was nearly 1/3rd of India's, at 8 per cent of total production while that of metals was over four

Table 2(i): Industrial Growth by Disaggregated Industry Groups: China
(Per cent per year)

Industry	1949-77	1978-97
Food products	6.3	10.5
Beverages	8.4	10.3
Tobacco	5.7	5.7
Textile products	5.7	6.4
Wearing apparels	3.8	17.0
Leather products	7.2	15.0
Wood products	6.1	6.7
Paper and printing	11.0	10.8
Chemicals and petroleum	14.4	8.0
Rubber and plastic	11.8	14.1
Building material	8.9	10.8
Metals	17.7	6.0
Machinery, transport equipment	17.1	11.8
Electric machinery	17.0	16.5
Other manufacture	8.8	11.8
Total	9.7	10.0

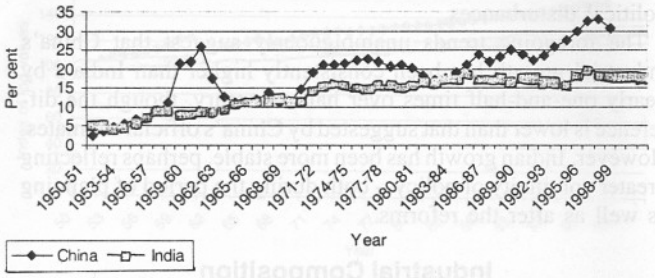
Source: Wu (2002).

Table 2(ii): Industrial Growth by Disaggregated Industry Groups: India
(Per cent per year)

NIC Code	Industry group	1950-51/1979-80	1980-81/2000-01
20-21	Food	1.5	6.2
22	Beverages	-	5.5
23-26	Textiles	3.5	5.6
27	Wood	3.8	(-) 0.9
28	Paper	8.6	6.8
29	Leather	8.1	5.9
30	Chemicals	7.9	9.8
31	Rubber	10.9	9.8
32	Non-metallic minerals	9.3	7.8
33	Metals	8.6	7.1
34	Metal products	12.2	4.9
35	Non-electric machinery	14.8	5.8
36	Electric machinery	14.1	9.6
37	Transport equipment	6.7	6.9
38	Other manufacture	0.7	7.6
39+97	Repair services	-	5.2
	Total	5.5	7.2

Source: National Accounts Statistics, various issues.

Figure 3: Share of Capital Goods
(In value added in manufacturing)



times (25 per cent) that in India. Such a wide divergence in industrial output composition despite broadly similar levels of per capita income probably reflects the effect of the policy of heavy industrialisation in China. Under planning, China deliberately curtailed production of consumer goods and diverted resources for heavy industry (core of which was steel production) perhaps with scant regard for the end uses of the final output.

However, with the initiation of reforms some of these anomalies seem to have been corrected, with the share of metals coming down to 7 per cent in 1997. The ratio in India has steadily gone up to 9 per cent by the same year, from 6 per cent in 1950-51.

Perhaps a more meaningful way of examining the changes in manufactuting output composition is to look at the evolution of the shares of capital and consumer goods in the two economies. This is analytically useful because both the countries laid emphasis on developing capital goods (at the expense of consumer goods) as a deliberate policy to maximise output growth in the long run. Further, in the era of reforms, in both they made a conscious effort to rectify some of the earlier shortcomings.

Figures 3 and 4 show the shares of capital and consumer goods in value added in manufacturing in the two economies over the last 50 years.[2] The capital goods share in India gradually increased from less than 5 per cent in the early 1950s to close to 20 per cent around the mid-1980s, declining somewhat thereafter. Starting at a level lower than India's in 1951, China's capital goods share rose very steeply in the 1950s, but fell in the next decade. The pattern is repeated from the mid-1960s to mid-1980s. But the share climbed rapidly in the 1990s to over 30 per cent – nearly double India's share by the end of the decade.

The stagnation of capital goods' share in India is clearly associated with import liberalisation since the mid-1980s. The higher share and greater fluctuations of capital goods in China in the planning period are probably associated with the vicissitudes of the shifts in political regimes and associated policy changes. However, what is perhaps significant for India is that even during the post-reform period, China did not take its eyes off the capital goods sector, which perhaps contributed to its competitiveness in the manufacture of consumer goods for exports. Further, despite the enormous growth of Town and Village Enterprises (TVEs), the share of consumer goods in China is consistently lower than in India throughout the half century.

Table 3: Coefficient of Variation of Yearly Growth in Manufacturing Output in India and China

Period	Coefficient of Variation (Per Cent)	
	China	India
1950-97	114.7	79.1
1950-77	65	
1978-97	58.7	
1950-80		44.8
1981-97		36.1

Source: Wu (2002), *National Accounts Statistics*, various issues.

Workforce Composition

The relatively faster industrial growth in China is also reflected in a quicker decline in the proportion of workforce dependent on agriculture. Around 1980, the proportions in China and India were close to 69 per cent. After two decades, the ratio for China came down by 20 percentage points, while the decline in India was half of that (10 percentage points) (Table 5). Given that output per worker in developing countries in non-agriculture sectors is three to four times that in agriculture, China's superior output performance is largely on account of its ability to bring about rapid transformation of its workforce distribution, without facing persistent pressures of inflation and balance of payment.

III
What Explains China's Superior Performance?[3]

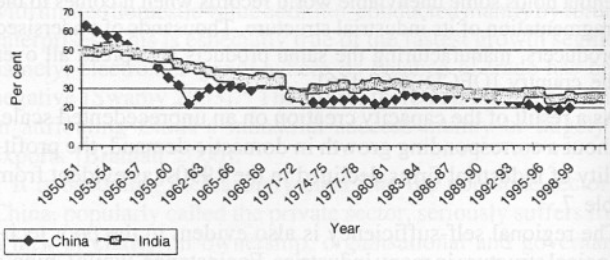
Chinese reforms started with agriculture.[4] Although the land continued to be publicly owned, after the reforms individual farmers secured an incentive to produce more than their obligation, which they could sell in the open market [Raj 1983]. In other words, the reforms enabled the Chinese peasants to secure the right to residual output after meeting their obligation to the plan, which provided an incentive to use their underutilised land and labour resources intensively. As rural incomes rose, the demand for non-agricultural output increased proportionately.

After some years, in 1992, China sought to promote labour-intensive manufactures for export promotion by developing infrastructure mainly in the southern coastal cities. The shift in policy encouraged foreign direct investment (FDI), especially from the non-resident Chinese spread across south-east Asia, particularly in Hong Kong, to overcome the limitations of domestic entrepreneurship and technology to produce for the world market. In other words, China sought to marry its cheap labour resources with Hong Kong's market-based institutions, business organisations and supply chain networks to make a successful entry into the world market for light manufactures. For the Hong Kong-based enterprises the reforms in China provided an opportunity to remain competitive in the face of rising wage costs domestically and growing competition from the other Asian economies. Further, promotion of a dual market system – perhaps similar to dual pricing in India in the 1970s and the 1980s – helped create markets for agricultural and industrial commodities based price signals [Yingyi Qian 2002].

IV
Infirmities in the Chinese Industrial Organisation

While China's exceptional output performance has many object lessons for India, there seems to be some cause for concern, however. While the Indian economy has been growing at about

Figure 4: Share of Consumer Goods
(In value added in manufacturing)



5.6 per cent per year on a trend basis since around 1980-81, the Chinese growth rate, after adjusting for widely accepted overestimation, is accepted to have been little over 7.0 per cent. However, since China's domestic saving rate is nearly double that of India at about 40 per cent of GDP, it implies that, in the aggregate, the incremental capital-output ratio for China is much higher than in India. This evidently means poor utilisation of capital resources [Swamy 2003]. Though such an aggregate measure of inefficiency may hide many factors such as the sectoral composition of investment and the high rate of urbanisation in China (which requires capital-intensive physical infrastructure), at the least, such comparisons raise legitimate doubts as to the productivity of resource use.

What is the evidence on capital wastage and what could be the possible reasons for it? Reasonable answers to these questions are probably the key to understanding the shortcomings of the recent Chinese industrialisation effort. Perhaps the best and widely acknowledged evidence of wasteful capital expenditure is the oversupply of infrastructure services, housing and consumer goods in the urban areas in China.[5] Surely keeping the pace of infrastructure growth a little ahead of the actual demand is an eminently sensible policy, as Arthur Lewis advised developing countries long ago [Lewis 1966]. But the question apparently is one of the scale and scope of the excess capacity that seems to have been created in urban China during the last two decades.

What could be the economic and political motivation for such over investments? Unlike in the planning era, much of these investments have been made by the local governments and by enterprises in the non-state sector, as state owned enterprises (SOEs) have been systematically undermined after economic reforms. With the introduction of fiscal decentralisation in 1984, local governments have faced a hard budget constraint, as they were made responsible for economic development of their regions without fiscal assistance from the national government. However, they were encouraged to promote the industrial sector with a sound infrastructure as a source of tax and non-tax revenue.

What could be the incentive for the local officials and party cadres to expand industrial activity, beyond meeting the tax targets set for them by the higher authorities? First, such an effort was perhaps necessary to keep open unemployment under check to avoid a potential political threat to the regime. Second, perhaps more important, the party officials at the local level soon discovered the advantages of industrial promotion, as their incomes and career prospects were apparently closely tied to the record of 'economic development' achieved during their tenure in a particular bureaucratic and party position.[6] How, then, was it possible to secure financial resources on such a large scale at the local level? While the local governments faced a hard fiscal constraint, they apparently had informal access to liberal bank credit, as the banking system is ultimately subservient to the party and the higher bureaucracy.

Table 6, taken from an exhaustive study of the OECD provides some evidence to support this view. While the share of loans *directly* accruing to the TVEs and foreign owned enterprises is small and stagnant, the share accruing *directly and indirectly* to the non-state sector is large and growing in the 1990s. This is also true for the coastal provinces, which have witnessed a rapid growth in the non-state sector. Although the reforms during the last two decades have sought to create a financial system on market principles in China, commercials banks, by and large, continue to function as mere appendages to the central government, ignoring the potential systemic risks. The soft budget constraint faced by the banking system manages to survive as the financial sector is still closed, and China has an exceptionally high domestic saving rate.

In a detailed microeconomic enquiry into the incentives involved in the decentralised industrialisation in China, Susan Whiting (2001) observed:

> The most powerful of these factors were incentives contained in the revenue sharing fiscal system and the cadre evaluation system. First, the fiscal system created a revenue imperative for local officials by requiring that local governments to be largely self-financing, and since township governments were heavily dependent on

Table 4 (i): Changing Composition of Manufacturing Output, 1960-97: China

Industry Group	1960	1970	1980	1990	1997
Food products	2.3	2.8	3.1	4.3	3.2
Beverages	1.9	1.4	1.9	2.5	2.0
Tobacco	3.8	5.3	4.8	4.8	2.3
Textile products	12.2	16.7	12.8	9.9	7.4
Wearing apparels	1.8	1.5	1.8	2.7	5.2
Leather products	1.0	1.0	1.3	1.2	2.5
Wood products	5.7	4.2	3.3	1.5	2.1
Paper and printing	2.8	3.0	3.1	3.7	3.4
Chemicals and petroleum	8.0	16.5	18.5	16.1	14.8
Rubber and plastic	1.4	2.7	3.0	3.8	5.5
Building materials	5.7	6.3	7.5	8.2	8.8
Metals	25.0	16.8	15.6	12.8	7.6
M/c, Transport equipment	19.9	14.2	12.8	13.7	17.5
Electric machinery	5.8	4.7	5.3	8.5	13.2
Other mfg	2.8	3.0	5.2	6.3	4.5

Source: Wu (2002)

Table 4(ii): Changing Composition of Manufacturing Output, 1951-98: India

NIC Code	Industry Group	1950-51	1960-61	1970-71	1980-81	1990-91	1997-98
20-21	Food	25	21	12	9	9	9
22	Beverages and tobacco	-	-	-	5	4	4
23-26	Textiles	25	21	15	19	13	14
27	Wood	25	24	19	12	5	3
28	Paper	2	3	5	4	4	3
29	Leather	1	1	2	2	1	1
30	Chemicals	6	6	8	9	12	13
31	Rubber	1	2	4	4	6	6
32	Non-metallic minerals	2	3	4	4	5	5
33	Metals	6	8	11	11	9	9
34	Metal products	1	2	7	6	5	4
35	Non-elec M/c	1	2	5	6	6	5
36	Elec M/c	1	1	3	5	7	7
37	Transport equipment	4	5	6	5	5	6
38	Other mfg	13	12	5	4	6	6
39+97	Repair services	-	-	5	6	4	5

Source: National Accounts Statistics, various issues.

industry to meet their revenue requirements, they had a strong incentive to promote local industrial development...Second, the cadre evaluation system powerfully shaped local official behaviour by linking both the remuneration and advancement of local leaders to performance on economic as well as socio-political norms. Economic norms centred on the promotion of industrial development, while socio-political norms mandated the financing and provision of public goods and thus reinforced the revenue imperative facing local leaders. These features of the cadre evaluation system, put in place beginning in 1979, are among the often overlooked aspects of the political reform...that occurred at the outset of the reform process in China [Whiting, 2001:72-73].

More recently, George Gilboy, echoed a similar view:

[The] business risks inherent in China's unreformed political system have bred a response among many Chinese managers – an 'industrial strategic culture' – that encourages them to seek short-term profits, local autonomy, and excessive diversification. With a few exceptions, Chinese firms focus on developing privileged relations with officials in the Chinese Communist Party (CCP) hierarchy, spurn horizontal association and broad networking with each other, and forgo investment in long-term technology development and diffusion. Chinese firms continue to rely heavily on imported foreign technology and components – severely limiting the country's ability to wield technological or trading power for unilateral gains [Gilboy 2004].

But, the real brunt of the creation of excess capacity and lack of demand is being borne by the financial system that has been able to bankroll the huge losses of local enterprises by accumulating bad loans variously estimated – by international agencies like HSBC Bank or S and P credit rating agency – to be any where between 25 to 50 per cent of GDP, that has the potential to undermine the viability of the financial system.

Even ignoring the systemic risk, the working of the political competition at the decentralised level has given rise to an economic structure that seems to have serious inefficiencies as capacity creation is not governed by private profitability consideration. OECD's careful scrutiny of the Chinese economy said the following:

Despite the country's rapid integration into international markets, domestic markets remain highly segmented and fragmented. Industrial growth has been concentrated in pockets of regions, sectors and firms, while the rest has lagged. Although some highly efficient and internationally competitive Chinese firms have emerged, most Chinese firms remain relatively small, undercapitalised and poorly managed. Overcapacity and inefficiency characterises many industrial sectors that have been shielded from competition [OECD 2002:127].

It further added:

Despite these broad transformations, the legacy of the pre-reform industrialisation strategy and the way reforms have been implemented have created an unbalanced industrial structure for some time now. The concept of economic organisation was... an essentially functionalist concept. ... [In] China it was coupled with a preoccupation local autonomy in terms of production. Thus, not only did each ministry have its own companies, but each province, sometimes each municipality, had to equip itself with as complete a production system as possible. The launching of reforms at the end of the 1970s did not bring about any real changes. Provincial and local officials were no longer judged on their political loyalty alone, but also on their ability to develop local industry. From this point of view, their control of local banking system made it possible for them to embark on rapid industrialisation without considering the effects of the duplication of investment on the national scale.

China holds some unenviable world records when it comes to the fragmentation of its industrial structure. Thousands of undersised producers, manufacturing the same products are spread all over the country [OECD 2002:166].

As a result of the capacity creation on an unprecedented scale, without a corresponding growth in domestic demand, the profitability of industrial firms declined in the 1990s, as evident from Table 7.

The regional self-sufficiency is also evident in the poor technological structure in many industries. For instance, while China's steel making capacity is several times India's, Tata Steel is found to be a far more efficient producer of steel than all the plants in China [Woetzel 2001] (Table 8). This is probably true also of SAIL's Bhilai plant though to a lesser extent. Similarly, China's bicycle production is many times India's, but Hero Cycle plant in Ludhiana is said to be the world's largest and most efficient factory. If scale and scope has any value in industrial organisation, then China seems to have missed something vital in the recent emphasis on the TVEs.

Table 5: Workforce Composition in China and India

(Percentage of workforce)

Years	Agriculture	Industry	Services
China			
1980	69	18	13
1990	60	21	19
2000	50	23	27
India			
1983	68.6	14.7	16.7
1987-88	64.9	17.1	18.0
1992-93	64.0	19.9	20.1
1990-2000	60.4	17.5	22.1

Source: OECD (2002), *NSS* survey results.

Table 6: Share of Loans Going to the Non-State Sector

(a) Share of short-term loans going to selected components of the non-state sector

(Per cent)

	Financial Institutions			State Banks	
	1997	1998	1999	1997	1998
TVEs	6.7	6.4	6.6	2.6	2.6
Private enterprises and individuals	0.5	0.5	0.6	0.3	0.3
Foreign joint ventures	2.5	2.9	3.2	2.9	3.3

(b) Share of outstanding loans going directly or indirectly to the non-state sector

	1996	1998	2000
Total	38.9	41.8	47.7

(c) Share of new loans going directly or indirectly to the non-state sector, by selected provinces, 2000

Region	Province	Share
Coast	Jiangu	65.0
	Shandong	49.8
	Zhejiang	74.2
North	Helongjiang	37.8
Central	Hubei	37.6
West	Sichuan	47.0
	Shanxi	42.1
	Xinjiang	22.8

Source: OECD (2002): 242

While China's manufactured export growth after the reforms has been phenomenal, it is largely based on imported components with limited domestic value addition, conducted mainly by foreign enterprises. This is especially true of the fastest growth segment namely, electronics goods where its balance of trade has been negative [Swamy 2003].[7] Therefore, there is a need for caution in attributing China's industrial success mainly or largely to exports [Bramall 2000].

It is becoming increasingly clear that the non-state sector in China, popularly called the private sector, seriously suffers from a lack of clarity on ownership, organisational and governance structures. However, fully foreign owned enterprises (which still account for a relatively small fraction of total production) are said to have much greater property rights. While the absence of such institutions may not have mattered in the initial phases of economic development, they could become crucial issues as China joins the WTO, and as Chinese firms seek to internationalise their operations. The 2004 implosion of D'Long Corporation – reportedly the largest private sector firm producing lawnmowers to aircrafts in many countries across the globe including the US and Germany – highlights the perils of weak institutional structure. Such an incident is likely to dent China's credibility, exposing its institutional weaknesses (*Far Eastern Economic Review*, September 2, 2004).

This seems to highlight the lack of domestic entrepreneurship that could be a serious handicap in an increasingly open and competitive environment [Huang and Khanna 2003]. Conscious of this shortcoming, Chinese authorities have been very hospitable to non-resident Chinese entrepreneurs, who form the backbone of the east Asian success story, encourage them to invest in China. However, it would remain a moot point if they can adequately substitute for domestic entrepreneurial capability.

In another instance, the problems faced by Heier – China's most known international brand name in consumer durable goods – suggests that its aggressive international spread does not reflect its domestic technological and marketing capability, but precisely the opposite: apparently seeking the short-term advantage of venturing abroad on a soft credit regime of the banking system to avoid developing domestic in-house capabilities. A recent case study commented:

> Rather than focusing on a core business or dominating a few markets, as western, Japanese and South Korean managers have slowly learned to do, their Chinese counterparts quit any market where competition is rising, as so many other profitable opportunities beckon. Lack of accountability – *not even Mr Zhang* [Heier's top manager] *can say who really owns Haier* – and cheap loans from state banks encourage this trend. The result is firms that are broad but shallow, thinly spread and managerially stretched. Sadly for Haier, that is the very opposite of a focused, global brand" (*The Economist*, March 18, 2004, emphasis added).

China has over the last two decades passed a series of legislations purported to institutionalise the widely accepted features of a market economy, to gain credibility in the eyes of the world powers. But as long as the Chinese government continues to be the policy maker as well as the judiciary, there is no way the legal system will be credible. As *The Economist* put it sharply on the rule of law,

> China's developing capitalism is not solidly based on law, respect for property rights and free markets. It is unbalanced and potentially unstable. Multinational companies operating in China have often failed to produce an adequate return on their investment, or indeed a profit of any sort. That is partly their own fault, because they overestimated the market and underestimated the competition. With experience, more are getting it right. However, the business climate in China remains capricious and often corrupt (*The Economist*, March 18, 2004).

Similarly, citing the example of lack of protection of intellectual property, another study cautioning against undue optimism about China, Lieberthal and Leiberthal opined,

> ...China's intellectual property right protections, although strong in theory, are in fact impossible to enforce in much of the country. Local governments protect their own counterfeiting operations as a source of local revenue. Moreover, there are no constitutional rules that define the division of authority between different levels of political system. That division is based on policy rather than law, and policies change constantly [Lieberthal and Leiberthal 2003:76].

If the above arguments and evidence culled from a variety of secondary sources have any value, they seem to suggest some limitations of the recent Chinese industrialisation effort. These shortcomings could well remain hidden in a relatively closed economy, financial system and opaque institutional framework. However, with the rule of international trading soon closing in on China, some of these latent problems could surface sooner than later, especially as Chinese enterprises seek to step out into the world market. The two instances mentioned above seem to indicate the gravity of the problems that Chinese enterprises could face in the future. Arguably, China could use its economic and political strength to retain its unique features, but it is likely to come under increasingly international pressure and public gaze that may compel it to

Table 7: Selected Statistics of Industrial Production (Independent Accounting Enterprises at and above Township Level)

Product	No of Manufacturers			Use of Capacity in 1995 (Per Cent)	Group Profit Rate (Per Cent)	
	Before Reforms	1985	1995		1985	1995
Bicycle	38 (1978)	672	1081	55	44.9	0.2
Motor cycles		194	1535	55	18.4	8.6
Sedan car		3	30	65	41.6	18.3
Bus		53	135	30	40.1	(-) 0.3
Refrigerator	21 (1984)	110	186	57	32.2	8.1
Washing M/c	42 (1984)	132	89	43	30.0	2.9
Air conditioning		44	408	34	30.0	6.4
Beer		451	737	70	24.1	2.5

Source: Lin, Yi-min (2001): 185.

Table 8: Competitiveness of Steel Industry
($/tonne)

	Baosteel	Anshan	Shagang	China Average	Tata Steel
Coke	91	85	87	81	66.0
Blast furnace	117	116	118	119	78.6
Liquid steel	161	167	161	169	128.3
Slab	176	185	175	188	140.4
Hot-rolled coils	216	224	209	229	168.9
Cold-rolled coils	269	273	253	280	209.3
Overheads	37	43	28	43	42.0
CRC cost with overheads	306	316	281	323	251.0
Cash operating cost rating (Ranking 10=lowest cost)	8	7	6		9

Source: World Steel Dynamics, as reported in *Far Eastern Economic Review*, February 12, 2004.

amend many of its unique features that bestow its firms an undue advantage at home and abroad.

V
What about India?

In contrast, India's relatively modest growth and export performance seems underpinned by a sounder economic, institutional and entrepreneurial basis.

(1) The property rights regime is firmly entrenched in India, and courts work reasonably well. The Supreme Court verdict in favour of ITC in the excise duty evasion case of over Rs 800 crore seems a testimony to judicial independence in commercial matters, although the case took 17 long years to settle.

(2) Indian industrial growth and exports have high domestic content and local ownership, and are sold increasingly under Indian brand names.

(3) India's industrial capacities may be relatively small, but they do not seem to be as fragmented as in China. Industrial and trade policy reforms during the last two decades have sought to build economies of scale and scope into Indian manufacturing. As a result, in some industries in India like steel, petroleum refining, petrochemicals cement, the plant sizes are perhaps close to the frontier in technology.

(4) Though the gross domestic saving rate is much lower than China's, the domestic financial system has far greater depth and wider international linkages. Compared to China's bad loans estimated to be in the range of 20-50 per cent of its GDP, the commercial banking sector's gross NPAs were minuscule at 2.8 per cent of GDP in 2002-03 and have declined during the past decade.

(5) India has a long tradition of a domestic entrepreneurial class that is gradually faced with an increasingly open trade and investment regime. For instance, the Tata group has expanded its sales and investments abroad by leveraging their domestic capabilities and intangible assets. Further, entrepreneurship is spreading to newer groups of firms whose strength lies not in accumulated wealth or political patronage but mastery over production technologies which are rapidly spreading overseas – Infosys, Wipro, Ranbaxy, Bharat Forge, etc [Huang and Khanna 2003].

Realising India's growth potential would call for overcoming some of the widely accepted problems currently faced by the industrial sector. As is known, industrial output growth has decelerated since around the mid-1990s for about seven years now [Nagaraj 2003]. There is little evidence to suggest acceleration of output and export growth on a trend basis after the initiation of the economic reforms in the early 1990s. Constraints on growth seem to be mainly from the demand side as agriculture growth slowed down in the 1990s, and infrastructure investment has steadily declined since the late 1980s. Further, small enterprises and unregistered manufacturing have been adversely affected by lack of credit and its high cost.

India has to step up investments in infrastructure and agriculture, strengthen its labour-intensive manufacturing sector to realise its export potential. Infrastructure for export promotion needs to be benchmarked against China. An increase in investment would improve demand for the domestic capital goods industry that has been suffering from excess capacity. Access to long-term finance for promoting industrial investment needs to be revived with performance guarantees as in east Asia.

VI
Conclusions

China's industrial growth, using independent estimates, is about one and half times that of India's during the last half a century or so. However, India's growth has been much more stable. Although economic reforms in the two countries were expected to remedy the heavy industry bias of the plan period, in China the share of capital goods has steadily gone up, while in India it has stagnated since the mid-1980s. The sustained development of capital goods perhaps contributed, among other factors, to China's competitiveness in export of labour-intensive manufactures. From an Indian perspective, it is sobering to know that the Chinese performance is not 'out of this world' (as it is often made out to be in popular discourse), but understandable in terms of its faster agriculture and export growth. Gradual reforms during the last two decades in India have not narrowed the gap in output growth rates between the two countries.

Is China's apparently growing lead over India irreversible? Although China's growth record is impressive, the infirmities in its microeconomic, institutional and entrepreneurial bases seem to raise many doubts on the sustainability of its superior performance. A persistently high capital-output ratio suggests enormous excess capacities, and probably misallocation and wastage of capital resources. Such capacities seem to be built with little regard to a profitability of investment, since such decisions are not economic decisions but political ones to provide employment to avoid social unrest and ensure career advancement opportunities for local level party and government officials. The financing of unprofitable investment on such a scale seems possible on account of the high domestic savings (about 40 per cent of GDP) deposited with the state-owned commercial banks in the closed financial system, which has little autonomy but to follow political guidelines in its investment decisions. Thus the real brunt of such a pace and pattern of industrial development seems to be borne by the financial system with bad loans varyingly estimated to be anywhere between 20-50 per cent of GDP; with the government repeatedly writing down bad loans with fresh infusion of capital.

Besides, China's industrial structure seems highly fragmented, by scale and location leading to poor efficiency; the legal framework of business is still rudimentary and there appears a lack of clarity on property rights. Similarly, China also seem to lack independent private entrepreneurial groups that can take commercial risks independent of tacit state support. The recent collapse of D'Long – reportedly China's largest private company with operations worldwide – seems to be a testimony to the microeconomic and institutional fragility of the Chinese industrial edifice.

While the size and growth rate of India's industrial sector and its exports are modest compared to China's, it seems to rest on a firmer microeconomic, legal and institutional footing. India's growth and exports have a much higher domestic content, domestic ownership and are sold under domestic brands. In an increasingly open economic environment, Indian firms have displayed the ability internationalise their operations with exports and by investing in businesses abroad in a variety of manufacturing and service industries.

With a sizeable increase in public investment in infrastructure and agriculture, revival of long-term industrial finance and easier

access to credit for small enterprises, the Indian industrial sector would, in the long run, perhaps be in a better position to close the performance gap with China. EPW

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Notes

[Earlier versions of this paper were presented at China Development Institute, Shenzen; Centre for Development Studies, Thiruvananthapram; Cornell University, Ithaca; and St Thomas College, Trissur (at the conference in honour of K N Raj). The paper has benefited from numerous comments and suggestions received from many participants during these presentations. However, the author alone is responsible for the errors that remain.]

1 Trend growth rates are based on fitting log-linear equation to the annual data.
2 In the absence of more disaggregated data, it is not strictly possible to derive use-based classification of industrial output. However, as a rough proxy, we have defined capital goods to consist of electrical and non-electrical machinery and transport equipment; and consumer goods as food, beverages and tobacco, and clothing and textiles.
3 This section represents a brief summary of the large literature on Chinese experience. We propose to fully develop the arguments of this section in a more detailed version of this study.
4 After a careful analysis of productivity of non-agriculture sector in China, Alwyn Young came to the following conclusion, which is consistent with much of classical theory of economic development: "Despite popular academic emphasis on industry and exports, a deeper understanding of the world's most rapidly growing economies may lie in the most fundamental of development topics: agriculture, land and peasant" [Young 2000:45].
5 Observing the hugely unoccupied office and residential spaces on his visit to Shanghai's Pudong Special Economic Zone in the late 1990s, Milton Friedman is said to have remarked: "The city is not a manifestation of the market economy, but a statist monument for a dead pharaoh (Deng) on the level of the pyramids." (As reported in 'Shanghai's little secret', *Business Standard*, June 30, 2003)
6 Besides the formal incentives, this is widely reported to be the source of corruption, as the promoters of the TVEs and contractors building local infrastructure are said to be usually close relatives of the local officials. Yi-min Lin (2001) based on detailed fieldwork-based research on the evolution economic and political markets wrote: "Although it cannot be ascertained from the limited case studies how intensely industrial firms were affected by particularistic state action, they do suggest that such influence was not trivial, which is consistent with what is indicated by the survey findings cited at the beginning. They also indicate that the ad hoc rule bending by state agents was driven by their calculation of self interest, which could be tied to the mutual benefits cultivated by favour seekers" [Lin 2001:97].
7 Surveying large Chinese companies. *The Economist* recently opinioned, "In recent years China has averaged a $12 billion annual trade deficit in electronic goods, components and machinery, according to the ministry of commerce. Most of its 'hi-tech' manufacturing is actually low value added assembly. The really smat bits, such as integrated circuits are imported" (*The Economist*, January 8, 2005).

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