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Agriculture Sector in the Liberalisation Period

A Comparative Study of India and China

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Introduction

China and India share similar concerns as far as growth and equity aspects are concerned. Both countries are now posted at the crossroads in the process of liberalisation and new challenges with trade as an engine of growth puts their policies in a new perspective. The comparison actually emerged on the eve of China's accession to the World Trade Organisation (WTO). Lal (1995), felt that similar cultural and political systems of dirigisme the two economies will have some comparables. Being densely populated countries, food security has always been their main concern along with strengthening the linkage between agriculture and rural industry (Prybyla, 1978). The ongoing development process however, shows varying performance. On the advantage side, these two giants have one of the world's largest production sectors in most of the commodities along with a large and growing market. At the same time the two countries are poised to cut a space in international trade and thereby establish themselves as serious players in the trade sector. The current process of liberalisation has provided this opportunity for appropriate intervention, and at the same time bared the threats that they may confront in the near future. Recent analytical writings indicate intricate implications for India as China steps into the WTO domain, with firm commitments in non-agricultural commodities and it is indicated that in bilateral trade the share will be stabilised soon but probably in favour of China (Boillot and Labbouz, 2006). Equity and poverty eradication the two major policy pointers have come under cloud. Doubts are best expressed whether this policy thrust has

dampened with the new forces of growth. This paper tries to analyse the developments in agriculture sector in India and China during the current phase in the context of poverty and equity.

India and China are engaged seriously in the reform process and are moving towards a market-oriented economy albeit at different pace and with distinct landmarks. Perkin (1994), identified five elements needed to make the market work in the context of China namely:

- a. Achieve macro stability on BoP, inflation and fiscal deficits.
- b. Make inputs and outputs available for purchase and sale on the market than allocating administratively.
- c. Free up the prices to reflect relative scarcity.
- d. Remove barriers to market and allow them to function.
- e. Change key elements of institutional framework so that decision-makers in production units have incentive to perform (Perkin, 1994, p.27-28).

But these are also important in the Indian context. We need to see how much of these have actually worked on the ground. We know that the agricultural sector in both the countries is highly diversified in terms of agro-climatic conditions, and crop varieties and market conditions. Historically the two countries have accumulated rich experience in an array of crop economies and have established themselves as major traders in a few commodities but still the protective fundamentalism dominated the scene. Yet, both showed significant differences and these are quite obvious due to the existence and changes in political structure. Lal (1995) analysed the system of *dirigisme* in the two nations and the changes that have occurred till the nineties but blames the current wobbling to the remainders of the earlier system. Being vast territories, there are similarities and diversities in the eco-agricultural conditions across the regions in regard to production conditions, the technology of production and the response of the society to the changes¹ (Lal, 1995 provides a clear view of this comparison). Starting from differential land related issues and the production conditions, the differences reach up to production

1. Lal (1995) provides a clear view of this comparison.

efficiency. Reforms took different courses in these two countries as the existing political conditions largely dictated these. One interesting observation should not miss out of this comparison and that China caught pace with India on most counts, despite being a late starter and with the political mismatch with the process of liberalisation (Cerra *et al.*, 2005). The comparison is therefore interesting due to the differential achievements under difficult politico-economic constraints.

It is on this backdrop we have placed this analysis to bring out the implications of liberalisation of the agricultural sector for development in these two Asian powers. We intend to explore the available evidence on these two mega economies for faster growth and poverty alleviation. The paper is spread over four sections. The second section sketches broad characteristics of economies of China and India particularly focusing on status of agriculture in the post liberalisation period. The third section provides the reader with the analysis during the phase of liberalisation to bring about the reasons for the contrasts. The concluding section draws on the experience of the process in both the economies in the light of past experience and for equity.

Aggregate Economic Performance

The two giant economies have been progressing steadily, but following different processes of growth. During the period between the death of Mao Zedong in 1976 and the National Party Conference held in 1985, the centre of gravity of the Chinese political economy changed toward markets and trade. In the Indian context, even though the change was not so dramatic, it percolated during the decade beginning with 1985 and consolidated by the middle nineties. We can see from the growth rate in per capita gross domestic product of the two economies that the Indian economy has been experiencing fluctuating rates of growth during the period of the last 40 years, whereas the Chinese economy has maintained a consistent growth in the per capita Gross Domestic Product (GDP) despite political changes (Figure 12.1 and 12.2). The difference can be located in the mid-seventies but specifically around 1982, from where the growth of per capita GDP of the Chinese economy has been consistently ahead of the per capita GDP growth of the Indian economy. China's GDP grew more than 8 per cent per year between 1978 and 1992. This rate was

double the GDP growth in the previous two decades (Perkins, 1994). Beyond 1992 the growth in GDP continued to be between 7 and 13.5 per cent per annum (Table 12.1; Appendix Table 12.1 and 12.2). The difference can be explained from the pattern of growth in the three major sectors of the economies, namely, industry, agriculture, and services. China has shown, higher proportion of GDP generating from the manufacturing sector as against India (Figure 12.3). Similarly, the growth in services sector in India is much faster than that in China and therefore, India can garner advantage from the growth in the services sector. In China, private restaurants and personal services were suppressed, commerce and finance were under state ownership and were considered inferior activities in comparison to the sectors like manufacturing. Whereas the service sector in any low income developing economy constitutes between 35 to 40 per cent of GDP, the Chinese service sector contributed only 23 per cent in 1978 and slightly above that in subsequent years (Perkins, 1994: 30). The Indian case is of course totally different. The annual growth rates in the Gross Domestic Product in the two economies suggest interesting situations. The fluctuations in the GDP of the Chinese economy were quite prominent till 1977, but after that, the variations in the annual GDP growth rate seem to have come down. This is quite consistent with the observations by other scholars who placed 1978 as a milestone in Chinese liberalisation. It was Mao's death in 1976, the downfall of the Gang of Four and Deng Xiaoping's taking over of the power in 1978 that changed the situation.

Deng Xiaoping envisioned a *Xiaokang* society in which economic well being, if widely shared, would go hand in hand with social harmony. The term *Xiaokang* referred to a well-off society where all can lead a fairly comfortable livelihood. As a result after 1983, the annual growth rate in GDP of the Chinese economy consistently stayed above the Indian economy, except for a short period of two years during 1990 and 1991 (Figure 12.2).

When it comes to the agricultural sector, both economies have been showing a consistent decline in the per cent share of GDP originating from agriculture but the rate of decline is much sharper in the Chinese economy as against the Indian economy. In other words, the dependence on agriculture, *per se*, has been declining at a higher

Table 12.1
Select Macroeconomic Indicators: China and India

		1995	1996	1997	1998	1999	2000
Annual % change in Real GDP	China	10.5	9.6	8.8	7.8	7.1	8.0
	India	7.6	7.4	4.5	6.0	7.1	3.9
Inflation Rate	China	14.8	6.1	0.8	-2.6	-3.0	0.4
	India	9.03	7.44	6.67	7.94	3.94	3.49
Growth in Broad Money (%)	China (M ₂)	29.5	25.3	19.6	14.8	14.7	112.3
	India (M ₃)	10.89	12.62	14.81	17.69	20.27	23.68
Exports (%) Change per Year)	China	23.0	1.5	21.0	0.5	6.1	27.8
	India	22.41	8.1	5.75	-4.48	8.61	16.46
Imports(% Change)	China	14.2	5.1	2.5	-1.5	18.2	35.8
	India	28.0	6.7	6.0	2.2	17.2	1.7
Merchandise Trade Balance (US\$ Mill)	China	16.7	12.2	40.3	43.6	29.1	24.1
	India						
International Reserves (US\$ bill)	China	73.6	105.03	139.89	144.96	154.68	165.6
	India	216.87	264.23	293.67	324.90	380.36	422.81
Exchange rate	China						
	(RMB/US\$)	8.32	8.30	8.28	8.28	8.27	8.27
	India						
	(Rs/US\$)	33.44	35.49	37.16	42.33	43.33	45.86

Sources: 1. China - Cass, Deborah *et al.* (2003) p.91;

2. *Economic Survey*, Govt. of India, New Delhi.

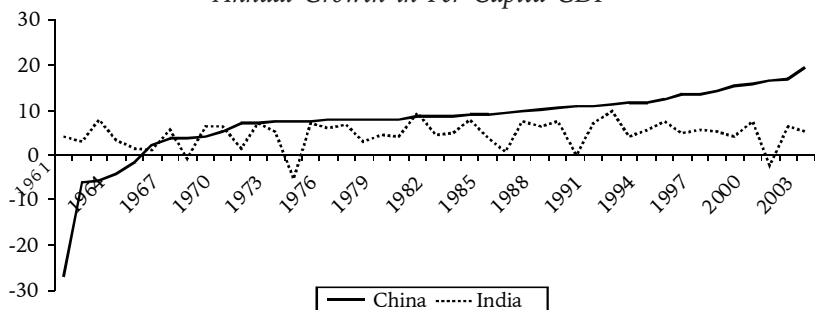
rate in the Chinese economy as against the Indian economy (Figure 12.3d). Immediately after 1977 the commune system was spontaneously dismantled. It is only when the decommunisation spread substantially, that the Communist Party of China endorsed it in 1979. In this process emerged the land ownership issues; and the commune lands slowly started getting to provide property regime. Land issues assumed great importance. This certainly has implications for equity, as well as distribution.

Agricultural Sector in the Phase of Liberalisation

Land Issues and Equity

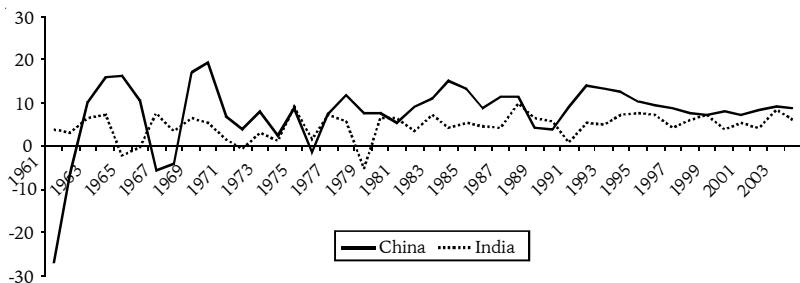
Land related issues assumed significant importance in the recent debates in India and China. They have a large landmass and their

Figure 12.1
Annual Growth in Per Capita GDP



Source: *World Development Indicators 2004*, Online data set.

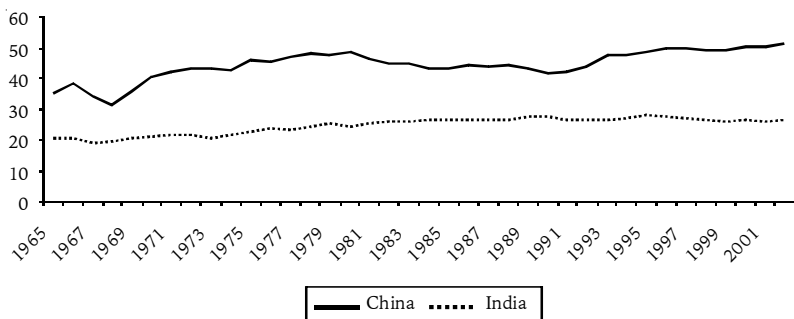
Figure 12.2
GDP Annual Growth



Source: *World Development Indicators 2004*, Online data set.

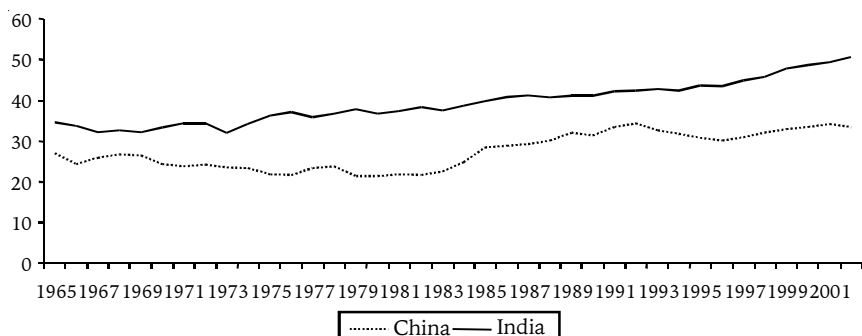
Figure 12.3
Trends in Share of Sectoral GDP

(a) From Industry

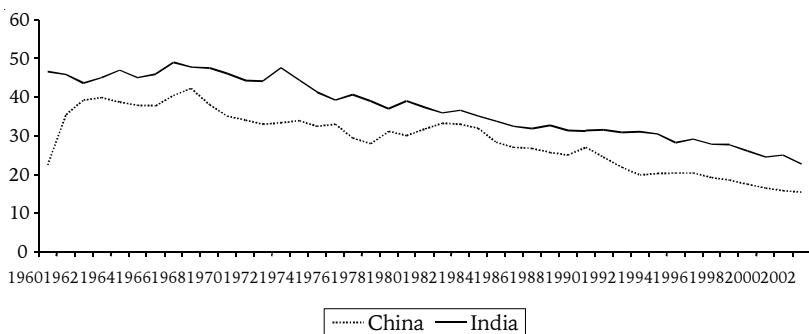


Source: www.earthtrend.com

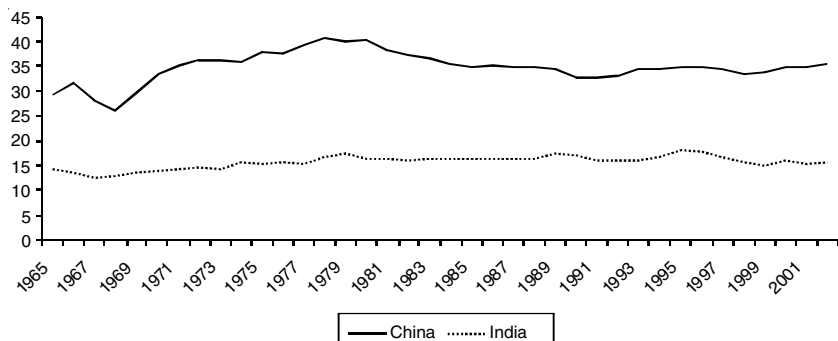
(b) From Service

Source: www.earthtrend.com

(c) GDP from Agriculture (in per cent)

Source: www.earthtrend.com

(d) From Manufacturing

Source: www.earthtrend.com

tenurial problems are dissimilar but with similar implications. China's central rule meant that a uniform land system prevailed especially while the central power was effective. India by contrast had different legal patterns of revenue collection and different land tenures as a result of a lack of central authority reinforced by British experimentation. Unlike India, where the land system was created in the Moghul period and followed systematically through years, the Chinese have supported a dynamic land market. Chinese supported meritocratic acquisition of status as against the status granted through caste (*Zamindari*) system in India (Lal, 1995).

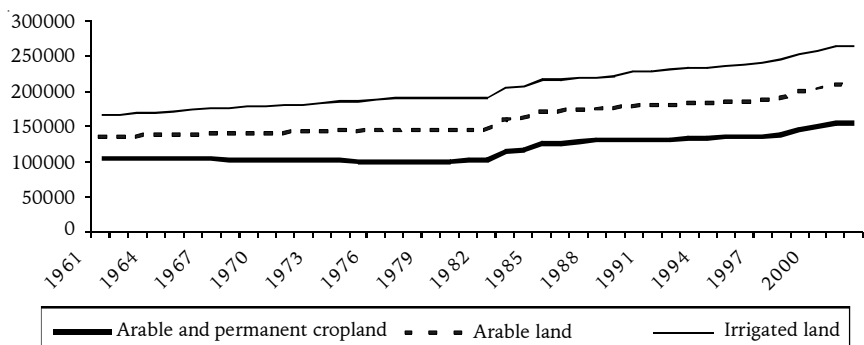
The total landmass of China is about 2.4 billion hectares and that is much larger than India. At the same time, population pressure on the land is also quite high. With the conviction of equalising landholdings Chinese government undertook the first phase of land reforms in 1949. The reforms were focused on land distribution and lived for a very short period, but by 1953 a lot could be achieved. Small landholdings in China prevailed even before the reforms, and therefore little land distribution could be achieved. Food security being the main concern it was felt that purchase of grains will be difficult with the smallholdings and thus began the agricultural cooperatives. As a result of the reforms, the land use rights became exclusive. Only farming households were allowed to cultivate an allotted land. A fifteen-year guarantee to continuously cultivate the land was provided along with a promise to extend it for a future period (Perkins, 1994). By 1956, almost all farm households joined the advanced cooperatives in which households pooled their lands, production technology, animals and received remuneration according to the labour input. It was argued that in theory, they still had the option to leave the cooperative but in practice, it was difficult. Historically it is well known that in 1958 the collectivisation moment was at the peak. It is stated that the famine, following the Great leap forward was due to non-enforcement of the exit rights (Lin, 1990). There are of course, other opinions, and therefore, one can say that the causes of famines are multiple.² There were positive as well as negative externalities of

2. The *China Economic Review* brought out a special issue in 1998 discussing the causes of the Great famine

the commune system but possibly it buckled under the pressure of reformism. *Xiaokang* was the starting point that marked the crumbling of the collective system, and many began leaving group farming and adopting individual cultivation. The initial success of individual farming in 'Anhui' and 'Sichuan' brought more followers. The success or failure of the commune system, however, was only one part of the land issues in China, but it is the most important starting point of analysis as the structure of *de facto* property rights was being redefined.

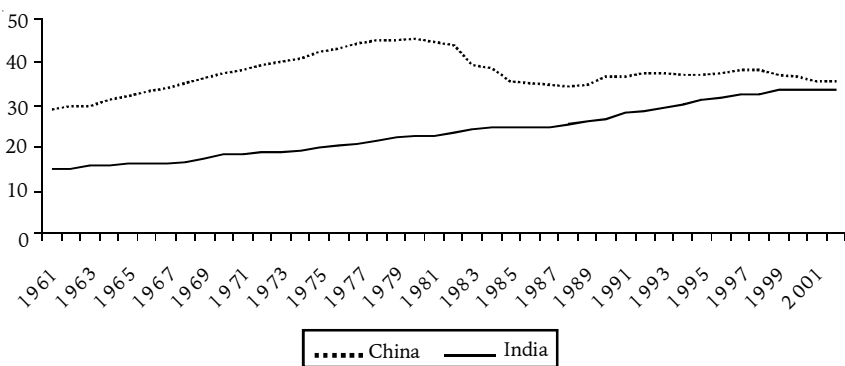
The commune system was formally dismantled during 1978 to 1984 and "Household Responsibility System" was introduced. Though collectivisation broke down, the land rights were shared between the village collective and the cultivating individual household. This is some kind of two-tier system of ownership holding. This system allowed some flexibility, but at the same time, was quite restrictive in terms of efficiency of production. The land rights are now incomplete and encumbered but probably, that left only choice to move from collectivisation in a greater manner (Kung, 1994; Dong, 1996; Yao, 2000). The two-tier land tenure system was influencing strongly the political situation. In the meanwhile, the policy of "no increase of land for the new born, and no decrease of land due to the dead" was experimented in *Meitan* County in 1987 (Zhou and Liu, 1997). After some initial expedition this was passed as a policy, with implications on efficiency. This has led the central government to pass a new law namely, the Agricultural Lease Law (2003), which took effect from the first of March 2003. The law stipulates that the village shall not make adjustment to the lease land in the lease period. It recognised the inheritance on the lease. The central government had put the lease period as 30 years, further extendable. Thus, a permanent land lease market has been developed but that does not allow land to be sold to individuals nor the rights to be transferable. Similarly, uncertainty also prevails in the allocation of land under certain conditions by the government. When we look at the land use pattern in China (Figure 12.4) it clearly indicates a break around 1985, as well as at about 2001, showing a step up in arable and irrigated land. But the irrigated share of cropland in China declined in the post-1981 phase, and it stabilised after some time (Figure 12.5).

Figure 12.4
Land Use Pattern in China



Source: FAOSTAT Online statistical service.

Figure 12.5
Irrigated Share of Cropland (Percentage)



Source: FAOSTAT Online statistical service.

Land policy in independent India went through five phases and these are characterised by various interventions on behalf of the state. Policy changes, focusing on abolition of intermediaries and the tenancy reforms formed the first step in the history of policy. The second phase, though taken almost concurrently but impacting a different policy pointer namely land ceiling formed a significant milestone in

shaping the land distribution in India. The third component of intervention through land policy involved was bringing under cultivation the vast patches of uncultivated lands. This was followed by increased attention towards soil and water conservation wherein soil conservation was on the forefront. This was achieved through Drought Prone Areas Programme (DPAP), Desert Development Programme (DDP) and wastelands development initiatives. Degraded lands attracted the attention during the fourth phase of the policy and at the national level a Waste Land Development Agency was established. Following this a massive programme was taken for watershed development programme. The current phase of policy debate revolves around the relevance of some of the land legislations and transparency in land records through computerisation.

India's land reforms have been recognised as an important step in agricultural policy initiatives and that brought a sea change in the entire approach towards development policy. Immediately after independence following J. C. Kumarappa committee report, four important components of land reforms were thought of as major policy interventions in building the land policy to deal with defining property rights, poverty and asset distribution. These included i. abolition of the intermediaries; ii. tenancy reforms; iii. fixing of ceiling on landholding; iv. consolidation of holdings. These were taken in different phases as the ground preparation and the political will was to be built for their wider acceptance (Appu, 1997). By 1960, the whole process of legal enactment of the abolition of intermediaries was completed. This is acclaimed as the most successful components of the reform process. But that is not the case for other components of land reforms.

Among the changes in land lease market that have been seen in the last 30 years, six components assume significant importance. First, the period of lease that used to be lifelong has been reduced and in the states in which leasing operations are legal the lease period is shortened. However, a large part of the lease operations are undercover. Second, earlier there used to be little or no supervision by the landlord of the leased land. This has increased as a result of the fear of tenant occupancy and the landlord tenant relations have become stronger in terms of resource sharing and cost sharing. Third,

the share of the landowner in the investment used to be negligible but that has increased substantially due to technological inputs. Four, the rent that used to be fixed by the landlord has been regulated in a few States. In a few other States where tenancy is undercover, the landlord fixes the rent and this can be from 50 to 85 per cent of the produce. Five, during the early years of independence the tenant was exploited and rarely identified himself with the land that he cultivated, however now the tenant identifies himself with the land. Thus, tenant cultivator's production efficiency might be higher when compared with the owner cultivator. Six, due to concealed tenancy, if the tenant is resource-poor the hardships faced are numerous especially in accessing the credit, technology and product market. The tenant (if resource-poor) is entirely left to the mercy of the landlord. In the case of reverse tenancy this does not happen (Deshpande, 2005).

Land policy in India emerged on the mosaic of the varied socio-political background of different regions. It emerged in various phases but broadly can be elaborated as two stints of land reforms, followed by land use policy bringing in economically unviable land under mainstream growth through drought prone area programme, desert development programme. Wasteland Development Programme that was environmentally designed to reclaim the degraded land followed this. All these policy interventions had a significant influence on poverty and overall development process of the country. In addition to these, other land policy instruments were used for the purpose of sharpening the policy, as land policy is multidimensional in nature. In every analysis about policy interventions, the key areas for the purpose of action and major policy interventions required along with the impediments in the process of implementation are indicated. Among the key areas for action include computerisation of land records, GIS based land survey, cautions legalising of the tenancy market, formal-informal cooperation in farming with group contract farming, and development of degraded and wasteland by providing land-use rights. The implementation issues relate to the political economy aspects of these measures and setting right kind of institutions for the purpose of achieving these. Our policy of establishing Land Use Boards at the State level provided only a toothless institution. Strengthening of the State Land Use Boards is suggested to effectively put these policies on

the ground. It is strongly felt that policy should be directed towards locating proper institutional framework in order to get these issues incorporated in a broader frame.

The tenurial system of land use in China as against the ownership and demographic pressures leading to marginalisation of size of holding in India are two high points of the comparison. The tenurial system clearly contributes towards efficiency, as it is the only way to survive. As against the ownership rights in India, efficiency takes second priority. Marginalisation of land size in India has been causing significant concerns (Table 12.2). These concerns are genuine as they impact the aggregate growth pattern of the sector. Indian tenancy market is also fragmented and unsteady across the states in the country as against the steady and long protected tenancy market in China. In totality, Chinese land tenure system seem to be supporting the agricultural growth pattern and that gets reflected in their productivity. This hypothesis would require rigorous support from the empirical data but nevertheless in final comparison Chinese agriculture is certainly efficient compared to Indian agriculture and

Table 12.2

Distribution of Operational Holdings: All India

Category of Holdings	No. of Operational Holdings ('000)		Area Operated ('000 ha)		Average Size of Operational Holdings in hectares	
	1990-91	1995-96	1990-91	1995-96	1990-91	1995-96
Marginal (less than 1 Hectare)	63389 (59.4)	71179 (61.6)	24894 (15.0)	28121 (17.2)	0.39	0.40
Small (1 to 2 hectares)	20092 (18.8)	21643 (18.7)	28827 (17.4)	30722 (18.8)	1.43	1.42
Semi-Medium (2 to 4 hectares)	13923 (13.1)	14261 (12.3)	38375 (23.2)	38953 (23.8)	2.76	2.73
Medium (4 to 10 hectares)	7580 (7.1)	7092 (6.0)	44752 (27.1)	41398 (25.3)	5.90	5.84
Large (10 hectares and above)	1654 (1.6)	1404 (1.2)	28659 (14.8)	24163 (14.8)	17.33	17.21
All Holdings	106637 (100.0)	115580 (100.0)	165507 (100.0)	163357 (100.0)	1.57	1.41

Note: Figures in parentheses indicate the percentage of respective column total.

Source: *Agricultural Census*, Ministry of Agriculture, New Delhi.

land tenure system is the major contributor to such differential efficiency.

Input Use and Production Performance

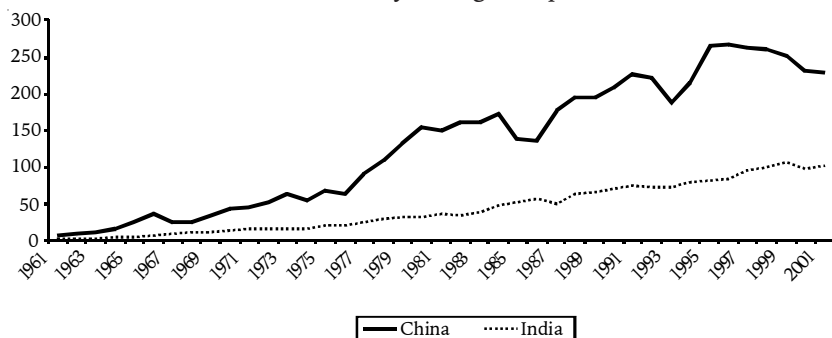
Owing to the land system, agricultural production in the two countries is differently organised. China has a predominance of paddy based cropping system, whereas Indian cropping system is highly diversified, owing to the private ownership of land. The cropping intensity in Chinese agriculture is much higher than that of India. In addition to this, the Chinese agricultural research system provides a full backup to the farmers in their cropping decisions. This has become feasible, due to the tenurial system in China. Naturally, the intensity of input use is better in China as compared to India (Figure 12.6 and 12.7). We can see that the per hectare fertiliser use in China has consistently been above that in India. One can easily mark four break points in the input use pattern of China, first break appeared in 1967, followed by the second almost after a decade. Major breakthrough seems to have taken place during the early eighties, and mid-nineties. We can also observe the fluctuations in fertiliser use under Chinese agriculture as against a steady increase for the same in the Indian context (Figure 12.6). Despite the intensity of fertiliser use, as well as density of other inputs, the Agricultural Production Index in Chinese agriculture stayed well below Indian agricultural production index until 2000-01 (Figure 12.8 and 12.9). This clearly brings out the efficiency in the Indian production system as against its counterpart (See Figure 12.7).

Food Security and Overcoming Poverty

Being densely populated countries, food security is high on the policy agenda of both. The great famine provided a painful lesson to the Chinese policymakers but that was learnt in India much earlier during the sixties, which transformed Indian agriculture inside out. Both countries are presently, marginally self-sufficient, and even a slight drop in the food production may cause serious welfare loss in either of the countries. In this context it is worth noting that China seized the policy issues than India. China's agricultural policy emerged in two phases after 1979. The first phase was focused on evolving

Figure 12.6

Fertiliser Use Intensity (Kilograms per Hectare)



Source: FAOSTAT Online statistical service.

Figure 12.7

Tractor Use Intensity (Hectares per Tractor)

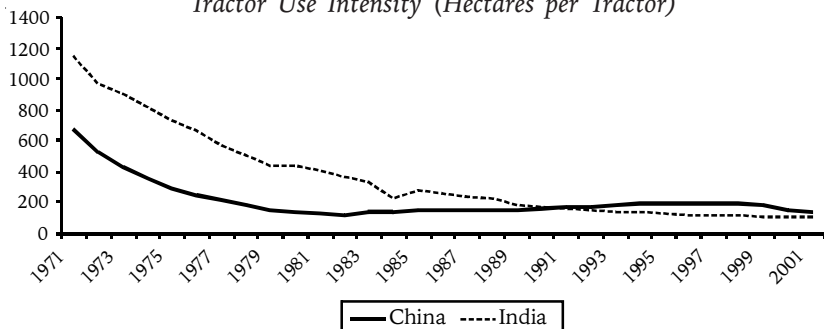
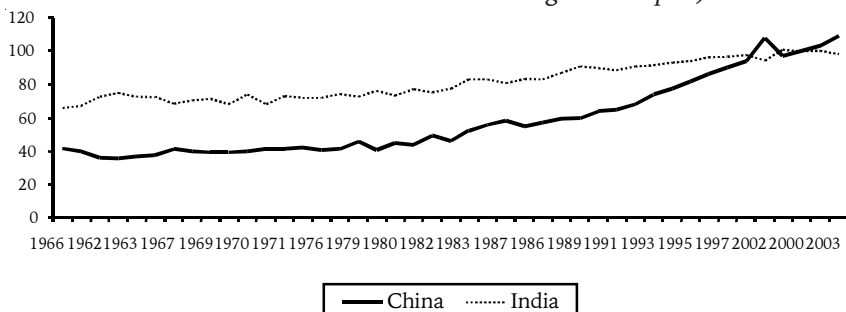


Figure 12.8

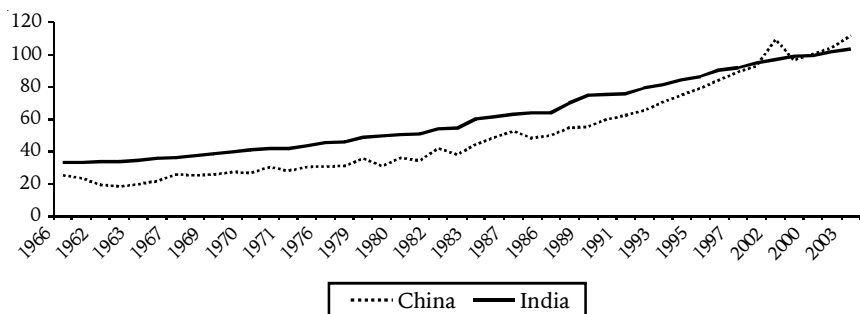
Per Capita Food Production Index (Base Year 1999-2001) Per cent of 1999-2001 Food Production Average Per Capita)



Source: FAOSTAT Online statistical service.

Figure 12.9

Total Production Index (Base Year 1999-2001) Per cent of 1999-2001
Total Agricultural Production Average



Source: www.earthtrend.com

various responsibility systems and culminated into output-linked contracts. There were two main forms of contracts namely 'baochan daohu' (contracting output to the household) and 'baogan daohu' (contracting everything to the household) (Ash, 1988). The output contract allocated some land to the household and specified a target of output. The second type of contract covered distribution of animals, farm tools and other equipments, but once the taxes are paid to the government the household was free to sell the output in the market. The second phase of policy was built through Document No. 1 of 1983 and Document No. 1 of 1984. The document of 1983 supported payment linked output and the 1984 Document specified 15 years and beyond for the contract period. Taken together these two documents constructed the second phase of agricultural policy. The analytical view about this period indicated that this period indicated that the dominant source of output growth during 1978-84 was the change from the production team system to Household Responsibility System. The changes in the procurement prices and also market prices had a significant impact on output growth (Lin, 1992). The first stage reforms spurred physical growth in output and by 1984 China faced a situation of unmanageable surplus of agri products. Around this time, abolition of the state monopoly purchases and introduction of contractual plus free market exchange were marked stages. We can see that per capita food production index, with the base of 1999-2001 is

lower in the Chinese context as against India (Figure 12.8). The equivalence got established only in 2001. However, one must note that the growth in per capita food production in Chinese agriculture picked up during the period, beginning with 1987. This growth is much steeper than that experienced in India in the comparable period. Given this experience, the resilience shown by the two economies to emerge victorious out of the deep crisis with their own efforts, is quite evident. This, however happened in two different contexts, one in a full democratic society, whereas the other with a centralised decision-making. The food economy has a telling effect on equity and poverty within the two countries. It is documented that the Chinese economy has more or less, overcome the food insecurity trap, but not fully come out of it. Almost a similar experience can be visualised in the Indian context but in the Chinese economy, distribution has never been a disturbing problem, which unfortunately, is an ulcerating issue in the Indian context.

Participation in Trade

Either of the countries did not consider trade as an essential economic tool for their development. India's trade policy was highly protectionist and import substitution was the main strategy. Chinese economy was centralised for trade policy and the state retained monopoly of trade in major commodities until 1985. By 1990, about 80 per cent of the agricultural commodities were bought and sold in domestic and international markets together as compared to eight per cent in 1978 (Chang *et al.*, 2001). A decade back Lal (1995), posed a question "whether the long standing atavistic attitudes towards the market have changed sufficiently in both countries to allow the current move from the plan to the market to be completed and to endure?" and he hinted at insecure reform process at that time but probably things have taken a different shape.

China, as well as India is now participating aggressively in international trade. Even a cursory look at the trade balance in the two countries indicates that China has been more aggressively approaching the international markets than India (Figures 12.10 to 12.13). The growth in aggregate international trade of China is far ahead, of India. Talking specifically of the agricultural sector, trends presented in Table

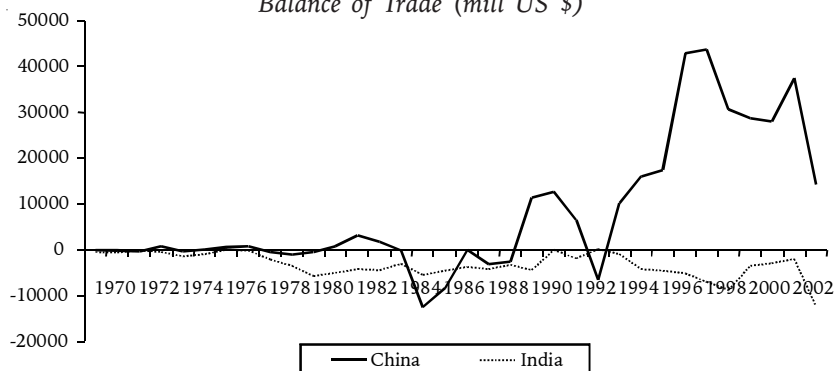
12.3 indicate that trade in the food grain sector has declined in both the countries but more sharply in the case of China than in India. The dependence for food on the international market has declined significantly in China, and so also in India. But probably, one must also look at the sensitivity of total production to the climatic fluctuations and the probability of drought in which either of the countries may have to import substantial amount of food commodities. In the nonfood commodities trade, China has always been ahead of India and especially during the nineties, Chinese trade has increased substantially. The reason for this economic phenomenon is diversification in the labour market towards non-farm tradable commodities. The non-farm based rural industries have increased substantially and consequently, the production of these industries found place in the international market for China. A similar change did not take place in India. We can draw two important lessons here for India. First, China's export competitiveness and the quantum of their exports impacted the trade of other countries and given the composition of China's trade, India will have to be not only on guard—but can follow the strategy of export promotion adopted by China. Already, India has adopted the policy of establishing special economic zones on the lines of China and expectations are high about their performance.

Second, as an expanding economy with rising FDI, China's domestic consumption of imported commodities has increased substantially. India can step in here and pick up this advantage. Finally, the context of cooperation of these two Asian giants in forging their trade both bilateral and emergence of their joint pressure on world trade is quite intriguing. In a recent paper it is brought forth that the bilateral trade will stabilise quickly in China's favour and at the same time the joint pressure of the two countries on the world market will increase with China leading ahead of India (Boillok and Labbonz, 2006).

Poverty Alleviation

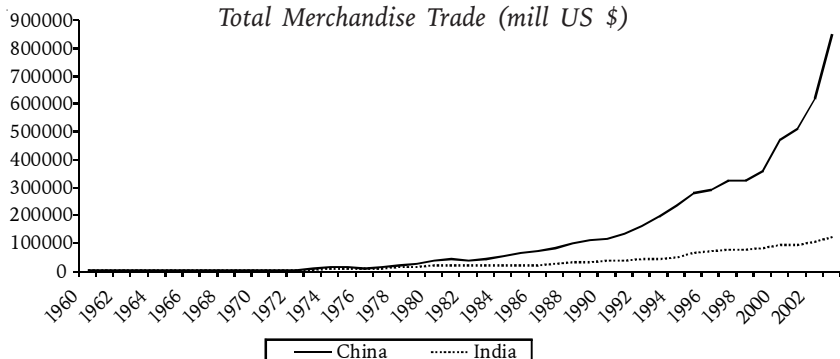
India's rendezvous with poverty began way back with Dadbhai Navroji's seminal work during the early part of the 20th century and revisited only in the early seventies by Dandekar and Rath. Two precious decades were lost after independence without any significant

Figure 12.10
Balance of Trade (mill US \$)



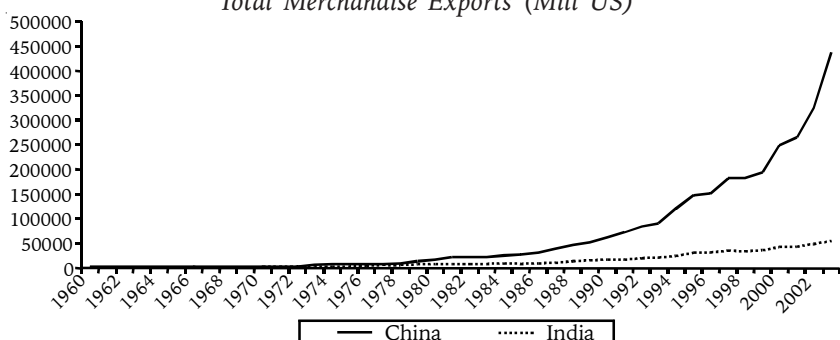
Source: www.earthtrend.com

Figure 12.11
Total Merchandise Trade (mill US \$)



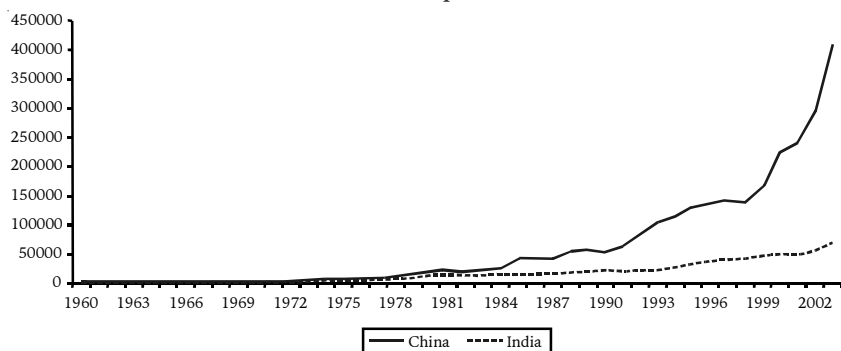
Source: www.earthtrend.com

Figure 12.12
Total Merchandise Exports (Mill US)



Source: www.earthtrend.com

Figure 12.13
Total Merchandise Imports (mill US \$)



Source: www.earthtrend.com

Table 12.3
Trade in Agricultural Sector

	<i>Agricultural raw materials as a per cent of total merchandise exports</i>		<i>Agricultural raw materials as a per cent of total merchandise imports</i>		<i>Food exports as a per cent of total merchandise exports</i>		<i>Food imports as a per cent of total merchandise imports</i>	
	<i>China</i>	<i>India</i>	<i>China</i>	<i>India</i>	<i>China</i>	<i>India</i>	<i>China</i>	<i>India</i>
1987	5.9	2.8	6.5	4	14.6	19.7	7.3	8.4
1988	5.6	2	8.6	4.5	14.6	16.7	7.8	8
1989	5	2.1	7.2	3.9	13.9	16.4	9.1	3.5
1990	3.5	4.1	6.1	4	12.7	15.6	8.7	3.2
1991	2.8	2	6.2	3.1	12.3	16.8	6.1	2.7
1992	2.3	1.6	4.9	3.7	11.3	16.2	4.9	3.8
1993	2	2	3.1	3.4	10.8	16.8	2.9	3.1
1994	2.1	1.2	4.4	4.4	10	15.5	4.4	6
1995	1.7	1.3	5.2	4	8.2	18.7	7	4.3
1996	1.6	2.5	5.1	3.2	8.2	18.5	5.9	4.7
1997	1.4	2	5.2	3.6	7.1	17.8	5	5.6
1998	1.1	1.7	4.2	3.3	6.6	17.2	4.8	8.9
1999	1.2	1.4	4.3	3.4	6	14.5	4	7.2
2000	1.1	1.2	4.7	3.5	5.4	12.9	4	4.8
2001	0.9	1.1	4.4	4.1	5.3	13.1	3.8	6
2002	0.8	NA	4	3.1	5	12.3	3.3	5.8

Source: *World Development Indicators 2004*.

dent on the most ulcerating problem of poverty in this part. Direct onslaught on poverty alleviation was initiated through various plans in India from 1971 and these could be categorised into six broad groups, namely i. Self-employment generating programme ii. Public employment generating programmes, iii. Subsidies to inputs and production supporting systems, iv. Public distribution system and nutrition programmes, v. Social Security programmes, and finally, policy of positive discrimination to protect the weaker sections. There cannot be two opinions about reduction of poverty from the high levels during the seventies to the present level of the nineties. But there is a good amount of debate on the poverty trends during the late nineties, and especially in the period spanning economic reforms. Some have argued that the nineties have been the period of unprecedented improvement in the living standard, whereas, others have empirically demonstrated increase or stagnancy in poverty during the nineties. The argument is twofold; first, it has been shown that the rate of decline in the poverty headcount ratio during the nineties has been much slower than the rate of decline in the poverty headcount ratio during the earlier period. Second, the data on quality of life in rural areas of India indicating hardly any improvement during the nineties, and that speaks volumes about the dent on the poverty during the reform period. In an excellent review article Deaton and Dreze (2002), have re-examined the issue of poverty and inequality in India to conclude that there is hardly any support to the claims that the nineties have been the period of unprecedented improvement in the poverty headcount. But they did not also find sufficient evidence to conclude that poverty has actually increased during the phase of liberalisation.

The problem of acute poverty also haunted China in its progress and development. However, in the post-1986 phase, China could maintain not only respectable rates of growth, but also achieved dramatic reduction in poverty (Table 12.4). It brought about significant reduction in the number of poor in this period starting with the poverty alleviation programmes introduced during 1986. Before 1986, China did not have an explicit national policy on poverty alleviation but the government did provide attention to the problems of the rural poor. The government recognised the problem of poverty and initiated

Table 12.4
Poverty Reduction in China and India

Year	(Per cent HCR)	
	China	India
1987-88	10.5	39.4
1993-94	7.9	33
1999-00	3.0	26.3

Source: i) China Rural Poverty Monitoring Report-2000,

ii) Planning Commission, Govt of India, Various Issues

subsidised grain sales and other assistance through direct and budgetary transfers. The real breakthrough came when the government of China began the poverty reduction plan named as '8-7' plan (Huang *et al.*, 1998). This programme had an objective of shifting about 80 million rural poor above the poverty line during the seven-year period i.e., between 1994 and 2000. The plan provided for assistance to poor households for land improvement and livestock production, access to non-farm employment, extending road and power infrastructure, along with providing safe drinking water, and emphasis on education, as well as health (Rozelle Scot *et al.*, 1999). Estimated with China's official poverty lines, China's rural poor have decreased dramatically in the past 20 years, from 260 million in 1978 to 128 million in 1984, and further to reach at an unbelievable figure of 30 million in the year 2000 (World Bank, 2001). It is now well recognised that China's poverty reduction is quite remarkable compared with other countries with similar constraints. Along with this China's labour market had shown remarkable changes during this phase of reforms. Rapid rise in employment began in the late eighties and continued during the nineties. Feminisation of the labour force is one of the marked changes during this period (deBruaw *et al.*, 2002). The programme covered 592 poor counties where about 50 per cent of the rural poor were located. This had dramatic effects on reduction of poverty in China. The major feature of poverty reduction policy in China was reflected in implementation of this plan, along with a significant autonomy to the provincial governments. They were supplied funds to implement the poverty alleviation programmes and the focus of the poverty alleviation programme was a comprehensive integrated development to develop market-oriented commodity

production (World Bank, 2001). The issue of the impact of changes in China's trade policy on poverty in the country is debated recently (Anderson *et al.*, 2004). This was also discussed in the Indian context, and it is concluded that the policy changes as such may not influence the poverty trends adversely in either of the nations.

Conclusions

Any comparison of the development pattern in India and China directs to a few very important policy pointers. It is well accepted that the political and socio-cultural situations of the two countries are not comparable but the constraints that are confronted by these economies are quite similar. It is also established that the policy pointers emerging out of the comparison may not have similar impact domain in the two countries but at least provide a clear direction to initiate further movement. First, China approached the process of reforms slightly compromising with its ideological basics but without disturbing its political and economic commitments. The tinkering took place in the given domain, and without forcing any dramatic change in the existing pattern of economic growth. Basic indicators of the process of economic growth in China indicated a steady movement away from agriculture and towards rural industrial sector. Possibly, the labour force movement out of agricultural sector also accompanied that and the credit must go to the rural non-farm industries.

Second, the land issue in China was more complex than India, and therefore, when the provinces were given autonomy the critics did not expect the dramatic results realised afterwards. The problem of land issue still remains to be sorted out in both the countries, especially about the land lease market.

Third, on the technology front the Chinese agriculture has never stayed back, and in fact, the production trends very clearly depict increased growth during the nineties and efficiency in production, especially in the food grain sector. In other words, no complacency was seen that neglected the food sector.

Fourth, instead of concentrating on trade in the agricultural sector, Chinese policy preferred to focus on non-agricultural labour-intensive industrial products. This had a dual effect, providing employment to

those who sought it, and stepping up the growth in the income generated from industrial sector flowing towards rural areas, along with earning foreign exchange. The strategy paid rich dividends, and China, which was behind India in its growth trends, overtook during the last decade. In the Indian context, we kept away from the problem of employment generation for long and tried to sort it out through EAS probably the strategy that provides employment, but may not generate equivalent growth.

Fifth, direct assault on poverty in China began only after the mid-eighties, and still the country could achieve better results within a short time span. Possibly, this has to be credited to the growth in the non-farm sector, production oriented strategies and emphasis on rural infrastructure. In the Indian context, our strategy towards poverty still happens to be employment-oriented rather than production-oriented. Therefore, it may bring down the headcount ratio, but at the same time, may not generate sufficient growth in the economy.

Jeffery Sachs observed the dramatic changes in China over two decades and he writes “ I was lucky to catch a glimpse of China at the start of the Deng era, on a short trip in 1981. China was still shaking off the Maoist legacy. Clothing was uniformly drab, mainly dark blue cotton tunics and pants worn by both men and woman. Beijing was a sea of bicycles, with a handful of trucks and almost no personal cars. Peasant farmers were hawking cabbages at the roadside, a sign of both the new freedoms to sell their goods and the poverty of what they had to sell. Tourists were still guided to the special tourist shops, where they were invited to purchase low quality, low tech Knickknacks and apparel” (Sachs, 2005: 155), and then he describes the next stage most vividly “The multistory buildings were going up by hand, and were they going up! I learned what a nine per cent growth rate means: an economy that is growing 24/7, with work shifts around the clock making up for lost time. In China’s case, it was 550 years of lost time” (Sachs, 2005: 156). Possibly, we need to pick a lesson or two from the Chinese experience of economic policy during the last decade. Rao has put this lesson very succinctly, in a nutshell we quote “However, other elements of the Chinese experience such as high and labour-releasing agricultural growth, favourable income distribution through broad

based agricultural growth, availability of infrastructure, high levels of literacy and skills, inducement for the location of enterprises in rural areas, and easy access to credit and inputs are extremely relevant for the growth of the rural non-farm sector in India” (Rao, 2005: 34). We find no need to add further to this in depth expression.

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Appendix Table 12.1

Annual Per cent Change in real GDP (Per cent Change over earlier year)

<i>Year</i>	<i>China</i>	<i>India</i>
1998	7.80	5.99
1999	7.10	7.13
2000	8.00	3.94
2001	7.50	5.15
2002	8.00	4.59
2003	9.10	8.00
2004	9.50	7.40
2005	9.32	7.29
2006	8.62	6.93
2007	8.75	7.26

Source: Trade and Development Report, 2005, United Nations.

Appendix Table 12.2

*Annual Growth and Per Capita Annual Growth:
GDP India and China (Per cent per year)*

<i>Year</i>	<i>GDP: Annual growth rate</i>		<i>GDP: Per capita, annual growth rate</i>	
	<i>China</i>	<i>India</i>	<i>China</i>	<i>India</i>
1961	-27.1	3.9	-27.1	3.9
1962	-6.1	3.1	-6.1	3.1
1963	10.3	6.3	-5.7	7.8
1964	15.8	7.4	-4.1	3.5
1965	16.4	-2.4	-1.6	1.7
1966	10.7	-0.2	2.3	1.2
1967	-5.7	7.8	3.8	5.8
1968	-4.1	3.5	3.8	-0.6
1969	16.9	6.5	4.1	6.4
1970	19.4	5.2	5.2	6.4
1971	7	1.7	7	1.7
1972	3.8	-0.6	7.1	7.1
1973	7.9	3.2	7.5	5.2
1974	2.3	1.2	7.6	-5.2
1975	8.7	9.2	7.6	7.2
1976	-1.6	1.7	7.8	6
1977	7.6	7.2	7.8	6.7

contd. ...

...contd....

Year	GDP: Annual growth rate		GDP: Per capita, annual growth rate	
	China	India	China	India
1978	11.7	5.7	7.9	3.2
1979	7.6	-5.2	8	4.6
1980	7.8	6.7	8	3.9
1981	5.2	6.4	8.7	9.2
1982	9.1	3.7	8.8	4.5
1983	10.9	7.1	8.8	4.8
1984	15.2	4.1	9.1	8
1985	13.5	5.6	9.1	3.7
1986	8.8	4.8	9.2	0.9
1987	11.6	4.3	9.6	7.4
1988	11.3	9.9	10.3	6.3
1989	4.1	6.4	10.5	7.6
1990	3.8	5.8	10.7	-0.2
1991	9.2	0.9	10.9	7.1
1992	14.2	5.3	11.3	9.9
1993	13.5	4.9	11.6	4.3
1994	12.6	7.5	11.7	5.7
1995	10.5	7.6	12.6	7.5
1996	9.6	7.4	13.5	4.9
1997	8.8	4.5	13.5	5.6
1998	7.8	6	14.2	5.3
1999	7.1	7.1	15.2	4.1
2000	8	3.9	15.8	7.4
2001	7.5	5.2	16.4	-2.4
2002	8.3	4.1	16.9	6.5
2003	9.3	8.6	19.4	5.2

Source: World Development Indicators 2004, online data set.

Appendix Table 12.3

Share of GDP by Major Sectors: China and India

(Per cent Share)

Year	From Agriculture		From Industry		From Manufacturing		From Services	
	China	India	China	India	China	India	China	India
	1970	35.2	46.1	40.5	20.7	33.7	13.8	24.3
1971	34.1	44.2	42.2	21.4	35.1	14.4	23.8	34.3
1972	32.9	44.2	43.1	21.5	36.1	14.5	24.1	34.3
1973	33.4	47.6	43.1	20.3	36.2	14.3	23.5	32.1
1974	33.9	44.3	42.7	21.6	35.7	15.6	23.4	34.1
1975	32.4	41.3	45.7	22.4	38.1	15.3	21.9	36.3
1976	32.9	39.3	45.4	23.6	37.6	15.8	21.7	37.1
1977	29.4	40.7	47.1	23.4	39.3	15.5	23.4	35.9
1978	28.1	39	48.2	24.5	40.7	16.6	23.7	36.6
1979	31.2	36.9	47.4	25.2	40.2	17.4	21.4	37.8
1980	30.1	38.9	48.5	24.5	40.5	16.3	21.4	36.6
1981	31.8	37.4	46.4	25.3	38.5	16.3	21.8	37.3
1982	33.3	35.9	45	25.8	37.3	16.2	21.7	38.3
1983	33	36.6	44.6	25.8	36.5	16.3	22.4	37.6
1984	32	35.2	43.3	26.2	35.5	16.4	24.7	38.7
1985	28.4	33.7	43.1	26.4	34.9	16.4	28.5	39.9
1986	27.1	32.5	44	26.6	35.2	16.3	28.9	40.9
1987	26.8	31.9	43.9	26.7	34.7	16.4	29.3	41.4
1988	25.7	32.7	44.1	26.6	34.9	16.3	30.2	40.7
1989	25	31.3	43	27.6	34.5	17.3	32	41.2
1990	27	31.3	41.6	27.6	32.9	17.1	31.3	41.1
1991	24.5	31.5	42.1	26.4	32.7	16.1	33.4	42.1
1992	21.8	30.9	43.9	26.7	33.1	16.2	34.3	42.3
1993	19.9	31	47.4	26.3	34.5	16.1	32.7	42.8
1994	20.2	30.4	47.8	27.1	34.4	16.9	31.9	42.5
1995	20.5	28.2	48.8	28.1	34.7	18.1	30.7	43.6
1996	20.4	29.2	49.5	27.4	34.7	17.7	30.1	43.4
1997	19.1	27.8	50	27.2	34.6	16.7	30.9	44.9
1998	18.6	27.7	49.3	26.5	33.7	15.8	32.1	45.8
1999	17.6	26.2	49.4	25.9	33.8	15.1	32.9	47.9
2000	16.4	24.6	50.2	26.6	34.7	15.9	33.4	48.8
2001	15.8	25	50.1	25.7	34.7	15.3	34.1	49.4
2002	15.4	22.7	51.1	26.6	35.4	15.6	33.5	50.7

Appendix Table 12.4
Land Use Pattern China and India

(Units: Thousand hectares)

Year	Arable and permanent cropland		Arable land		Irrigated land		Irrigated share of cropland (Percentage)		Land in permanent crops		Permanent Pasture	
	China	India	China	India	China	India	China	India	China	India	China	India
1961	105248	160986	30411	24685	30411	24685	28.9	15.3	1851	5180	238000	13921
1962	105001	162400	31046	24885	31046	24885	29.6	15.3	1901	5700	241000	14002
1963	104854	162050	31503	25666	31503	25666	30	15.8	1951	4580	244000	14130
1964	104706	162118	32516	25871	32516	25871	31.1	16	2001	4386	247000	14601
1965	104509	162434	33587	26510	33587	26510	32.1	16.3	2066	4218	251000	14809
1966	104112	162720	34468	26660	34468	26660	33.1	16.4	2131	4130	255000	14910
1967	103715	163790	35441	26900	35441	26900	34.2	16.4	2221	4010	259000	14030
1968	103313	164570	36361	27190	36361	27190	35.2	16.5	2301	4500	263000	13800
1969	102928	164570	37228	29010	37228	29010	36.2	17.6	2381	4500	268000	13320
1970	102518	165060	38121	30440	38121	30440	37.2	18.4	2461	4500	273000	12990
1971	102165	164440	39044	31100	39044	31100	38.2	18.9	2546	4800	278000	13260
1972	101781	165260	39946	31550	39946	31550	39.2	19.1	2626	4800	283000	12960
1973	101388	166530	40859	31840	40859	31840	40.3	19.1	2706	5000	289000	12710
1974	102029	167230	41761	32550	41761	32550	40.9	19.5	2786	5000	295000	12780
1975	100637	168010	42782	33730	42782	33730	42.5	20.1	2871	5000	301000	12848
1976	100590	168189	43577	34490	43577	34490	43.3	20.5	2951	5000	307000	12621
1977	100532	168260	44488	35147	44488	35147	44.3	20.9	3031	5000	313000	12529
1978	100316	168635	45404	36554	45404	36554	45.3	21.7	3115	5000	319080	12363
1979	100423	168423	45443	38060	45443	38060	45.3	22.6	3208	5000	326000	12134
1980	100219	168255	45470	38478	45470	38478	45.4	22.9	3295	5300	334001	12100
1981	100908	168391	45000	38805	45000	38805	44.6	23	3381	5500	341001	12068
1982	101199	168675	44597	39924	44597	39924	44.1	23.7	3476	5500	348001	12050
1983	114902	168520	45059	40721	45059	40721	39.2	24.2	3681	5800	356001	11959
1984	115900	169078	44876	41955	44876	41955	38.7	24.8	3986	5800	363001	12002
1985	125896	169015	44584	41779	44584	41779	35.4	24.7	5091	5800	370001	11934
1986	126996	169250	44656	41760	44656	41760	35.2	24.7	6196	5800	378001	11977
1987	128794	169770	44836	42490	44836	42490	34.8	25	7201	6000	385001	11880
1988	129703	169310	44811	43050	44811	43050	34.5	25.4	7514	6100	393001	11850
1989	131002	169485	45351	44853	45351	44853	34.6	26.5	7716	6100	400001	11799
1990	131397	169438	47967	45144	47967	45144	36.5	26.6	7719	6300	400001	11602
1991	131391	169340	48384	47430	48384	47430	36.8	28	7719	6600	400001	11800
1992	131783	169270	49152	48500	49152	48500	37.3	28.7	8021	6900	400001	11670
1993	132782	169737	49874	50101	49874	50101	37.6	29.5	8923	7100	400001	11301
1994	133479	169790	49370	51452	49370	51452	37	30.3	9523	7300	400001	11240
1995	134700	169750	49859	53001	49859	53001	37	31.2	10645	7500	400001	11030
1996	135079	169530	50963	53402	50963	53402	37.7	31.5	10927	7700	400001	11050
1997	135371	169598	51821	55049	51821	55049	38.3	32.5	11228	7800	400001	11040
1998	137865	169712	52878	54985	52878	54985	38.4	32.4	11231	7900	400001	11046
1999	144961	169728	53740	57077	53740	57077	37.1	33.6	11331	7930	400001	11127
2000	148657	169755	54402	57238	54402	57238	36.6	33.7	11533	7970	400001	11040
2001	154955	170050	54831	57158	54831	57158	35.4	33.6	11334	8300	400001	11084
2002	153956	170115	54937	57198	54937	57198	35.7	33.6	11335	8400	400001	11062

Source: FAOSTAT on-line statistical service.

Appendix Table 12.5
Input Use in Agriculture

Year	Fertiliser consumption (Thousand metric tons)		Fertiliser use intensity (Kilograms per Hectare)		Tractor use intensity (Hectares per Tractor)	
	China	India	China	India	China	India
1961	728	338.3	6.9	2.1	1998.6	5190.4
1962	989.6	452.2	9.4	2.8	1896.7	4640
1963	1247	543.9	11.9	3.4	1757.6	4051.3
1964	1677	773.2	16	4.8	1579.5	3684.5
1965	2604	784.6	24.9	4.8	1431.2	3384
1966	3719	1100.6	35.7	6.8	1036.6	3012.7
1967	2697	1539	26	9.4	826.8	2481.7
1968	2696	1760.7	26.1	10.7	664	2109.9
1969	3474	1982	33.8	12	569.4	1828.6
1970	4407	2256.6	43	13.7	810.8	1650.6
1971	4566.4	2656.8	44.7	16.2	675.3	1149.9
1972	5247.2	2767.9	51.6	16.7	532.3	972.1
1973	6443.8	2838.5	63.6	17	430.5	903.6
1974	5575.7	2573.3	54.6	15.4	361.4	822.4
1975	6851.6	3493.8	68.1	20.8	290.2	738
1976	6420	3416.8	63.8	20.3	252.1	670.4
1977	9133.3	4295.8	90.8	25.5	214.3	571.7
1978	10861	5131	108.3	30.4	179.3	504.7
1979	13081.8	5272.9	130.3	31.3	150	444.7
1980	15334.7	5532.6	153	32.9	134	439.5
1981	15152.5	6084.6	150.2	36.1	126.6	403.1
1982	16395.5	5865.5	162	34.8	123.7	365.4
1983	18633.3	6635.5	162.2	39.4	135.5	335.3
1984	20062.4	7999.4	173.1	47.3	134.4	222.6
1985	17279	8665.4	137.2	51.3	146.2	278.1
1986	17323.2	9617.6	136.4	56.8	144.9	260.8
1987	22687.8	8342.7	176.2	49.1	144.5	243.4
1988	25321.9	10765	195.2	63.6	147.2	225.5
1989	25428.2	11314.3	194.1	66.8	152.7	183.2
1990	27273.7	12018	207.6	70.9	159.4	171.5
1991	29659.1	12728.1	225.7	75.2	165.1	159.3
1992	29202	12154.4	221.6	71.8	171	149

contd. ...

...contd. ...

Year	Fertiliser consumption (Thousand metric tons)		Fertiliser use intensity (Kilograms per Hectare)		Tractor use intensity (Hectares per Tractor)	
	China	India	China	India	China	India
1993	25079.3	12385.3	188.9	73	180.8	142
1994	28842	13563.7	216.1	79.9	189.1	135
1995	35580.2	13876.2	264.1	81.7	196.6	125.3
1996	35984	14338	266.4	84.6	197.4	121.1
1997	35646.7	16188	263.3	95.4	192.5	117
1998	35830	16797.5	259.9	99	186.7	113.1
1999	36439	18056.7	251.4	106.4	181.5	111.6
2000	34217.9	16702.3	230.2	98.4	150.3	111.3
2001	35345.6	17344.3	227.6	102.1	139.6	111.4

Source: FAOSTAT on-line statistical service.

Appendix Table 12.6 (a)
Trends In Production of Major Crops China

	(in mill tonnes)							
	Paddy	Wheat	Cereals	Pulses	Food Grains	Oilseeds nes	Cotton	Sugar Cane
1961	56217.6	14294.25	109660	8520.593	188692.414	285	800	12415.99
1962	65675.3	16707.1	120421.3	11217	214020.686	226	750	9829.314
1963	76439.29	18493.75	137456.2	8813.949	241203.218	287	1200	14556.53
1964	85853.78	20859.71	152356.6	9421.512	268491.621	236.5	1663	19165.65
1965	90705.63	25243.49	162156.3	9452.27	287557.676	361	2098	23118.7
1966	98403.99	25308.51	177613.5	7018.353	308344.332	362	2337	20577.97
1967	96734.82	28508.87	181182.2	7019.972	313445.835	304	2354	19641.93
1968	97716.77	27472.13	177133	6222.812	308544.72	416	2354	18888.4
1969	97998.5	27294.96	176486.8	6024.923	307805.138	402	2079	17738.42
1970	113101.9	29188.67	200836.9	6926.062	350053.46	379	2277	19702.96
1971	118129.2	32577.35	212142.8	6481.687	369331.018	460	2105	21302.12
1972	116428.6	35986.55	206517	6026.714	364958.811	557	1958	23785.39
1973	124584.1	35225.93	221853.5	6332.322	387995.804	517	2562	24728.77
1974	127010.7	40865.75	234636.9	6226.933	408740.289	572	2461	25578.4
1975	128726.3	45313.04	244525.5	6225.48	424790.321	455	2381	24565.42
1976	129231.9	50386.23	250213.7	6379.716	436211.588	241	2055	25610.65
1977	131917.5	41076.3	243286	6039.377	422319.227	441	2049	29053.87
1978	140023.8	53842.4	273038.1	6509.526	473413.879	509	2167	29394.39
1979	146846.1	62732.52	292727.5	6739.592	509045.766	646	2207	31186.37
1980	142876.5	55212.84	280287.4	6752.443	485129.247	515	2707	31977.59
1981	146959.8	59642.71	286450	6450.879	499503.467	686	2968	38379.6
1982	164741.4	68472.31	315364	6349.023	554926.762	529	3598	45486.38
1983	172008.9	81391.57	345626.5	6019.141	605046.078	465	4637	38624.18
1984	181095.8	87817.37	365937.3	6361.122	641211.569	570.6	6258	46470.04
1985	171318.9	85807.13	339877.4	5530.639	602534.017	654.229	4147	58711.26
1986	174720.5	90043.69	352084.7	5423.278	622272.148	475.74	3540	56483.31
1987	176662.5	85904.7	359240.7	5375.771	627183.633	541	4245	52811.51
1988	171441.9	85432.96	351824.3	6070.742	614769.916	485.622	4149	56062.4
1989	182485.2	90810.05	367636.1	4817.811	645749.19	688.245	3788	55645.25
1990	191614.7	98231.94	404413.3	6136.72	700396.594	543.313	4508	63451.07
1991	185692.6	95953.58	398464.1	2770.443	682880.712	640.727	5675	72694.72
1992	188291.9	101591.3	404275.2	2273.258	696431.695	649	4508	78868.56
1993	179746.9	106394.9	407930.5	4222.385	698294.696	507.942	3739	68997.31
1994	177994.4	99301.44	396460.1	4968.453	678724.415	650.737	4341	66430.35
1995	187298	102211.4	418664.2	4478.976	712652.574	643.128	4768	70278.81
1996	197032.9	110569.2	453665.4	4692.174	765959.684	716.633	4203	71260.2
1997	202771.8	123290.1	445931.4	4036.21	776029.546	876.868	4603	83012.39
1998	200571.6	109726.1	458395.6	4864.697	773557.956	742.846	4501	87203.68
1999	200403.3	113880.1	455192.7	4704.352	774180.475	812.69	3829	78108.15
2000	189814.1	99636.13	407336.3	4696.498	701483.025	843.224	4417	69298.73
2001	179304.9	93873.23	398395	5121.527	676694.663	844.731	5324	77965.65
2002	176342.2	90290.26	399998.4	5915.366	672546.246	872.759	4916	92202.61
2003	162304.3	86488.26	376122.6	5890.6	630805.75	799.492	4860	92039.1
2004	177434	91330.27	413567.7	4929	687260.929	845	6324	90635

Source: FAOSTAT on-line statistical service.

Appendix Table 12.7 (b)

*Trends in Production of Major Crops: India
(in mill tonnes, cotton-mill bales of 170 kgs)*

<i>Year</i>	<i>Rice</i>	<i>Wheat</i>	<i>Cereals</i>	<i>Pulses</i>	<i>Food grains</i>	<i>Oilseeds</i>	<i>Cotton</i>	<i>Sugarcane</i>
1950-51	20.58	6.46	15.38	8.41	50.82	5.16	3.04	57.05
1951-52	21.3	6.187	16.09	8.42	51.99	5.03	3.28	61.63
1952-53	22.9	7.5	19.61	9.19	59.2	4.73	3.34	51
1953-54	28.21	8.02	22.97	10.62	69.82	5.37	4.13	44.41
1954-55	25.22	9.04	22.82	10.95	68.03	6.4	4.45	58.74
1955-56	27.56	8.76	19.49	11.04	66.85	5.73	4.18	60.54
1956-57	29.04	9.4	19.87	11.55	69.86	6.36	4.92	69.05
1957-58	25.53	7.99	21.23	9.56	64.31	6.35	4.96	71.16
1958-59	30.85	9.96	23.18	13.15	77.14	7.3	4.88	73.36
1959-60	31.68	10.32	22.87	11.8	76.67	6.56	3.68	77.82
1960-61	34.58	11	23.74	12.7	82.02	6.98	5.6	110
1961-62	35.66	12.07	23.22	11.76	82.71	7.28	4.85	103.97
1962-63	33.21	10.78	24.63	11.53	80.15	7.39	5.54	91.91
1963-64	37	9.85	23.72	10.07	80.64	7.13	5.75	104.23
1964-65	39.31	12.26	25.37	12.42	89.36	8.56	6.01	121.91
1965-66	30.59	10.4	21.42	9.94	72.35	6.4	4.85	123.99
1966-67	30.44	11.39	24.05	8.35	74.23	6.43	5.27	92.83
1967-68	37.61	16.54	28.8	12.1	95.05	9.3	5.78	95.5
1968-69	39.76	18.65	25.18	10.42	94.01	6.85	5.45	124.68
1969-70	40.43	20.09	27.29	11.69	99.5	7.73	5.56	135.02
1970-71	42.22	23.83	30.55	11.82	108.42	9.63	4.76	126.37
1971-72	43.07	26.41	24.6	11.09	105.17	9.08	6.95	113.57
1972-73	39.24	24.74	23.14	9.91	97.03	7.14	5.74	124.87
1973-74	44.05	21.78	28.83	10.01	104.67	9.39	6.31	140.81
1974-75	39.58	24.1	26.13	10.02	99.83	9.15	7.16	144.29
1975-76	48.74	28.84	30.41	13.04	121.03	10.61	5.95	140.6
1976-77	41.92	29.01	28.88	11.36	111.17	8.43	5.84	153.01
1977-78	52.67	31.75	30.02	11.97	126.41	9.66	7.24	176.97
1978-79	53.77	35.51	30.44	12.18	131.9	10.1	7.96	151.66
1979-80	42.33	31.83	26.97	8.57	109.7	8.74	7.65	128.83
1980-81	53.63	36.31	29.02	10.63	129.59	9.37	7.01	154.25
1981-82	53.25	37.45	31.09	11.51	133.3	10.08	7.88	186.36
1982-83	47.12	42.79	27.75	11.86	129.52	10	7.53	189.51
1983-84	60.1	45.48	33.9	12.89	152.37	12.69	6.39	174.08
1984-85	58.34	44.07	31.17	11.96	145.54	12.95	8.51	170.32

contd. ...

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Year	Rice	Wheat	Cereals	Pulses	Food grains	Oilseeds	Cotton	Sugarcane
1985-86	63.83	47.05	26.2	13.36	150.44	10.83	8.73	170.65
1986-87	60.56	44.32	26.83	11.71	143.42	11.27	6.91	186.09
1987-88	56.86	46.17	26.36	10.96	140.35	12.65	6.38	196.74
1988-89	70.49	54.11	31.47	13.85	169.92	10.03	8.74	203.04
1989-90	73.57	49.85	34.76	12.86	171.04	16.92	11.42	225.57
1990-91	74.29	55.14	32.7	14.26	176.39	18.61	9.84	241.05
1991-92	74.68	55.69	25.99	12.02	168.38	18.6	9.71	254
1992-93	72.86	57.21	36.59	12.82	179.48	20.11	11.4	228.03
1993-94	80.3	59.84	30.82	13.3	184.26	21.5	10.74	229.66
1994-95	81.81	65.77	29.88	14.04	191.5	21.34	11.89	275.54
1995-96	76.98	62.1	29.03	12.31	180.42	22.11	12.86	281.1
1996-97	81.74	69.35	34.1	14.24	199.44	24.38	14.23	277.56
1997-98	82.53	66.35	30.4	12.98	192.26	21.32	10.85	279.56
1998-99	86.08	71.29	31.34	14.91	203.61	24.75	12.29	288.72
1999-2000	89.68	76.37	30.33	13.42	209.8	20.72	11.53	299.32
2000-01	84.98	69.68	31.08	11.08	196.81	18.44	9.52	295.96
2001-02	93.34	72.77	33.38	13.37	212.85	20.66	10	297.21
2002-03	72.65	65.1	25.3	11.14	174.19	15.06	8.72	281.57
2003-04	87	72.06	37.76	15.24	212.05	25.14	13.79	236.18

Source: Agriculture Statistics at a Glance 2004, Ministry of Agriculture, Govt of India.

Appendix Table 12.8
Trends in Per capita Food Production

	<i>Per capita food production index (base year 1999-2001) Per cent of 1999-2001 food production average per capita)</i>		<i>Total production index (base year 1999—2001) Per cent of 1999-2001 total agricultural production average</i>	
	<i>China</i>	<i>India</i>	<i>China</i>	<i>India</i>
1961	35.7	74.7	18.6	33.9
1962	36.1	72.4	19.2	33.8
1963	36.5	72.6	20	34.7
1964	37.6	72.6	21.4	35.4
1965	40	67.1	23.4	33.4
1966	41.6	65.7	25.1	33.4
1967	41	68.4	25.4	35.8
1968	39.7	70.4	25.3	37.3
1969	39.2	71.2	25.5	38.6
1970	39.9	73.7	26.6	40.7
1971	41	73	27.9	41.6
1972	39.3	68	27.4	39.7
1973	42	72.2	30.2	43
1974	41.2	67.9	30.2	41.6
1975	41.4	74.4	30.9	45.9
1976	40.6	71.9	30.6	45.4
1977	40.6	76.3	31.1	49.3
1978	43.9	77.1	34.1	51
1979	45.6	72.3	35.7	48.8
1980	44.7	73.3	35.8	50.5
1981	46.2	77.6	37.9	54.4
1982	49.4	75.3	41.6	54
1983	52.1	83	44.2	60.2
1984	55.5	82.9	48.6	61.7
1985	54.9	83.5	48.2	63.6
1986	57.2	82.8	49.9	63.7
1987	58.6	80.4	52.4	63.1
1988	59.2	86.9	54.2	69.7
1989	60	90.6	55.5	74.6
1990	63.8	89.5	59.8	75
1991	64.6	88.4	62	75.6
1992	68	90.6	65.3	79.1

contd. ...

...contd. ...

	Per capita food production index (base year 1999-2001) Per cent of 1999-2001 food production average per capita)		Total production index (base year 1999-2001) Per cent of 1999-2001 total agricultural production average	
	China	India	China	India
1993	73.7	91.5	70.7	81.2
1994	77.4	92.8	74.4	84.1
1995	81.6	93.6	79.1	86.4
1996	85.9	95.8	83.9	90.4
1997	89.9	96.3	89.2	91.8
1998	93.8	97.5	92.4	94.7
1999	97	100.4	96	99
2000	100.3	99.5	100.3	99.2
2001	102.6	100.1	103.7	101.7
2002	107.8	94.1	109.3	96.6
2003	109.1	98.4	111.4	103.2

Source: www.earthtrend.com

Appendix Table 12.9

Food Self Sufficiency Ratios in China and India, 1994-2002

Product	China			India		
	1994-96	1999-2001	2002	1994-96	1999-2001	2002
Wheat	90	96.1	99.1	97	107.7	104.3
Rice	98.5	101.1	99.5	103.1	110.7	81.2
Maize	100.2	97.9	105.9	100.5	99.6	100.8
Bovine meat	99.5	98.2	98.2	105.6	108.9	111.5
Mutton and goat meat	98.7	98.5	98	101.4	101.4	100.7
Poultry meat	97.1	95.2	97.5	100	100	100.1
Pig meat	101.3	99.5	99.7	100.2	100.1	100.2
Soybeans	82.7	59.8	50.1	102.2	103.7	62.5
Palm oil	14.9	11	7	0	0	0
Soybean oil	61.7	84.3	103.1	84.4	54.4	48.9
Milk	87	88.9	90.3	100.1	100.3	100.4
Pelagic fish	30.2	38.7	38.9	97.9	95.7	92.9
Demersal fish	89.4	85.6	83.8	100.2	100.8	100.6
Marine fish, other	107.6	143.8	162.4	151	172.6	170.8
Crustaceans	101.4	103.4	104.9	134.2	142.1	144.5
Bananas	92.6	91.3	94.1	100	100	100.1
Apples	100.9	102.3	106.1	100.9	100.1	100

Source: Trade and Development Report 2005, United Nations.

Appendix Table 12.10

Trade Scenario of China and India (in current million US \$)

Year	Total Merchandise Trade		Total Merchandise Exports		Total Merchandise Imports		Balance of Trade	
	China	India	China	India	China	India	China	India
1960	5219	3635	2571	1332	2648	2303	NA	-185
1961	3689	3672	1942	1386	1747	2286	NA	-480
1962	3286	3765	1913	1403	1373	2362	NA	-958
1963	3481	4103	2031	1626	1450	2477	NA	-1324
1964	3960	4581	2250	1705	1710	2876	NA	-1135
1965	4809	4525	2563	1687	2246	2838	NA	-1093
1966	5163	5394	2681	1954	2482	3440	NA	-795
1967	4557	4386	2388	1613	2169	2773	NA	-794
1968	4408	4331	2340	1761	2068	2570	NA	-645
1969	4346	4047	2429	1835	1917	2212	NA	-964
1970	4586	4150	2307	2026	2279	2124	-87	-534
1971	4912	4460	2783	2036	2129	2424	-253	-605
1972	6544	4671	3693	2448	2851	2223	-273	-157
1973	11084	6128	5876	2917	5208	3211	749	-562
1974	14899	9062	7108	3926	7791	5136	-405	-1346
1975	15615	10736	7689	4355	7926	6381	38	-1008
1976	13603	11214	6943	5549	6660	5665	518	-63
1977	14668	13025	7520	6378	7148	6647	647	-173
1978	21086	14536	9955	6671	11131	7865	-471	-2114
1979	29235	17633	13614	7806	15621	9827	-1100	-3580
1980	38040	23450	18099	8586	19941	14864	-432	-5774
1981	44021	23713	22007	8295	22014	15418	665	-5077
1982	41606	24144	22321	9358	19285	14786	3142	-4317
1983	43616	23209	22226	9148	21390	14061	1710	-4387
1984	53549	25239	26139	9916	27410	15323	-120	-3060
1985	69602	25068	27350	9140	42252	15928	-12588	-5560
1986	73846	24820	30942	9399	42904	15421	-8507	-4552
1987	82653	27973	39437	11298	43216	16675	-68	-3839
1988	102784	32474	47516	13325	55268	19149	-3267	-4210
1989	111680	36381	52538	15846	59142	20535	-2671	-3365
1990	115436	41549	62091	17969	53345	23580	11372	-4494
1991	135701	38175	71910	17727	63791	20448	12584	2
1992	165525	43207	84940	19628	80585	23579	6447	-1856

contd. ...

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Year	Total Merchandise Trade		Total Merchandise Exports		Total Merchandise Imports		Balance of Trade	
	China	India	China	India	China	India	China	India
1993	195703	44360	91744	21572	103959	22788	-6561	47
1994	236621	51865	121006	25022	115615	26843	10168	-988
1995	280864	65337	148780	30630	132084	34707	16092	-4251
1996	289881	71047	151048	33105	138833	37942	17551	-4554
1997	325162	76440	182792	35008	142370	41432	42823	-5147
1998	323949	76417	183712	33437	140237	42980	43836	-7004
1999	360630	82646	194931	35667	165699	46979	30641	-8771
2000	474297	93902	249203	42379	225094	51523	28873	-3480
2001	509651	93739	266098	43347	243553	50392	28084	-2982
2002	620762	105829	325591	49312	295171	56517	37383	-1941
2003	851210	124483	438370	54740	412840	69743	14221	-12320

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