

NBER WORKING PAPER SERIES

CHINA AND INDIA: REFORMS AND THE RESPONSE:  
HOW DIFFERENTLY HAVE THE ECONOMIES BEHAVED

Manmohan Agarwal  
John Whalley

Working Paper 19006  
<http://www.nber.org/papers/w19006>

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
May 2013

This paper forms part of the research on a project on China and the BRICs conducted under support from the Ontario Research Fund. We are grateful to a seminar group at Western Ontario for comments. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2013 by Manmohan Agarwal and John Whalley. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

China and India: Reforms and the Response: How Differently have the Economies Behaved  
Manmohan Agarwal and John Whalley  
NBER Working Paper No. 19006  
May 2013  
JEL No. F00,F10,F21

### **ABSTRACT**

The relative performance of China and India is compared using two different methods and they provide a very different picture of their relative performance. We compare the average absolute values of indicators for the decade of the 1980s, 1990s and the 2000s. We use indicators such as the current account balance (CAB), exports of goods and services (XGS), foreign direct investment inflow (FDI), gross domestic savings, gross fixed capital formation (GFCF), aid, private capital inflows (PrK) and workers' remittances, all as a percentage of GDP. We also look at the growth rate of per capita GDP, exports of goods and services and of gross fixed capital formation.

Using a two tailed- test we find that China does better than India for most of these indicators. For instance, China has a higher growth rate of per capita income, XGS and GFCF as also a higher share of XGS, GFCF etc in GDP than does India. We also find that China usually has a lower CV, namely a more stable performance. But over the three decades the CV falls in India so it is approaching that in China, namely the two economies are becoming more similar.

We also compare the dynamic performance of the two economies since their reforms. We form index numbers for the indicators. So for example, we form an index number for share of exports in GDP with year 1 of reform in China being 100, i.e. the index for the share in 1979 is 100. Year 2 would be the index number for 1980, namely the value of the share in 1980 with the share in 1979 being 100, etc. In the case of India year 1 would be 1992 once the reforms started, year 2 would be 1993 and so on, so the index would have 1992 as the base year. We find that the indices behave very similarly in the two economies for many of the indicators, namely the pattern of change in China after 1979 is the same as in India after 1992.

Manmohan Agarwal  
Center for International Governance Innovation (CI  
57 Erb St. West  
Waterloo, ON  
Canada N2L 6C2  
magarwal@cigionline.org

John Whalley  
Department of Economics  
Social Science Centre  
University of Western Ontario  
London, ON N6A 5C2  
CANADA  
and NBER  
jwhalley@uwo.ca

## Section I Introduction

There is considerable analytical work comparing the economic performance of China and India to understand the growth processes in these economies. Analysts have also sought to examine the effect of their rapid growth on the world economy as well as on other developing economies, particularly those in Africa.<sup>1</sup> We do not discuss the reforms themselves which have been extensively studied.<sup>2</sup>

How the two economies compare with each other depends on how the comparison is made. We compare both the absolute values of many indicators as well as the change in the values of the indicators since the reforms in the two economies. We compare indicators such as the current account balance (CAB), exports of goods and services (XGS), foreign direct investment inflow (FDI), gross domestic savings (GDS), gross fixed capital formation (GFCF), aid (ODA), private capital inflows (PrK) and workers' remittances, all as a percentage of GDP.

---

<sup>1</sup> See for instance Winters and Shahid Yusuf (2007), Broadman (2007), Brautigam (2009), Cheru and Obi (2010)

<sup>2</sup> See Jikun Huang, Keijiro Otsuka and Scott Rozelle (2008) for agricultural reforms, Byrd (1992) and Brandt, Rawski and Sutton (2008) for industrial sector reforms, Bahl and Wallich (1992), Ma Jun (1995) and Wong and Bird (2008) for fiscal reforms, Allen, Qian and Qian (2008), Geiger (2006), Green (2005) for reforms in the financial sector and the conduct of monetary policy, and World Bank (2004) and the Trade Policy Reports of the WTO for the trade system and changes in it. Also see Agarwal (2010) for an analysis of Chinese reforms. See Bhagwati (1993) and Panagariya (2008) for an analysis of Indian reforms. The reforms are described in the Economic Survey published every year by the Ministry of Finance before the budget is presented to parliament.

We also look at the growth rate of per capita GDP, XGS, GFCF. We compare the average values of these indicators for the decade of the 1980s, 1990s and the 2000s.

Using a two tailed- test we find that China does better than India for most of these indicators. For instance, China has a higher growth rate of per capita income, XGS and GFCF as also a higher share of XGS, GFCF etc in GDP than does India. We also calculate the coefficient of variation (CV) for these indicators for these decades. We find that China usually has a lower CV, namely a more stable performance. But only a few of the indicators show a lower CV over the decades in the case of China. In the case of India, the CV declines over the decades for most of the indicators. Thus over time the levels of the CV in India are approaching those in China, namely the two economies are becoming more similar.

We also compare the two economies since their reforms as the reforms have influenced their growth paths. When we do this we find a number of similarities. For instance, in every year during the period 1979-2010, exports were a larger share in Chinese GDP than in Indian GDP and China invested a larger share of its GDP. But if the comparison is made in terms of the number of years since the reforms and taking into account the initial starting values then a different picture emerges. So year 1 in China would be 1979 when the reforms started, year 2 would be 1980 etc. In the case of India year 1 would be 1992 once the reforms started, year 2 would be 1993 and so on. Also, we form an index with a base year value of 100 for the first year of the reform. Though investment is a larger share of GDP in China than in India when the values for the same year are compared, we find that the pattern of change in China after 1979 is the same as in India after 1992. Similarly, a number of other indicators such as exports of goods and services as share of GDP, share of manufactures in GDP or of services in GDP, show a

similar pattern of change in China and India if we compare them from the time of the respective reforms.

The general perception is that China is a more open economy that has depended more on exports of goods for its growth (Friedman and Gilley, 2005; Kotwal, Ramaswami and Wadhwa, 2011). India's success has been less dependent on exports and more dependent on domestic demand. India has done better in exports of services while China has depended more on exports of manufactures and this export has resulted in very rapid growth of the manufacturing sector. China also has had much higher rates of investment than has India. Foreign direct investment (FDI) has played an important role in the growth of China's manufacturing sector and in its export success. FDI has played no particular role in India's growth story. We examine the relative economic performance of China and India in Section II. This analysis bears out the above story in absolute terms. But then, in section III, we examine the performance since their respective reforms and find more similarities than differences, and the perceptions noted above do not generally hold.

## Section II: Relative Economic Performance in China and India

We compare the economic performance of China and India in the context of both the global and regional economies, paying particular attention to performance in developing country regions.<sup>1</sup> Both China and India have been growing rapidly in recent years, and are narrowing the difference in per capita incomes with the developed countries though in many other developing countries the difference in per capita incomes with the developed economies has increased (Table 1). Per capita incomes in Sub-Saharan Africa (SSA) have barely grown over the past thirty years as they increased by an average of merely 0.3% a year between 1980 and 2009; during this same period per capita incomes in Latin America have grown at only about 1 per cent a year. Since per capita incomes in the high income countries grew at 1.9 percent a year the gap between incomes in SSA and Latin America and the high income countries has increased. The Chinese and Indian economies have grown considerably faster – about two to three times the average world rate.

**Table 1: Rates of Growth of Per Capita GDP (% Average Annual)**

	<b>1980-90</b>	<b>1991-2000</b>	<b>2000-09</b>
EAP	6.5	6.0	8.4
LAC	0.3	1.7	2.4
SSA	-1.0	-0.4	2.5
SA	3.8	3.2	7.3

---

<sup>1</sup> Bardhan (2010) compares China and India on a different basis. He stresses the issue of democracy and authoritarianism and economic performance, distributive conflicts, and the role of government policies regarding skill formation and technological development in the two economies. He also emphasizes the importance of the decentralized experimental basis of reform in China. Also see Friedman and Gilley (2005) and Winters and Shahid Yusuf (2007)

China	9.5	9.8	10.1
India	4.1	4.3	6.3

Note The regions are those used by the World Bank. EAP is East Asia and Pacific, LAC is Latin America and Caribbean, SSA is Sub-Saharan Africa and SA is South Asia.

Source: World Bank World Development Indicators.

There has in general been an acceleration of growth in developing countries in the 4 regions in the period 2000-2009 compared to the period 1990-2000 in all sectors, agriculture, manufacturing and services, (Table 2); only growth of manufacturing decelerated in EAP and of agriculture in SA. Furthermore there was significant acceleration in the rate of growth of value-added in services in EAP, SSA and SA. This acceleration of growth has meant that the increasing gap in per capita incomes between the high income countries and countries in LAC and SSA has been reversed for this period; though as noted above the gap increases for the entire period 1980-2009 despite this improvement during 2000-09.

**Table 2: Sector Rates of Growth**

	<b>(Average Annual)</b>								
	<b>Agriculture</b>			<b>Manufacturing</b>			<b>Services</b>		
	<b>80-90</b>	<b>90-00</b>	<b>00-09</b>	<b>80-90</b>	<b>90-00</b>	<b>00-09</b>	<b>80-90</b>	<b>90-00</b>	<b>00-09</b>
EAP	4.6	3.4	4.1	9.0	10.9	10.2	8.6	8.6	10.0
LAC	n.a	2.0	3.0	n.a	2.9	3.5	n.a	3.5	3.9
SSA	n.a	3.2	3.2	n.a	2.2	3.4	n.a	2.6	4.8
S A	n.a	3.3	3.0	n.a	6.4	8.5	n.a	6.9	8.7
China	5.9	4.1	4.4	10.8	12.9	11.4	13.5	11.0	11.6
India	3.1	3.2	2.9	7.4	6.7	8.7	6.9	7.7	9.5

Source: World Bank World Development Indicators

When it comes to China and India, China has posted much higher rates of growth in all the three sectors than India. But the significant acceleration in India in the rates of growth of manufacturing and services output during the period 2000-2009 compared to the earlier period suggests that the gap in performance between China and India may be narrowing<sup>1</sup>.

These differential sector rates of growth determine the structure of production in the different regions and in the two countries China and India. What is particularly striking is that the share of manufacturing in GDP is much higher in EAP than the other regions. Furthermore, this share has declined in regions other than EAP. Also share of agriculture in GDP has dropped in Asia but for very different reasons. This has happened in EAP despite rapid growth in agricultural output whereas in SA growth of agricultural output has been almost the lowest among the different regions (Table 3).

**Table 3: Structure of Output (% age Share in GDP)**

	<b>Agriculture</b>		<b>Manufacturing</b>		<b>Services</b>	
	<b>1990</b>	<b>2009</b>	<b>1990</b>	<b>2009</b>	<b>1990</b>	<b>2009</b>
EAP	24	11	29	32	32	55
LAC	9	6	23	17	55	63

---

<sup>1</sup> In another context this is the conclusion reached by Bosworth and Collins (2007) that the gap in growth of total factor productivity between China and India has narrowed. Also see Bosworth, Collins, Virmani (2008)



SSA	18	13	17	13	48	57
S A	31	18	17	15	43	55
China	27	20	33	34	31	43
India	31	8	17	15	41	55

Source: World Bank World Development Indicators

A panel regression analysis of 109 developed and developing countries for the period 1980-2009 shows significant differences between Asian and Latin American countries, and also between China and India (Lele, Agarwal, Timmer and Goswami, 2012). In Latin America the actual share of agricultural value-added in GDP is larger than predicted and agriculture's share in employment is less than predicted. The major difference in Asia is that the share of agriculture in employment is larger than predicted, and the positive residuals have been increasing over time. This is true for both China and India, though the residuals are much larger for China than for India.<sup>1</sup> This contrasts, for instance, with Brazil where the residuals for employment are negative and have been becoming more negative. The Asian economies, in contrast to those in Latin America, have not been able to generate enough non-agricultural employment.

The share of services in GDP is the lowest in Asia. While the share of agriculture in GDP is larger in India (18%) than in China (15%), it has been falling more rapidly in India where agricultural productivity has grown more slowly than in China.<sup>2</sup> The share of manufacturing in GDP was already much higher in China in 1979 than in India, and has

---

<sup>1</sup> Kotwal, Ramaswami and Wadhwa (2011) compare behaviour employment in agriculture to that in the now developed countries but not to other developing countries. Our analysis suggests that the behavior in India is typical of land scarce Asian countries

<sup>2</sup> The conclusion holds whether productivity is measured per hectare or per worker or whether measures of total factor productivity are used (Lele, Agarwal, Timmer and Goswami, 2012).

remained much higher. However, the services sector is much larger in India. Again the performance of Asia contrasts with that of LAC.

Economic performance in Asia and within it of China and India has been propelled by investment. Investment ratios in East Asia are almost twice those in Africa and Latin America (Table 4). Investment rates in SA have been increasing, and though still considerably lower than in EAP may soon approach those levels. China invests even more than other countries in its region, almost half its GDP; India in recent years has invested about a third of its GDP slightly more than other countries in its region. Also, the investment ratio is more similar between China and India than it is for either country with the ratio in LAC or SSA.

**Table 4: Structure of Demand, 1990, 2002, 2009**

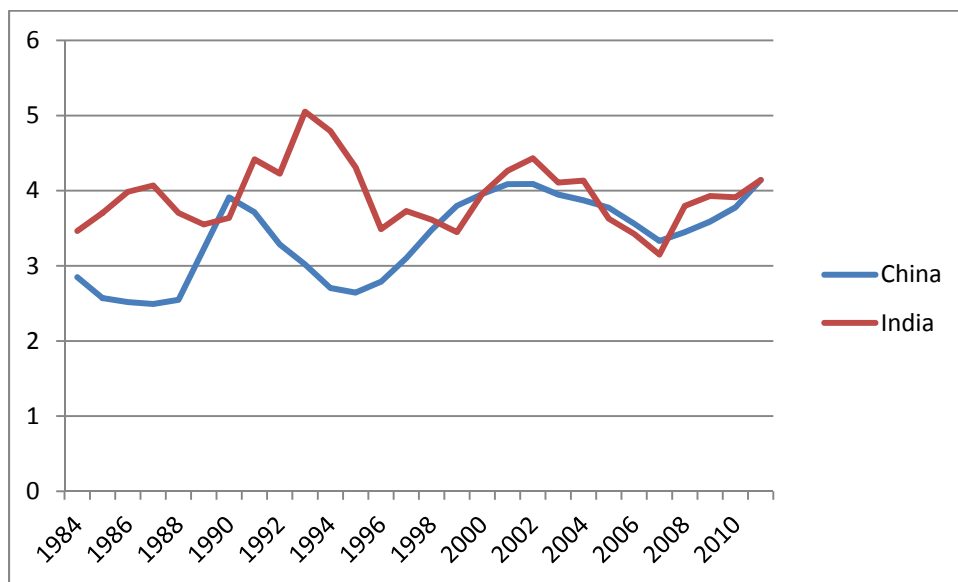
(% age of GDP)

	Household		Government		Gross Capital		Exports of	
	Consumption		Consumption		Formation		Goods & Services	
	1990	2009	1990	2009	1990	2009	1990	2009
EAP	54	42	11	15	40	40	29	35
LAC	66	64	15	15	20	20	18	21
SSA	67	67	15	16	18	21	28	30
S A	69	61	10	10	25	33	12	19
China	42	35	14	13	42	48	23	27
India	64	56	11	11	27	36	11	20

Source World Bank Development Indicators 2007 for 1990 data and 2011 for 2009 data.

But not only are investment levels in Asia higher than other developing country regions, there is greater efficiency in the use of capital as measured by the incremental capital output ratio (ICOR). After the oil price rise of 1973 the capital output doubled in the rest of the world and it has remained high since (Agarwal, 2008). But it increased considerably less in East Asia and it actually declined in South Asia so that since the early 1980s it has been the same in East and South Asia.

Figure1 Incremental Capital output Ratios



The incremental capital output ratio was considerably lower in China than in India till 1998 (Figure 1).<sup>1</sup> Since then the ICOR in the two countries has been roughly the same.

<sup>1</sup> The capital output ratio is calculated as the moving average of the sum of investment over 5 years divided by the increase in income during this period with a one year lag, i.e.,  $\sum_{i=1}^5 I_i / (Y_6 - Y_1)$

The share of exports of goods and services in GDP has increased in all the developing country regions and the most in SA. The share of exports of goods and services has also increased in India but remains less than in China so that it remains less export oriented. But again the ratios are becoming more similar between China and India than of either country with LAC or SSA.

Trade in services has increased faster than trade in goods in recent years though from a much lower level. World exports of goods increased from US\$3468.4 billion in 1990 to US\$6429.5 billion in 2000, an increase of 85 %, and to US\$12228.0 billion in 2009, an increase of 90 %. Meanwhile world exports of services increased from US\$876.7 billion in 1990 to US\$1566.5 billion in 2000, an increase of 79 % and to US\$3517.4 billion in 2009, an increase of 124 %. However, developing countries in general have not fared as well in exports of services as they have in exports of goods as their share is considerably lower. The share of developing countries in world exports of goods increased from 23.6 % in 1990 to 30.4 % in 2009. During this period the share of developing countries in world exports of services increased from 13.6 % in 1990 to 19.3 % in 2009. Share of most developing country regions except Asia in world exports of services has declined. China and India have both participated in the increase in exports of goods and services, and separately in goods and services. China's share in world exports of goods increased from 1.6 % in 1990 to 9.6 % in 2009 while its share of exports of services increased from 0.7 % in 1990 to 3.8 % in 2009. On the other hand India's share of world exports of goods increased from 0.5 % in 1990 to 1.3 % in 2009, while its share of services exports increased from 0.6 % in 1990 to 2.6 % in 2009. This shows that China increased its exports of services faster than India. But China has larger earnings from tourism. Its share of world exports

of computer, information and other commercial services increased from 1.4 percent to 4.1 percent between 1990 and 2009 whereas India's increased from 0.4 percent to 4.1 percent.

Despite the success of the two economies in increasing exports the behavior of the current account has been different for the two economies. China has usually had a surplus on the current account and at times this surplus has been very large and China has accumulated large reserves. India, on the other hand, has usually run deficits and in recent years these deficits have become very large raising the question of the sustainability of the growth process.

### Section III How Different is India's Experience with Liberalization Compared to China's

#### III.1 Comparing the performance over the same period

The general perception is that China is a more open economy that has depended more on exports of goods for its growth. India's success has been less dependent on exports and more dependent on domestic demand. India, however, has done better in exports of services while China has depended more on exports of manufactures and this export has resulted in very rapid growth of the manufacturing sector. China also has had much higher rates of investment than has India. This general perception is borne out by the data on the performance of the two economies.

We calculate the behavior of a number of indicators over the period 1981 to 2010 (Table 5). We generally find that China does better on the basis of these indicators than India does. India does better only in the inflow of workers' remittances throughout the period. However, the differences in the rates of growth of XGS and of GFCF are not significant at the 5 percent level.

Table 5 China – India Behaviour of Some Selected Indicators#

Share of GDP	India			China		
	1981-1990	1992-2000	2001-10	1981-1990	1992-2000	2001-10
CAB	-1.67**	-1.08	-0.72	.04	1.31	5.26
XGS	5.92	10.49	18.60	12.31	20.60	31.71
FDI	0.04**	0.49	1.64	0.67	4.47	3.61
GDS	21.01	22.85	29.42	36.10	41.20	47.34
GFCF	20.98**	23.08	29.11	29.08	32.25	40.32
ODA	0.72	0.49	0.19	0.42	0.40	0.06
PrK	neg	1.03	1.95	0.64	4.14	3.03

Rem	0.99	1.96	3.15	0.14	0.26	0.92
ODA (% GCF)	3.49	2.00	0.64	1.16	1.00	0.15
Growth Rates						
GDP PC	3.25	4.13	5.87	9.81	10.59	10.49
XGS*	5.40	13.01	14.68	1.66	16.84	18.62
GFCF*	6.95	6.89	11.34	9.05	13.72	13.32

- Not significant; \*\* significant at 5%; others significant at 1%.
- # CAB is current account balance, XGS is exports of goods and services, FDI is inflow of foreign direct investment, GDS is gross domestic savings, GFCF is gross fixed capital formation, ODA is official development assistance, PrK is inflow of private capital, Rem is inflow of remittances, GDP PC is per capita gross domestic product.

The average rate of growth of exports of goods and services was higher in India in the 1980s than it was in China, even though the share of XGS in GDP remained higher in China. But in China the share of XGS in GDP increased from 12.3 in the 1980s to 20.6 percent in the nineties, whereas in India it increased from 5,9 percent to 10.5 percent between these two periods. Another difference between the two economies was that the Indian economy was more dependent on aid than was the Chinese economy.

We now look at the stability of the economy in terms of the behavior of these 12 indicators. The coefficient of variation of most of the indicators have decreased, eight have a lower CV in the 1990s than the 1980s and 8 have a lower CV further in the 2000s (Table 6). For China also the CV declines but for fewer indicators, 8 less in the 1990s than the 1980s and 6 less in the 2000s than in the 1990s. Leaving aside the CAB/GDP indicator, of the other 11 indicators the CV is lower in India for only 3 in the 1980s and 1990 and only 2 in the 2000s. There is no indicator which has a consistently lower CV in India. A number of indicators, 5, have a consistently lower CV in China. Though the Indian economy is becoming more stable it is as yet

not as stable as the Chinese economy. As far as the CAB/GDP indicator is concerned it is negative for India and positive for China so CV is greater in China than in India. But if we look at the absolute size, we find that over time the CV has been decreasing in China, but has been increasing in India. So not only is the deficit CAB becoming larger in India it is showing greater variability.

Table 6 Coefficient of Variation of Some Select indicators#

Share of GDP	India			China		
	1981-1990	1992-2000	2001-10	1981-1990	1992-2000	2001-10
CAB	-0.29	-0.42	-2.02	59.4	1.33	0.56
XGS	0.47	0.10	0.19	0.18	0.06	0.17
FDI	12.37	0.55	0.54	0.44	0.25	0.24
GDS	0.38	0.05	0.12	0.04	0.05	0.01
GFCF	0.39	0.04	0.11	0.07	0.08	0.08
ODA	0.94	0.48	0.44	0.34	0.52	0.55
PrK		0.59	0.42	0.79	0.37	0.36
Rem	0.78	0.28	0.14	0.58	0.50	0.19
ODA (% GCF)	0.39	0.55	0.61	0.31	0.50	0.61
Growth Rates						
GDP PC	0.72	0.53	0.38	0.38	0.23	0.16
XGS	1.29	0.69	0.67	4.88	0.50	0.63
GFCF	0.74	0.89	0.60	1.06	0.54	0.27

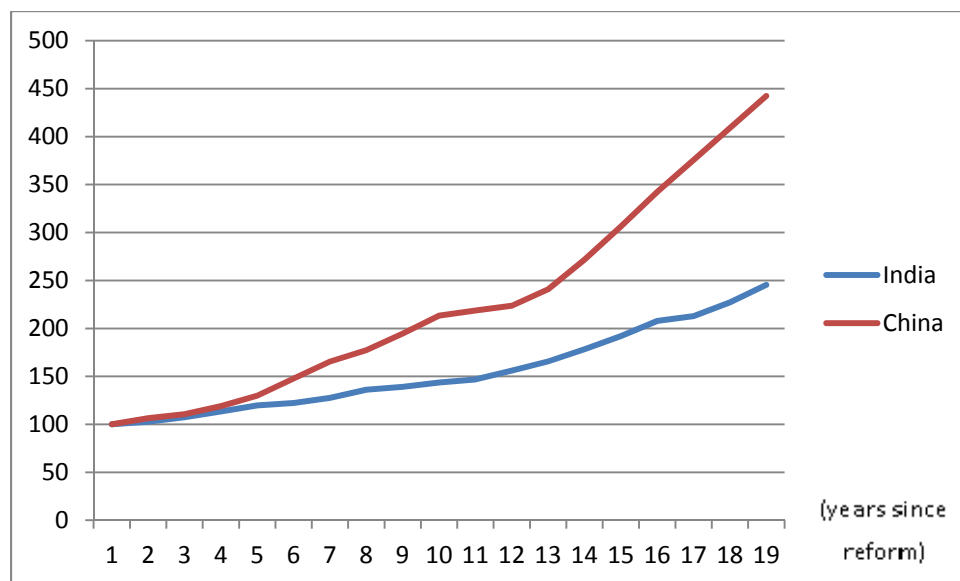
- # CAB is current account balance, XGS is exports of goods and services, FDI is inflow of foreign direct investment, GDS is gross domestic savings, GFCF is gross fixed capital formation, ODA is official development assistance, PrK is inflow of private capital, Rem is inflow of remittances, GDP PC is per capita gross domestic product.



### III.2 Comparing since the reforms

There is another way and we believe a more fruitful way of analyzing the performance of the two economies. Since the performance of the two economies has, it is believed, been propelled by liberalization the performances should be measured since the start of the liberalization. Rather than look at calendar time we should date the performance of China since 1979 and of India since 1992. For China, 1979 would be year 1, 1980 year 2 and so on. For India, year 1 would be 1992, year 2 would be 1993 and so on. Also we calculate the changes since the reform since the countries had different starting positions. When we do this we get a different picture. China grows considerably faster than India with a widening gap in per capita incomes (Figure 2).

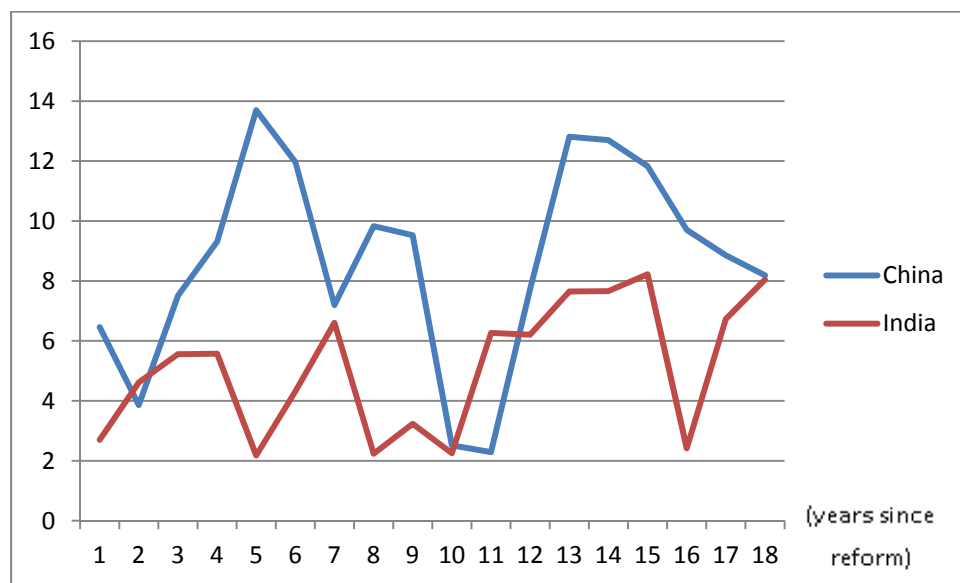
Figure 2 Index of Per Capita GDP (Year of Reform =100)



19 years after reform per capita income in China was 450 percent of that in the initial year whereas it was only 250 percent in India.

But a slightly different picture emerges if we plot the year to year growth rates in per capita income. The difference in growth rates was larger in the first ten years of the reform and has narrowed since then (Figure 3). Furthermore though the average growth rate was higher in China the variability was also higher. The average annual growth rate of per capita income was 8.7 percent in China and was 5.1 percent in India. But the variance of this growth rate was 10.8 in China and 4.5 in India.

Figure 3 Annual Growth rates of per capita Income



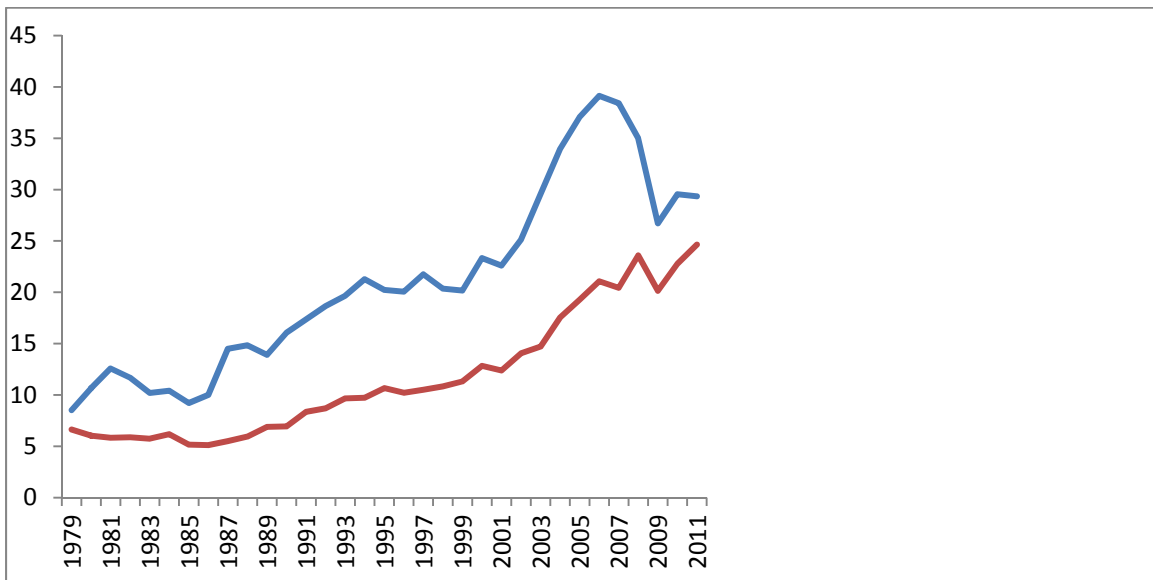
China has achieved this rapid growth with remarkable price stability. Inflation has usually been low and lower than in India. A few years are an exception to this behavior. Inflation was higher in China and by a considerable margin in the years 1988 and 1989 and again later in

the years 1993 to 1995. There is, however, considerable similarity in the behavior of some of the other indicators.

China is believed to have been much more successful in exporting than India. Undoubtedly, the share of exports of goods and services (XGS) in GDP has been higher in China throughout the period 1979-2011 (Figure 4). But we note that the difference which had grown from about 2 percent in 1979 to 12 percent in 1994 was narrowing gradually till 2002, when it grew rapidly to 18 percent in 2006. Since then it dropped to only 4 percent in 2011. In this diagram the common area is 52 percent and the difference in areas is 48 percent of the entire area.

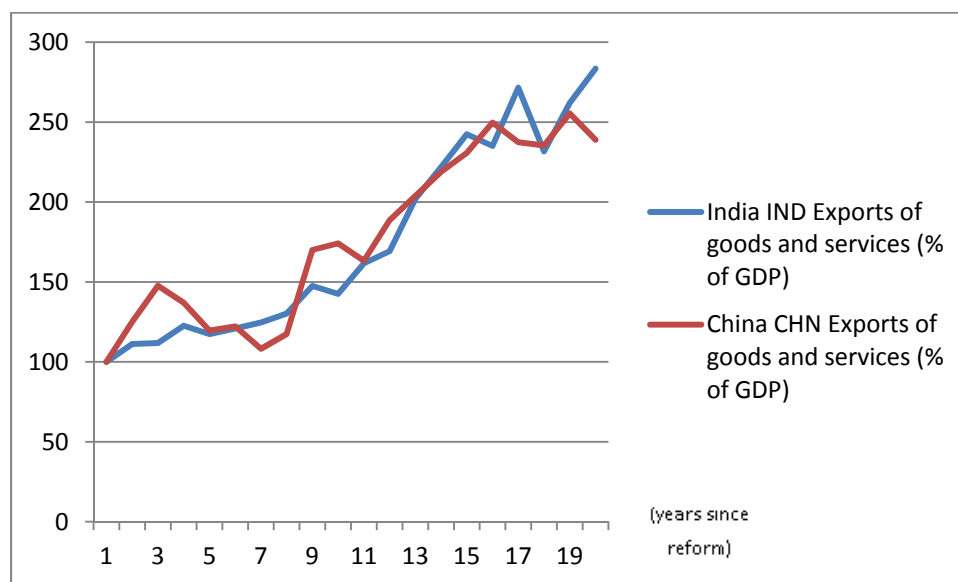
Figure 4 : Exports of Goods and Services, 1979-2011

(% of GDP)



The similarity in the behavior of share of XGS in GDP is striking if we compare its evolution since the respective reforms (Figure 5). Here the common area is 88 percent of the total area and the not common area is only 12 percent of the whole.

Figure 5 Index of Exports of Goods and Services (% of GDP)  
Since the Reforms (Year of reform =100)



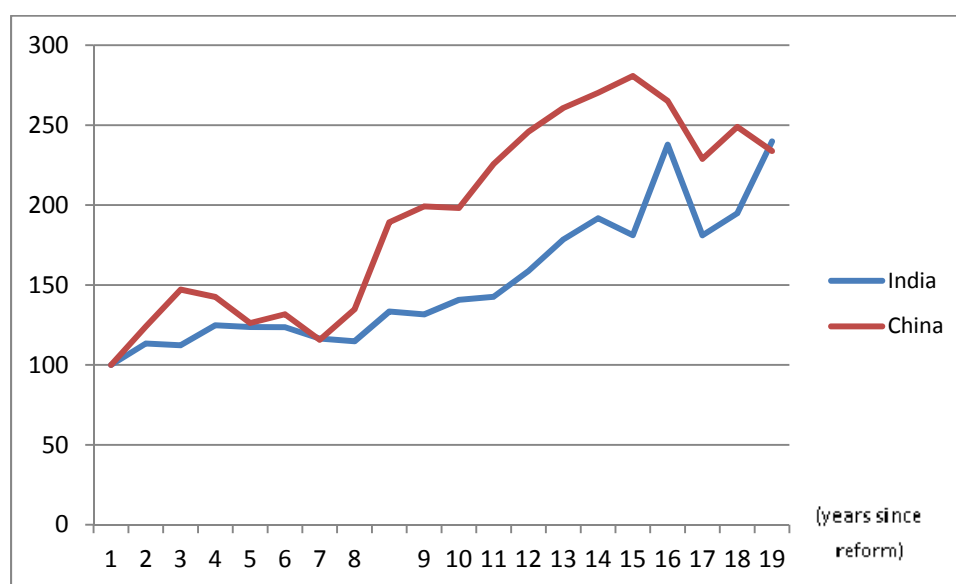
The increase in the share of exports from the base year seems higher in India in the last three or four years. The increase in the share of exports of goods and services was 239 percent for China, but 283 percent for India. But this is not because of a sudden spurt at the end of the period. The shares track well throughout the 20 year period since the respective reforms. There is no evidence that India has depended more on domestic demand for growth while China has depended more on exports for growth.

China is also considered to have been more successful in exports of manufactures and India in exports of services. But the share of exports in GDP expressed as an index with the base

year of the reform having a value of 100 we get a different picture.<sup>1</sup> We see that exports of goods as percent of GDP have increased equally rapidly in the two countries over the entire period (Figure 6). But they increased earlier in China and so have been usually higher in China. The common area is only 50 percent of the total area.

Figure 6 Index of Exports of goods (% of GDP)

(Year of Reform =100)



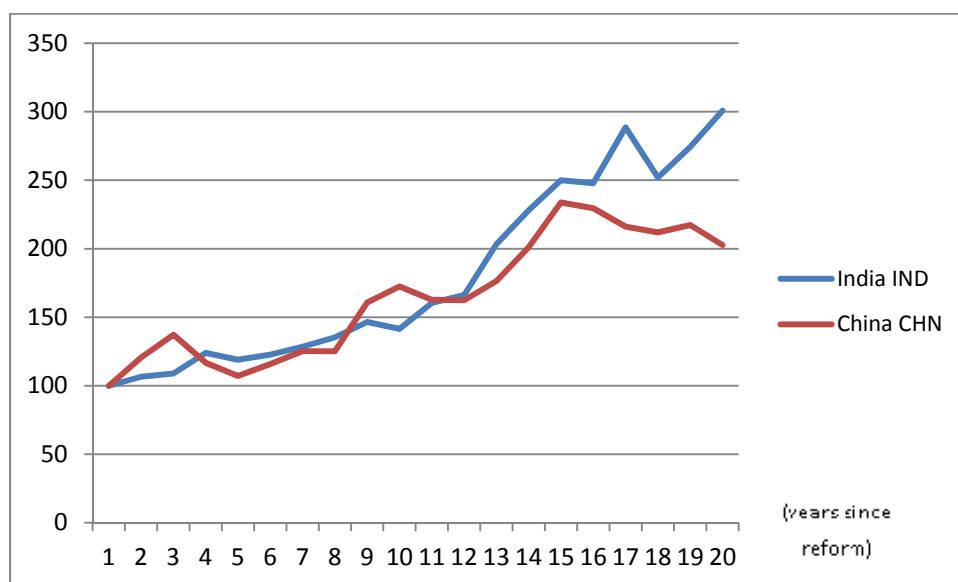
However, the pattern over the period has been very different. For most of the period the share has been much greater for China. The gap between China's share and India's share grew rapidly between 1998 and 2007. It now seems to be disappearing, but because of fluctuations there is no clear trend. Exports of goods responded more quickly to the reforms in China than in India, as also the growth rate. Also, the large increases occurred a number of years after the start of the reforms, so that initially domestic demand seems to have been the basis of the growth.

<sup>1</sup> We take the share of exports in GDP in the first year as 100 and express the shares in subsequent years as an index of the share in the base year.

However, the share of trade in goods in GDP has increased more in India than in China (Figure 7). This is a reflection of the deficit on goods trade that India has run whereas china has usually had a surplus. Relative to its GDP India's importance as a demander in the world market has been growing when compared to China's.

Figure 7 Index of Trade in Goods (% Of GDP)

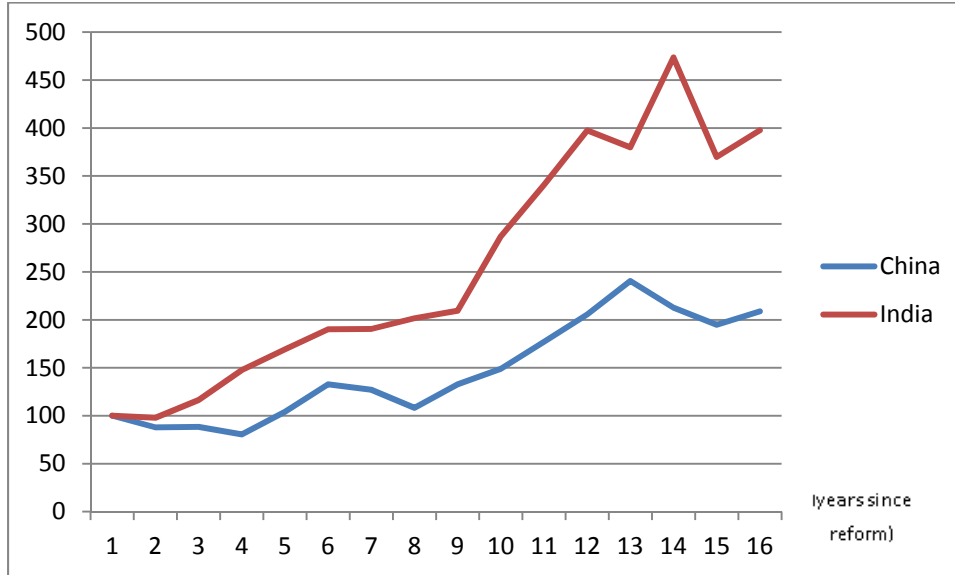
(Year of Reform =100)



The share of exports of services (XS) in GDP (Figure 8) and in value added in the services sector has increased more rapidly in India. The common area in share of services exports in GDP is 53 percent.

Figure 8 Index of Exports of Services as % of GDP

(Year of reform =100)



The difference in the export performance of the two sectors does not translate into the behavior of value added in the two sectors. Share of manufacturing value added in GDP has been declining in both the economies and more rapidly in China (Figure 9). The common area is 87 percent. Share of value added in services has been increasing in both the economies and surprisingly more rapidly in China (Figure 10). The common area in this case is 80 percent.

Figure 9 Index of Value added in Manufacturing as % of GDP  
(Year of reform =100)

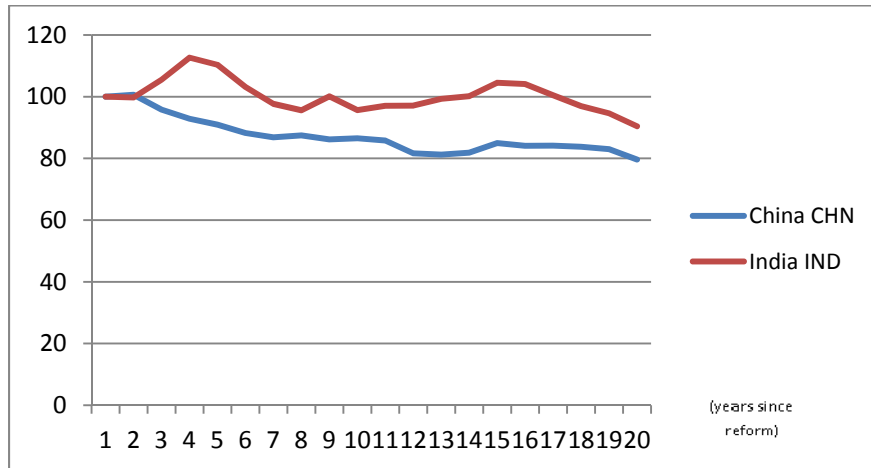
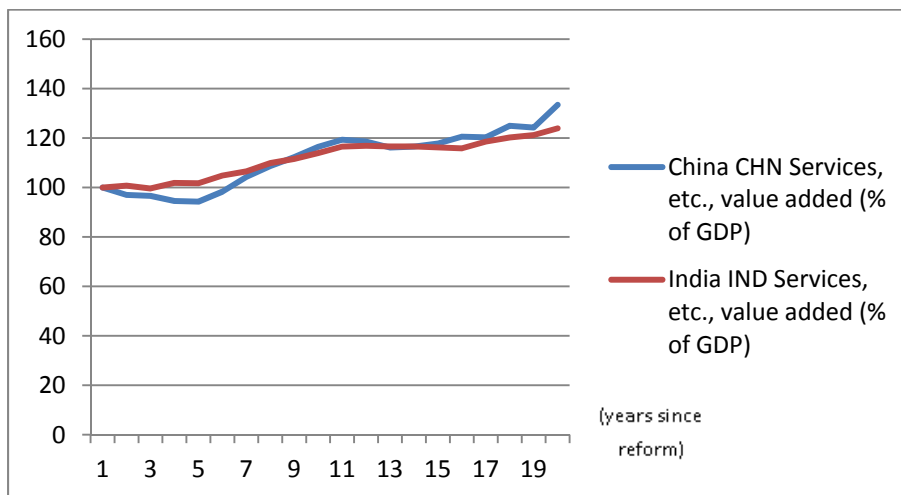


Figure 10 Index of Value added in Services as % of GDP  
(Year of reform =100)



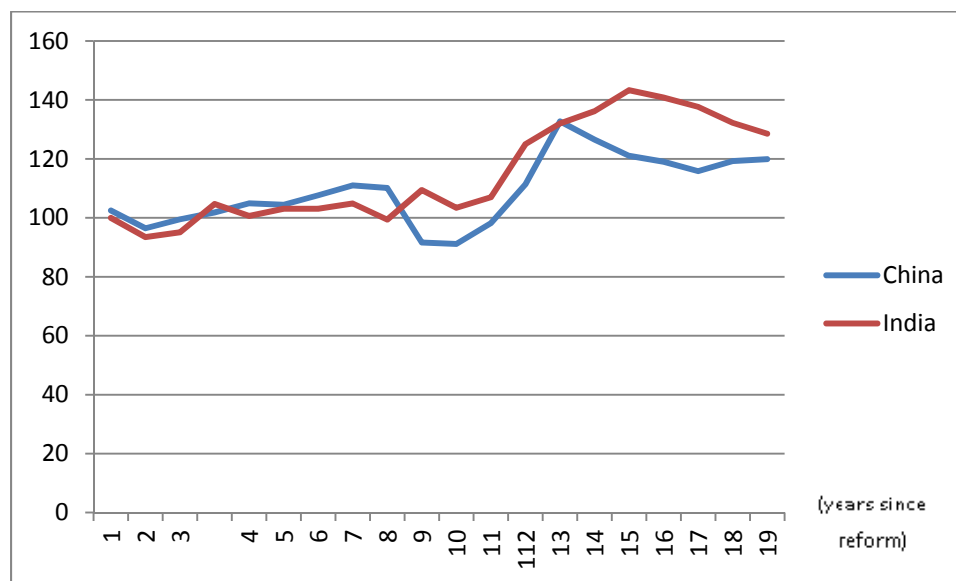
Another difference usually mentioned is that the ratio of investment to GDP has been higher in China. Again, while this is true at the absolute level, the path of change is very similar



in the two economies, with the share increasing slightly more in India (Figure 11). The common area is 92 percent.

Figure 11 Index of Gross Fixed Capital Formation as % of GDP

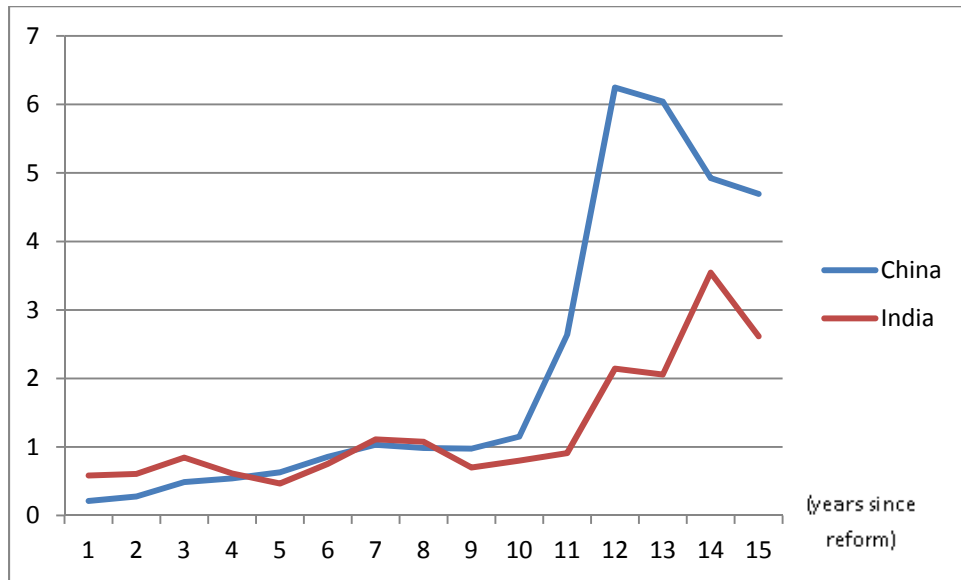
(Year of reform =100)



FDI inflows are also thought to have been important in China for its manufacturing sector and for its manufacturing exports. India has not been able to attract as much FDI, but again the picture is more complex. For almost the first decade after the reforms were initiated in each economy FDI as a percent of GDP behaved similarly in the two economies (Figure 12). Then in year 10 and 11 there was a surge in FDI to China. So FDI seems to have contributed little to the initial spurt in growth.<sup>1</sup> But since then share of FDI in GDP has fallen in China whereas it has risen in India so the gap is again narrowing. The common area is 60 percent.

<sup>1</sup> Bardhan (2010) also notes that the large increases in exports and FDI occurred later than the growth acceleration.

Figure 12 FDI as % of GDP



## **Section V Concluding Remarks**

Per capita GDP has grown more rapidly in China than in India; however, growth has fluctuated more in China than in India. When we look at the behavior of 12 indicators we find that China does better in most of them. Not only is the level higher in China, i.e., the share of GFCF or of XGS in GDP is higher in China, but most of the indicators show lower variability in China. But a slightly different picture emerges if we look at the dynamics of a number of variables since the reforms. The rate of increase in exports of goods and services and of gross fixed capital formation since the reforms has been the same in the two economies. Exports of goods grew more rapidly in China than in India. But the more rapid growth of exports of manufactures in China and of services in India did not translate into very different rates of growth of the two sectors. The changes in the shares of value-added in the two sectors are very similar with the share of services increasing slightly faster in China, but also the share of manufacturing declining slightly faster in China.

Rapid growth of the Chinese economy and its exports has forced considerable adjustment in other countries. It has also raised the profile of China and along with it of other developing countries in the international economic governance system. For instance, the G8 was not expanded to merely admit China. Initially the Heiligendamm process was initiated when consultations were held between the G8 and 5 other large developing countries, Brazil, China, India, Mexico and South Africa. Later after the onset of the financial crisis of 2008 the G8 was expanded to the G20.

It is difficult to predict the future path for the Indian economy. There is the temptation to project that the Indian economy will continue tracking the Chinese economy. In that case

further substantial changes will occur in the international economy. Projections suggest that the share of the Indian economy in the world economy will increase substantially though less than that of China (Agarwal, 2008). China had thirty years of a prosperous international economy before the onset of the crisis of 2008. For twenty years the Indian economy has tracked well the path of the Chinese economy. But now it is difficult to see how in the changed international environment the Indian economy can continue to track the Chinese economy for the third decade after reform.

## References

Agarwal Manmohan (2008) THE BRICSAM Countries and Changing Economic Power : Scenarios to 2050. CIGI Working paper No. 39, Oct 2008, Waterloo, Canada.

Agarwal Manmohan (2010) Reforms in the People's Republic of China : Achieving Growth with price stability in Klaus Gerhaeusser, Yoshiro Iwasaki and V.B. Tulasidhar (eds.) Resurging Asian Giants : Lessons from the People's Republic of China and India, Asian Development Bank, Manila.

Allen Franklin, Jun Qian and Meijun Qian (2008) China's Financial System : Past, Present and Future in Brandt and Rawski (ed.)

Bahl Roy and Christine Wallich (1992) Intergovernmental Fiscal relations in China Policy Research Working Paper WPS 863, World Bank, Washington D.C.

Bardhan Pranab (2010) Awakening Giants, Feet of Clay: Assessing the Economic Rise of China and India is published by Princeton University Press

Bhagwati J. (1993) India in Transition : Freeing the Economy, Oxford, Clarendon Press.

Bosworth Barry and Susan Collins (2007) Accounting for Growth : Comparing China and India, NBER Working Paper No. 12943

Bosworth Barry Susan Collins and Arvind Virmani (2007) Sources of Growth in the Indian Economy, NBER WP 12901.

Brandt and Rawski (ed.) (2008) China's Great Economic Transition, Camb, U.K., N.Y., Cambridge University Press.

Brandt L, T.G. Rawski and J.Sutton (2008) China's Industrial Development in Brandt and Rawski (ed.)

Brautigam Deborah (2009) The Draghon's Gift, Oxford, Oxford University Press.

Broadman Harry G. (2007) Africa's Silk Road : China and India's new Economic Frontier, Washington D.C. World Bank.

Byrd William A (1992) Chinese Industrial Firms Under Reform, Oxford University Press, New York.

Cheru Fantu and Cyril Obi eds. (2100) The Rise of China and India in Africa : Challenges, Opportunities and Critical Interventions, London, Zed Books.

Friedman Edward and Bruce Gilley (eds.) (2005) *Asia's Giants ; Comparing China and India*, Palgrave Macmillan, New York

Geiger, Michael (2006) *Monetary Policy in China (1994-2004) : Targets, Instruments and Their Effectiveness*, Wurzburg economic papers No. 68, Wurzburg.

Green Stephen (2005) *Making Monetary Policy Work in China : A Report from the Money Market Front Line*, Stanford Center for International Development, Working Paper No. 245.

Lele Uma, Manmohan Agarwal, Peter Timmer and Sambuddha Goswami (2011) *Patterns of Agriculture and Structural Transformation in 109 developed and Developing Countries with Special Focus on Brazil, China, India and Indonesia*, presented at Conference on Policy Options and Investment priorities for Accelerating Agricultural Productivity Growth, Organized by Indira Gandhi Institute for Development Research, 9-11 Nov 2011, New Delhi

Ma Jun (1995) *Macroeconomic Management and Intergovernmental Relations in China* , Policy Research Paper No. 1408, Jan 1995, World bank, Washington D.C.

Winters Alan A. and Shahid Yusuf (eds.): *China, India and the World Economy : Dancing with the Giants*, World Bank, Washington D.C.

Wong Christine P., and Richard bird (2008) *China's Fiscal system : A Work in Progress*, in Brandt and Rawski (ed.)

World Bank (2004) *China: Foreign Trade Reform*, World Bank, Washington D.C.

