



Munich Personal RePEc Archive

Investment and growth in India under liberalization: Asymmetries and Instabilities

Mazumdar, Surajit

Institute for Studies in Industrial Development

March 2008

Online at <https://mpr.ub.uni-muenchen.de/19629/>

MPRA Paper No. 19629, posted 30 Dec 2009 10:12 UTC

Working Paper
No: 2008/07

INVESTMENT AND GROWTH IN INDIA
UNDER LIBERALIZATION
Asymmetries and Instabilities

Surajit Mazumdar

**INVESTMENT AND GROWTH IN INDIA
UNDER LIBERALIZATION
Asymmetries and Instabilities**

Surajit Mazumdar

Institute for Studies in Industrial Development

4, Institutional Area, Vasant Kunj, New Delhi - 110 070

Phone: +91 11 2689 1111; *Fax:* +91 11 2612 2448

E-mail: <info@vidur.delhi.nic.in> *Website:* <<http://isid.org.in>>

March 2008

ISID Working Papers are meant to disseminate the tentative results and findings obtained from the ongoing research activities at the Institute and to attract comments and suggestions which may kindly be addressed to the author(s).

CONTENTS

<i>Abstract</i>	1
1. Introduction	1
2. Unstable growth after 1991 and its correlates	2
3. Patterns of Capital Accumulation and Growth: The Investment-Growth Asymmetry after liberalization	8
4. The Anatomy of the Investment-Growth Asymmetry	16
5. The Investment-Growth Asymmetry and Instability after 1991	21
6. Conclusion	24
References	26

List of Figures

<i>Figure-1</i>	Annual Growth Rate of India's GDP at Factor Cost, at 1999–00 prices	4
<i>Figure-2</i>	Share of Private Corporate Gross and Gross Fixed Capital Formation in Economy Total (Percentage), 1990–91 to 2005–06	8
<i>Figure-3</i>	Shares of Major Sectors in NDP at 1999–00 prices, 1950–2006 (%)	10
<i>Figure-4</i>	Distribution of Net Fixed Capital Stock at 1999–00 prices among Major Sectors, 1950–2006 (Percentage shares)	10
<i>Figure-5</i>	N/K Ratios of Major Sectors, 1950–2006	11
<i>Figure-6</i>	Distribution of Industrial Net Fixed Capital Stock at 1999–00 prices (Percentage shares)	12
<i>Figure-7</i>	Registered Manufacturing Share in NDP and Net Fixed Capital Stock (%), and its N/K Ratio	12
<i>Figure-8</i>	Average Capital Output Ratio of the Registered Manufacturing Sector	13
<i>Figure-9</i>	India's Services Exports as a Percentage of Merchandise Exports, 1990–91 to 2005–06	17
<i>Figure-10</i>	Share of Different Expenditure Groups in Non-Food Private Final Consumption Expenditure in the Domestic Market at Current Prices (Percentages)	17
<i>Figure-11</i>	Ratio of Implicit Price Indices of Manufactured Products to Other Indices in Private Final Consumption Expenditure	18

<i>Figure-12</i>	Public Sector GFCF and Government Final Consumption Expenditure as Percentages of GDP at Market prices (At current prices)	20
<i>Figure-13</i>	Index of Capital-Output Ratio (1995–96 = 100) of the Registered Manufacturing Sector and its NDP Growth Rate (% per annum)	23
<i>Figure-14</i>	Minimum Potential Output and Actual Output in Registered Manufacturing	24

List of Tables

<i>Table-1</i>	Growth Rates of GDP by Sector at 1999–00 prices (per cent per annum)	5
<i>Table-2</i>	Rates of Growth of Selected Final Expenditure Components at 1999–00 prices	6
<i>Table-3</i>	Rates of Growth and Contribution of Different Final Expenditures to Total Expenditure on GDP (at Current Prices), 1999–00 to 2002–03 and 2002–03 to 2005–06	7
<i>Table-4</i>	Rates of Growth of GFCF at Constant Prices (% per annum)	7
<i>Table-5</i>	Annual Rates of Growth of Average Net Fixed Capital Stock and Net Domestic Product of the Registered Manufacturing Sector and of Services	14
<i>Table-6</i>	Contribution of Different Sectors to Point-to-Point Increase in Average Net Fixed Capital Stock and Net Domestic Product at 1999–00 prices	15
<i>Table-7</i>	Sectoral Distribution of Private Organised Sector NDP and Operating Surplus at Current Prices (Percentage Shares)	16

INVESTMENT AND GROWTH IN INDIA UNDER LIBERALIZATION Asymmetries and Instabilities

*Surajit Mazumdar**

[Abstract: This paper makes the case that the growth trajectory of the Indian economy in the post-1991 liberalization period is characterised by an inherent source of instability in manufacturing and industrial growth that distinguishes this period from the 1980s. This instability is a result of an investment-growth asymmetry that flows from a combination of a services-intensive growth pattern and a manufacturing-intensive investment pattern. These in turn reflect the pattern of demand expansion within the domestic economy as well as in external markets and also the reliance on private corporate investment as the driver of the economy's investment process. In such circumstances, the maintaining of the balance between capacity creation and demand expansion in the manufacturing sector becomes impossible. Investment is thus prone to a high degree of instability, which through its effects on demand, also makes industrial growth highly unstable. The services-intensive growth trajectory after 1991 is, therefore, more correctly viewed as one which is unable to fully utilize the capital accumulation potential of the economy rather than as a trajectory cheap in the use of capital. Correcting this problem however requires measures that are inconsistent with a liberalized economic policy regime.]

1. Introduction

It is well known that the relationship between investment and growth works through two channels since investment has a dual character. Investment is one of the components of final demand that through the multiplier process also influences the overall level of demand in a capitalist economy. At the same time, investment is also the means by which the productive capacity of the economy expands. How does a capitalist economy maintain a stable growth path where a balance or consistency is maintained between these two influences of investment on output? This has been one of the central questions of growth theory since the instability associated with it was conceptualised as the knife-edge or razor's edge problem in the work of Harrod and Domar. This paper argues that

* The author is Professor at the Institute. I am grateful to Jayati Ghosh for her comments at an earlier stage of the research underlying this paper, and to my colleagues at the ISID who gave their suggestions and comments when this paper was presented at the Institute. For different kinds of editorial and technical support, I received the generous help of the ISID staff. The usual disclaimer of course applies. *E-mail*: surajit@vidur.delhi.nic.in

the contemporary growth process of the Indian economy confronts a similar problem of instability for reasons that are specific to its context and somewhat different from those highlighted by the Harrod-Domar analysis.

If the analysis presented in this paper is correct, then one of its implications would be that some of the perceptions or conclusions about India's growth that have gained currency in the last few years would need to be substantially revised or amended, or at least become subject to very important qualifications. Specifically, this paper calls into question the following three major conceptions that can be found in a number of studies that have looked at India's growth history through the prism of the aggregate production function or growth accounting approach:

- a) That the period since 1980 can be seen as one *single* phase, distinguished from the previous three decade long period of highly volatile and low average growth (the "Hindu Rate of Growth") by a relatively more stable and higher growth trajectory that has been enabled more by a marked improvement in the pace of productivity growth than the greater use of inputs. This transition is, of course, typically causally linked to the process of liberalization of the Indian economy.¹
- b) That the experience since 1980 points towards the distinct possibility that India's growth performance in the coming decades is likely to be even better than in the last 25 years, perhaps even approaching spectacular levels².

¹ This general view can be found in many places and is also tied up in the debate on the significance of the 1990s liberalization in the growth turnaround [Acharya (2007), DeLong (2003), Virmani (2004a and b), Sinha and Tejani (2004), Rodrik and Subramanian (2005), Srinivasan (2005), Panagariya (2004) Kohli (2006 a and b), Kaur (2007), and Wallack (2003)]. The central issues in that debate relates to the sources of the 1980s growth upturn given the relatively minor policy changes of that decade and the apparent paradox that the more widespread reforms of the 1990s produced no significant acceleration in productivity driven growth beyond that. Some have even emphasized that the most important turning point was before, in the 1950s [Hatekar and Dongre (2005) and Nayyar (2006)]. But the treatment of the period since 1980 as part of the same growth trajectory has not been really questioned in this debate.

² The Goldman Sachs BRICS report of 2003 [Wilson and Purushottaman (2003)] played a prominent role in the crystallization of this view. Its projections have, however, been considerably scaled upwards in many writings that have subsequently appeared including two further Goldman Sachs Studies, Purushotaman (2004) and Poddar and Yi (2007), Rodrik and Subramanian (2004), Ranjan et al. (2007), Mishra (2006), and Kelkar (2004). Kelkar has gone so far as to suggest that India is poised at the doorstep of a golden age of growth where its performance might even surpass that of the East Asian miracles. These projections of India's future growth potential are based on the assumed potential for productivity growth and factor

contd...

- c) That India's growth trajectory enjoys one great advantage compared to that of China and East Asia, namely that it is relatively *less intensive in the use of capital*, reflected in a lower capital-output ratio. For this reason even if India's savings rate does not converge to the Chinese and East-Asian levels, and the investment rate possible with a sustainable current account deficit is lower, it can achieve similar or higher rates of growth³.

Evidence will be provided in this paper to show that the relationship between capital accumulation and output growth in India has undergone an important change subsequent to the 1990s liberalization. Not only does this mean that the treatment of the post-1980 period as a single phase is inappropriate, but also the nature of the change is one that points towards a strong element of instability being in-built into the present growth trajectory of the Indian economy. This instability in turn is intimately linked with the very process that makes Indian growth appear less intensive in the use of capital. That lower intensity is in a sense a problem more than an advantage, reflecting the inability of the economy to fully utilise its capital accumulation potential rather than its efficient use.

These important features of Indian growth are missed out by analyses based on the aggregate production function approach because of two important problems with that approach⁴. The first is that it focuses on a relationship that is assumed to exist at the *aggregate* level between quantities of inputs and outputs and therefore does not pay attention to the sectoral patterns of expansion of inputs and outputs. The second is that the aggregate production function approach completely ignores the demand side of the growth process.

accumulation. Given the large gaps that still exist between productivity levels in India and in the developed countries, and between agriculture and non-agricultural activities within the Indian economy, catching up and relocation of labour are supposed to offer considerable scope for sustained productivity growth. India's "demographic dividend" is expected to yield both increases in the workforce as well as a faster rate of capital accumulation through an increase in the savings rate, with the latter trend being reinforced by rising per capita income.

³ India's capital-output ratio is supposed to be relatively low compared to say China for a combination of reasons—the greater efficiency in the use of capital in India; the large contribution of low capital using service sectors to Indian growth; and the absence of large investments in high-capital infrastructure projects [Mishra (2006), Debroy (2006)]

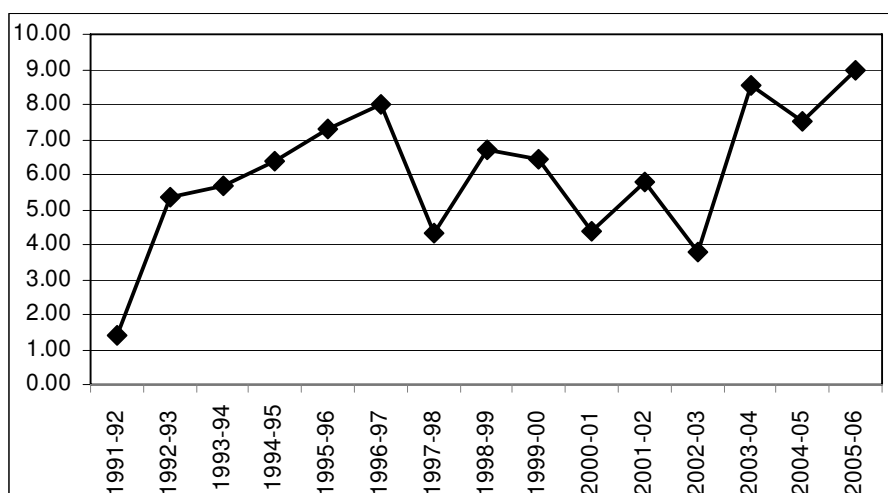
⁴ There are of course numerous other issues concerning the theoretical validity of the concept of an aggregate production function. See Felipe and Fisher (2003) for a relatively recent comprehensive discussion.

2. Unstable growth after 1991 and its correlates

The euphoria about the high growth that the Indian economy has been experiencing for the last few years often overshadows the fact that the current high-growth period represents a recovery from the relative slow-down that had emerged in the second half of the 1990s and lasted for six years. In other words, GDP growth rates since 1991 have been unstable (Figure-1). But this instability has not exhibited itself uniformly across the three broad sectors of the economy (see Table-1). Unlike what has been the case in agriculture and industry, the growth in the services sector of the economy in fact has continued unabated throughout the period since 1991.

But this pattern, of agriculture and industry being the sources of instability in aggregate growth even as the services sector exhibited relatively stable growth, is not new. It has been a feature of Indian growth throughout the period since independence. The services sector in any case the world over has traditionally been the most “recession-resistant” of the three major sectors⁵.

Figure-1
Annual Growth Rate of India's GDP at Factor Cost, at 1999-00 prices



Source: Based on data from CSO, National Accounts Statistics, 2007 and Back Series at 1999-00 prices.

Over time, however, the Indian economy has witnessed a steady acceleration in the rate of growth of services and the increasing weight of the sector has reduced the impact of industry and agriculture on aggregate GDP growth rate and therefore the measured

⁵ Riddle (1986)

Table-1
Growth Rates of GDP by Sector at 1999–00 prices (per cent per annum)

<i>Sector</i>	<i>1991–92 to 1996–97</i>	<i>1996–97 to 2002–03</i>	<i>2002–03 to 2005–06</i>	<i>2001–02 to 2005–06</i>
Agriculture, forestry & fishing	4.13	1.63	4.70	2.55
Industry	7.75	4.71	8.98	8.46
Mining & quarrying	4.20	3.97	4.97	5.62
Manufacturing	10.01	4.07	8.17	7.76
Registered	11.31	4.46	8.57	8.25
Unregistered	7.67	3.30	7.35	6.76
Elect. gas & water supply	7.44	4.50	6.00	5.67
Construction	3.62	6.92	13.50	12.23
Services	7.36	7.73	9.32	8.86
Aggregate GDP	6.51	5.41	8.26	7.36

Source: Computed from CSO, National Accounts Statistics, 2007 and Back Series at 1999–00 prices.

volatility in it. But that only makes the instability after 1991 in industrial growth in particular all the more remarkable and raises intriguing questions about the Indian economy's current growth trajectory. Why has the decisive replacement of a slow growing and highly unstable agriculture by the rapidly and steadily growing services sector as the largest sector of the economy not brought down the instability in industrial growth? Why is there such a de-linking between the two non-agricultural sectors of the economy such that industrial growth has shown variations of such large magnitudes despite the stable and rapid growth of the sector that now accounts for more than half the output of the economy?

A clear feature of the instability in industrial growth, not surprisingly, is that its pattern mirrors primarily that of the manufacturing sector. Now, if we set the sectoral patterns of growth and its instability against the patterns in the two major components of demand in the domestic economy, then a clearly observable correlation is that between fluctuations in industrial and manufacturing growth and that of investment (Table-2). Real consumption expenditure in fact has grown steadily throughout the period, and this has been even more the case with non-food expenditure including that on manufactured consumer goods (it may, however, be noted for future reference that real expenditures on manufactured consumption have grown at a lower pace than the expenditures on services). In other words, it is the investment-related demand for manufactured products in the economy rather than consumption demand that has fluctuated in the period after 1991, and this has been the cause of instability in industrial growth. The role of investment in determining the tempo of industrial and aggregate growth also emerges quite strikingly in the latest transition to the current high growth phase of the Indian

economy (Table-3). The current boom is investment led with capital formation accounting for nearly half of the increment in demand in 2005–06 over that in 2002–03.

Table-2
Rates of Growth of Selected Final Expenditure Components at 1999–00 prices

<i>Expenditure Component</i>	<i>1991–92 to 1996–97</i>	<i>1996–97 to 2002-03</i>	<i>2002–03 to 2005–06</i>	<i>2001–02 to 2005–06</i>
PFCE in domestic market	4.97	4.39	6.46	5.61
PFCE Food	4.25	0.60	1.78	0.36
PFCE Non-food	5.71	7.51	9.28	8.98
PFCE Mfd. products	6.07	6.77	9.79	8.96
PFCE Services	7.56	10.25	11.09	11.19
GFCF	8.63	6.11	13.20	12.22

Source: Computed from CSO, National Accounts Statistics, 2007 and Back Series at 1999–00 prices.

Table-3 also highlights the important role that private corporate investment has played in pushing up the pace of investment in recent years, being by far the fastest growing expenditure item in the economy. At current prices, private corporate capital formation contributed more than a quarter of the increment in expenditure between 2002–03 and 2005–06, in sharp contrast to its inconsequential share in the immediately preceding period. This in fact reflects the general feature prevailing since 1991 of the investment process in India becoming private corporate sector driven. Indeed, the fluctuations since 1991 in aggregate capital formation in the economy basically mirror what has been happening to private corporate investment. These trends in private corporate investment in turn have been highly correlated with capital formation in the organised manufacturing sector. This latter correlation is on account of the mutual importance the two sectors have for each other's investment. On the one side, the manufacturing sector absorbs the major part of private corporate investment and on the other, the private corporate sector dominates the investment in registered manufacturing.

As can be seen from Figure-2 and Table-4 the pace of capital formation, in organised manufacturing and by the private corporate sector, and the share of the latter in aggregate corporate formation have displayed very divergent trends in the different phases of growth. The first few years after liberalization had seen a rapid growth of manufacturing-intensive private corporate investment and its share in aggregate gross capital formation in the economy climbed sharply. In the second half of the 1990s this investment boom collapsed and the private corporate share in the economy aggregate also moved sharply downwards. It then bounced back after 2002–03 to record higher levels of growth than in the early 1990s and the private corporate sector's contribution to total capital formation also moved upwards sharply.

Table-3
Rates of Growth and Contribution of Different Final Expenditures to Total Expenditure on GDP (at Current Prices), 1999–00 to 2002–03 and 2002–03 to 2005–06

	Contribution to Increase (%)		Annual Rate of Growth (Per cent per annum)	
	1999–00 to 2002–03	2002–03 to 2005–06	1999–00 to 2002–03	2002–03 to 2005–06
GDP at Market Prices	100.00	100.00	8.04	13.20
1. Gross Capital Formation (GCF)	20.78	48.02	6.55	23.43
<i>Private Corporate GCF</i>	0.42	28.32	0.72	48.18
<i>Public Sector GCF</i>	0.93	10.38	1.77	21.48
<i>Household Sector GCF</i>	19.74	6.75	13.67	7.15
Gross Fixed Capital Formation (GFCF)	25.28	37.54	8.72	19.65
<i>Private Corporate GFCF</i>	1.25	22.54	2.28	43.36
<i>Public Sector GFCF</i>	4.93	8.27	6.33	16.66
<i>Household Sector GFCF</i>	19.11	6.74	13.78	7.38
2. Private Final Consumption Expenditure	57.35	46.95	7.39	10.07
3. Government Final Consumption Expenditure	7.62	10.21	4.99	11.43
4. Exports of Goods and Services	25.27	33.32	14.81	28.03
5. Less Imports of Goods and Services	- 22.58	- 40.64	11.83	30.88

Note: Contribution to increase over any period is calculated by taking the difference in the terminal year and initial year values.

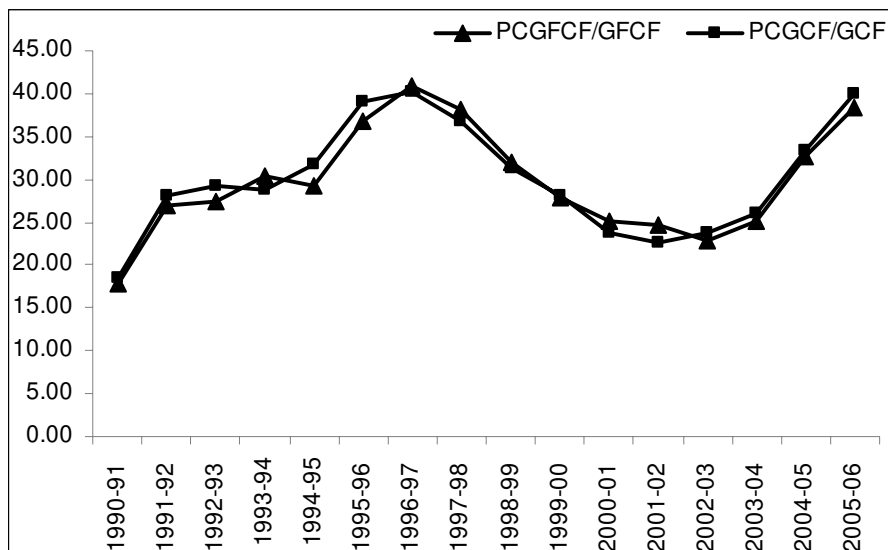
Source: Computed from CSO, National Accounts Statistics, 2007.

Table-4
Rates of Growth of GFCF at Constant Prices (% per annum)

At 1993–94 prices			At 1999–00 prices		
Period	Registered Manufacturing	Private Corporate Sector	Period	Registered Manufacturing	Private Corporate Sector
1990–91 to 1996–97	19.5	21.94	1999–00 to 2002–03	-4.91	-2.02
1996–97 to 2002–03	-6.06	-3.75	2002–03 to 2005–06	37.62	35.80

Source: Computed from CSO, National Accounts Statistics, 2001, 2004, 2007 and Back Series at 1999–00 prices

Figure-2
Share of Private Corporate Gross and Gross Fixed Capital Formation
in Economy Total (Percentage), 1990–91 to 2005–06



Source (For Figures 2 to 7): Based on data in CSO, National Accounts Statistics, 2007 and Back Series at 1999-00 prices

The fluctuations in private corporate investment, therefore, have been even more violent than in aggregate capital formation⁶. But what is noteworthy is that through these ups and downs, the tempo of the private corporate sector's capital formation has remained essentially a function of its investment in the organised manufacturing sector. In other words, instability in manufacturing growth appears to be connected not merely to instability of private corporate investment, but to that within the manufacturing sector itself. Underlying this instability is an *investment-growth asymmetry* that has become a characteristic feature of the Indian economy in the period since 1991.

3. Patterns of Capital Accumulation and Growth: The Investment-Growth Asymmetry after liberalization

One of the striking empirical facts of the Indian economy at the beginning of the twenty-first century that virtually flies in the face of the conception of an aggregate production function applicable to the Indian context is the following. This is an economy where: more than half of the labour force is employed in one sector, namely agriculture; more

⁶ Problems associated with the measurement of household sector fixed capital formation could mean that the degree of actual fluctuations in aggregate GFCF have been greater than that captured in the data [Shetty (2005)].

than half of the fixed capital stock (excluding that in real estate and ownership of dwellings) is deployed in a second, that is industry; and a third sector, services, generates more than half of the total output. This complete disjunction between the occupational structure, the sectoral distribution of the fixed capital stock, and the structure of output is, of course, something that has developed over the entire course of the post-independence development of the Indian economy. But there is also a new element in it that emerged only from the 1990s, which deserves attention.

At the time of independence, India was primarily an agrarian economy in all three senses—with agriculture employing the bulk of the labour force, accounting for the largest part of the capital stock and also output⁷. Though the occupational structure, as is well known, has shown a greater resistance to change, there has been a more or less consistent trend since independence of agriculture's share in both output and capital stock declining in tandem. The latter trends are brought out in Figure-3 and Figure-4, with Figure-5 showing that the sector's share in NDP to its share in fixed capital stock (N/K ratio) has slowly drifted upwards. But these figures also show that the redistribution's away from agriculture, of the economy's fixed capital stock and its output, did not move in the same degree towards industry and services. Industry, which accounted for less than a tenth of the total fixed capital stock at independence, took the lion's share of the increase in fixed capital since then and raised its share in the economy total to over 50% by 2005–06. But the services sector achieved a greater increase in output, moving up from a share of less than a quarter of NDP in 1950–51 to over half by 2005–06. The N/K ratio in the case of services moved up most rapidly, and caught up with that of agriculture.

Amongst the three major sectors, it is only the industrial sector that has exhibited a long-term trend of decline in its N/K ratio. Its share in NDP, which initially was more than that in fixed capital, has not matched the rapid and consistent rise in the industrial sector's share in the economy's fixed capital stock. The sharpest rise in the share of the industrial sector in output took place till the mid-1960s after which it stagnated before resuming its upward movement in the 1980s though at an extremely slow pace. But *even this slow rise has ceased in the post-1991 period*. The maximum share was achieved by the mid-1990s, and that too was only marginally higher than the share in 1990–91. But what makes this stagnation in the industrial sector's share in aggregate output after 1991 even

⁷ For the purposes of the subsequent discussion: Agriculture includes also fishing and forestry & logging; Industry is composed of Mining & Quarrying, Manufacturing, Electricity, Gas and Water Supply, and Construction; the remaining four sectors are included in services, with the exception that real estate, ownership of dwellings and business services are excluded from both the services and economy aggregates.

more striking is that it coincides with a significant break in the trend in the distribution of fixed capital and the movement of N/K ratios *within* the industrial sector.

Figure-3
Shares of Major Sectors in NDP at 1999-00 prices, 1950-2006 (%)

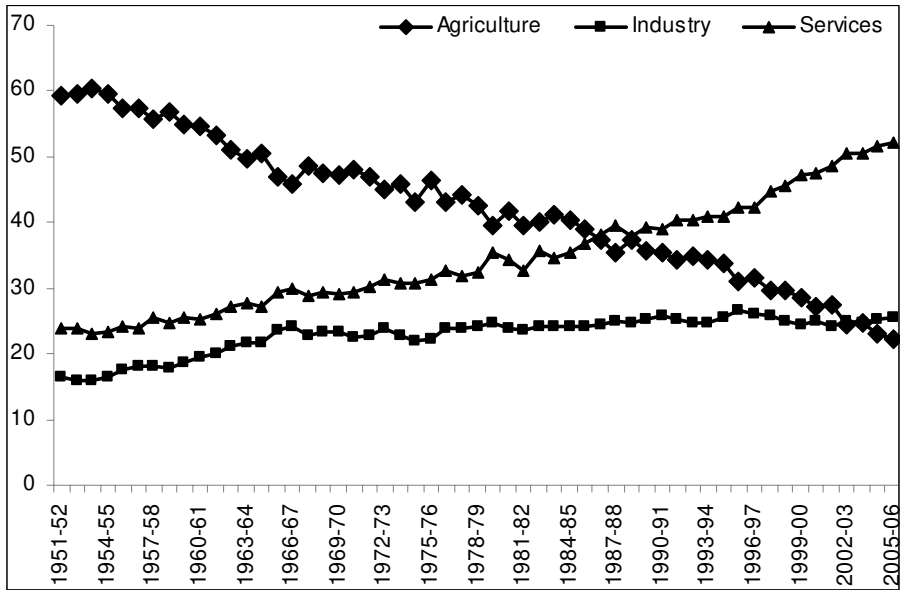


Figure-4
Distribution of Net Fixed Capital Stock at 1999-00 prices among Major Sectors, 1950-2006 (Percentage shares)

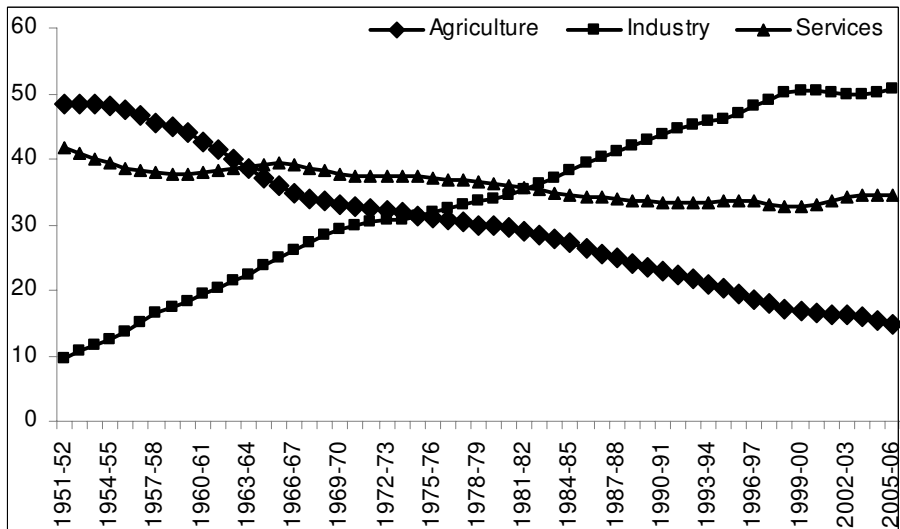
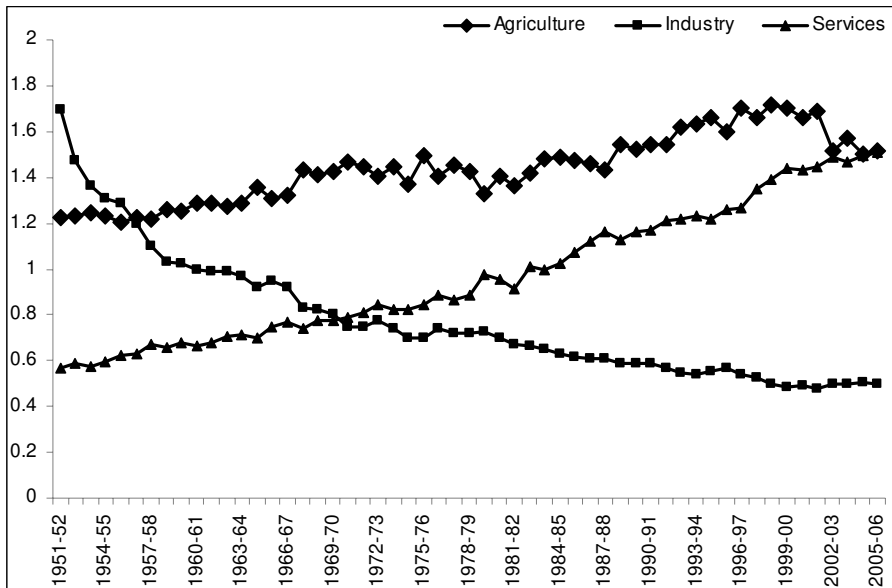


Figure-5
N/K Ratios of Major Sectors, 1950–2006



For the first time since independence the post-1991 period has witnessed a rising share of manufacturing, and more particularly registered manufacturing, in the *industrial* fixed capital stock (Figure-6). At independence, the manufacturing sector accounted for over 90% of the industrial fixed capital stock, with organised manufacturing itself accounting for nearly two-thirds. But this share declined consistently right up to the end of the 1980s reflecting what was happening to organised manufacturing's share. Therefore, in earlier periods the major part of the decline in the industrial sector's N/K ratio was the result of the redistribution of the fixed capital stock in industry towards higher capital-output ratio sectors like Electricity, Gas and Water Supply. Organised manufacturing too initially contributed somewhat to this process, as its structure changed from an initial pattern where the lighter textile industries dominated towards an increasing weight of higher capital-using manufacturing industries. But the declining trend of the registered manufacturing sector's N/K ratio ceased in the late 1960s; it started moving upwards during the decade of the 1970s and through the 1980s (see Figure-7). In the latter decade, capital formation in organised manufacturing picked up again after a long period of relative stagnation, but this was accompanied by acceleration in output growth so that the average capital-output ratio in registered manufacturing also declined during the 1980s.

Figure-6
Distribution of Industrial Net Fixed Capital Stock at 1999–00 prices (Percentage shares)

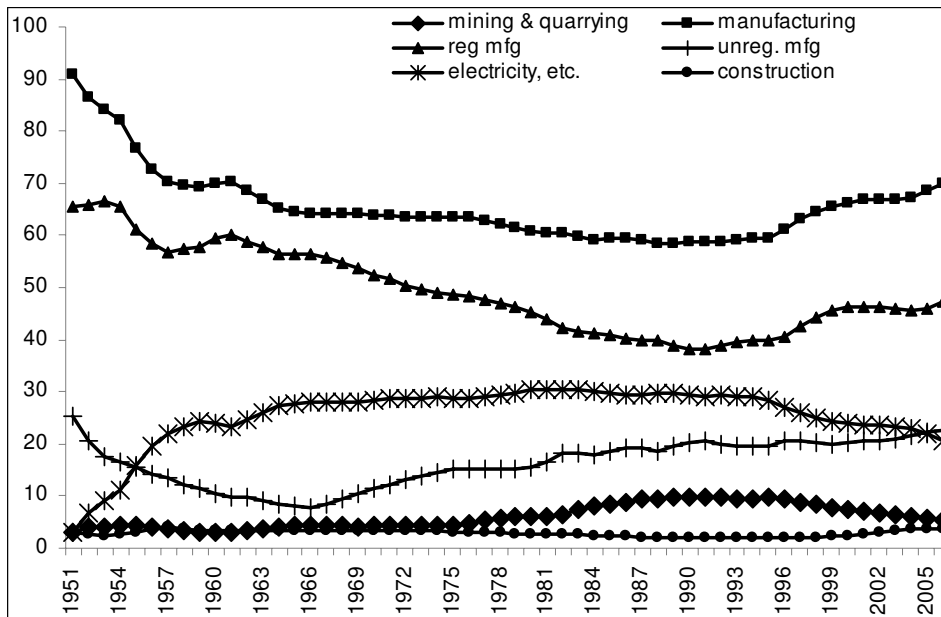
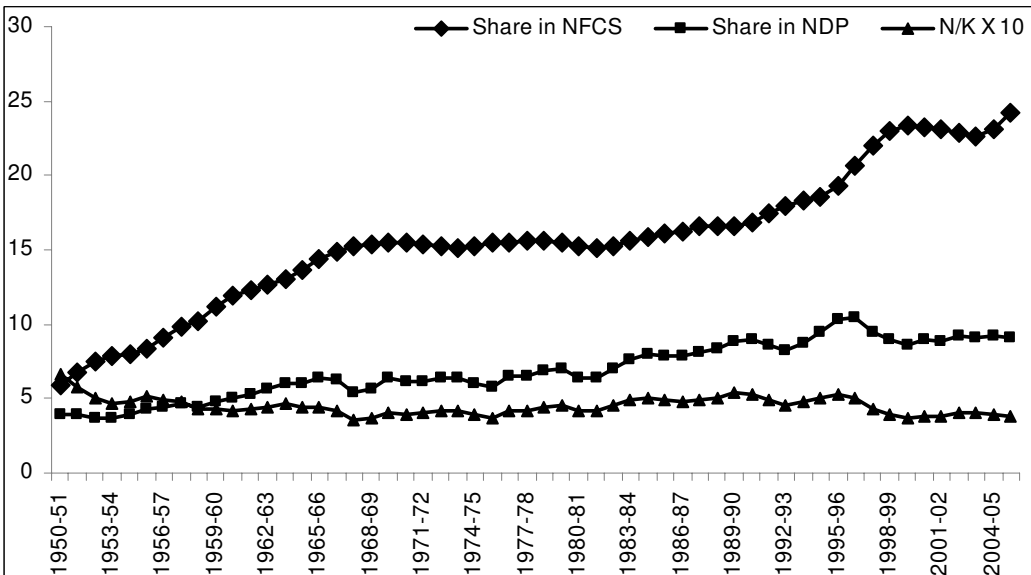


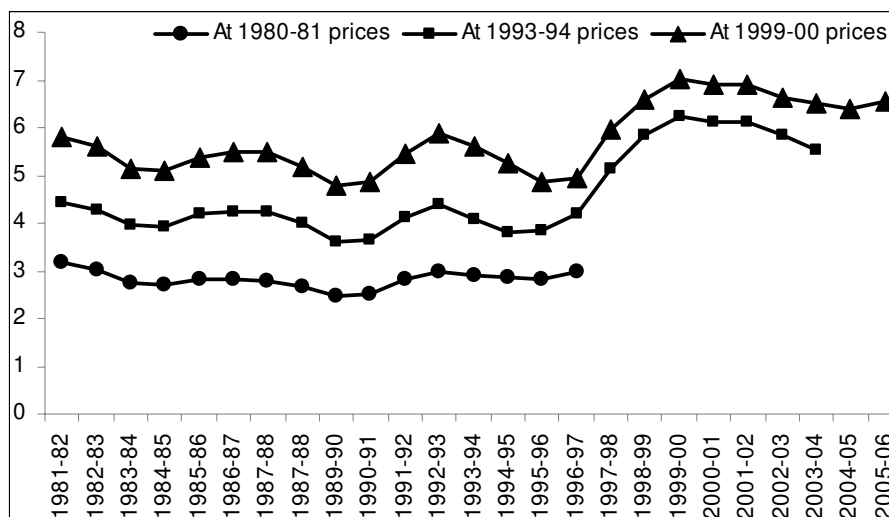
Figure-7
Registered Manufacturing Share in NDP and Net Fixed Capital Stock (%), and it's N/K Ratio



But with the advent of the 1990s, all these trends relating to organised manufacturing reversed direction. As the sector's share in the industrial net fixed capital stock started *increasing*, its N/K ratio began moving downwards from the early 1990s. Apart from

construction, which accounts for only a small fraction of the industrial capital stock, in industry it was only manufacturing that saw a decline in its N/K ratio after 1991. The declining trend of the capital-output ratio in manufacturing and registered manufacturing was also *reversed* (Figure-8). The obvious conclusion then is the following. In the decades of the 1970s and the 1980s, the industrial sector's N/K ratio increased *despite* the *rising* trend of organised manufacturing because of a redistribution of industrial fixed capital stock *away* from organised manufacturing. But after the 1990s liberalization process the same rise in industry's N/K ratio happened *because* of the *reversal* of the trend in organised manufacturing's N/K ratio accompanying the movement in the distribution of industrial fixed capital stock *towards* organised manufacturing. This is one important reason why the growth trajectory of the 1980s and the one after 1991 cannot be considered equivalent.

Figure-8
Average Capital Output Ratio of the Registered Manufacturing Sector



Source: Based on Data in CSO, National Accounts Statistics, various issues.

What has essentially happened consequent upon the 1990s liberalization is a distinct shift of industrial fixed capital formation in the direction of the registered manufacturing sector of the economy, which resulted in acceleration in the rate of growth of fixed capital in organised manufacturing as compared to the 1980s. But this was not matched by any corresponding acceleration in output growth (Table-5), and consequently capital productivity of the sector declined⁸. This stands out in sharp contrast to the experience of the services sector, in whose case liberalization was accompanied by a sharp acceleration

⁸ Balakrishnan and Babu (2003) have highlighted this decline in capital efficiency.

in growth of output without any significant acceleration in the rate of growth in fixed capital, which had in any case been lower than that of output. Thus while investment has increasingly gone in one direction, namely that of registered manufacturing, output growth has mainly come from other directions, that is, services. This specific absence of a strong relationship between capital formation and output growth is the *investment-growth asymmetry*—characteristic of post-1991 Indian economy.

Table-5
Annual Rates of Growth of Average Net Fixed Capital Stock and Net Domestic Product of the Registered Manufacturing Sector and of Services

Item	1980–81 to 1990–91	1990–91 to 2000–01	1990–91 to 2005–06*	1980–81 to 1990–91	1990–91 to 2000–01	1990–91 to 2005–06*
	Registered Manufacturing			Services		
At 1999–00 prices						
Average Net Fixed Capital Stock	6.50	9.53	8.28	4.53	5.49	5.84
Net Domestic Product	8.41	6.46	6.08	6.61	8.05	8.16
At 1993–94 prices						
Average Net Fixed Capital Stock	6.96	11.35	9.97	4.71	5.61	5.47
Net Domestic Product	8.82	5.81	5.48	6.61	8.45	8.39

* 1990–91 to 2003–04 at 1993–94 prices.

Source: Computed from CSO, National Accounts Statistics, 2001, 2004, 2007 and Back Series at 1999–00 prices.

The investment-growth asymmetry and the change between the 1980s and afterwards is brought out sharply in Table-6. It shows that the share of the registered manufacturing sector in the *increase* in both the industrial net fixed capital stock and the aggregate stock has been significantly greater in the period after 1991 as compared to the share in the 1980s. But in both cases, the contribution of the sector to the increase in output shows significant decline. Not only has the bulk of the growth of output after 1991 come from the services sector, that sector has also substantially enhanced its contribution to that growth.

The investment-growth asymmetry is not merely an economy-wide phenomenon, but also characterises the private corporate sector—the sector responsible for much of the organised manufacturing investment. This is indicated by Table-7, which highlights the dramatic turnaround in the sectoral distribution of organised private economic activity,

including of its sources of its profits that has taken place since the early 1990s⁹. In line with the overall trend in the economy, even in the organised private sector services have grown faster than manufacturing and industry, and it is services that has raised the organised private sector's share in NDP from under 13% in 1993–94 to nearly 20% in 2004–05.

Table-6
Contribution of Different Sectors to Point-to-Point Increase in Average Net Fixed Capital Stock and Net Domestic Product at 1999–00 prices

<i>Industry/Sector</i>	% SHARE IN INCREASE OF INDUSTRY TOTAL			% SHARE IN INCREASE OF ECONOMY TOTAL		
	<i>1980–81 to 1990–91</i>	<i>1990–91 to 2000–01</i>	<i>1990–91 to 2005–06</i>	<i>1980–81 to 1990–91</i>	<i>1990–91 to 2000–01</i>	<i>1990–91 to 2005–06</i>
OF AVERAGE NET FIXED CAPITAL STOCK:						
Mining & Quarrying	13.18	4.38	3.18	7.57	2.62	1.78
Manufacturing	56.91	74.64	75.61	32.69	44.67	42.36
Registered	32.70	54.15	51.96	18.78	32.40	29.11
<i>Unregistered</i>	<i>24.21</i>	<i>20.50</i>	<i>23.65</i>	<i>13.91</i>	<i>12.26</i>	<i>13.25</i>
Electricity, Gas & Water Supply	28.40	18.10	16.30	16.31	10.83	9.13
Construction	1.51	2.87	4.91	0.87	1.72	2.75
INDUSTRY	100.00	100.00	100.00	57.44	59.84	56.02
SERVICES				29.52	32.64	35.49
OF NET DOMESTIC PRODUCT:						
Mining & Quarrying	12.14	6.69	6.43	3.46	1.58	1.62
Manufacturing	58.34	58.01	53.13	16.60	13.74	13.36
Registered	45.58	38.06	36.97	12.97	9.01	9.30
<i>Unregistered</i>	<i>12.75</i>	<i>19.95</i>	<i>16.16</i>	<i>3.63</i>	<i>4.73</i>	<i>4.06</i>
Electricity, Gas & Water Supply	6.54	8.14	5.98	1.86	1.93	1.50
Construction	22.98	27.16	34.47	6.54	6.43	8.67
INDUSTRY	100.00	100.00	100.00	28.46	23.69	25.15
SERVICES				46.01	59.64	62.11

Source: Computed from CSO, National Accounts Statistics, 2007 and Back Series at 1999–00 prices.

⁹ It should, however, be noted that since the value added to gross output ratio in industry and manufacturing is significantly lower than in services, industry's share in gross output would still be comparatively larger.

Table-7
Sectoral Distribution of Private Organised Sector NDP and Operating Surplus at Current Prices
(Percentage Shares)

	1993-94		2000-01		2004-05	
	OS	NDP	OS	NDP	OS	NDP
Agriculture	2.81	3.76	1.17	1.70	1.07	1.46
Industry	65.07	62.50	51.54	53.06	44.28	48.26
Services	32.12	33.74	47.29	45.24	54.65	50.28
<i>Registered Manufacturing</i>	<i>59.70</i>	<i>51.39</i>	<i>46.19</i>	<i>44.28</i>	<i>37.59</i>	<i>37.66</i>
Total Private Organised	100	100	100	100	100	100

NDP=Net Domestic Product; OS=Operating Surplus.

Source: Computed from CSO, National Accounts Statistics, 2007 and Back Series at 1999-00 prices.

4. The Anatomy of the Investment-Growth Asymmetry

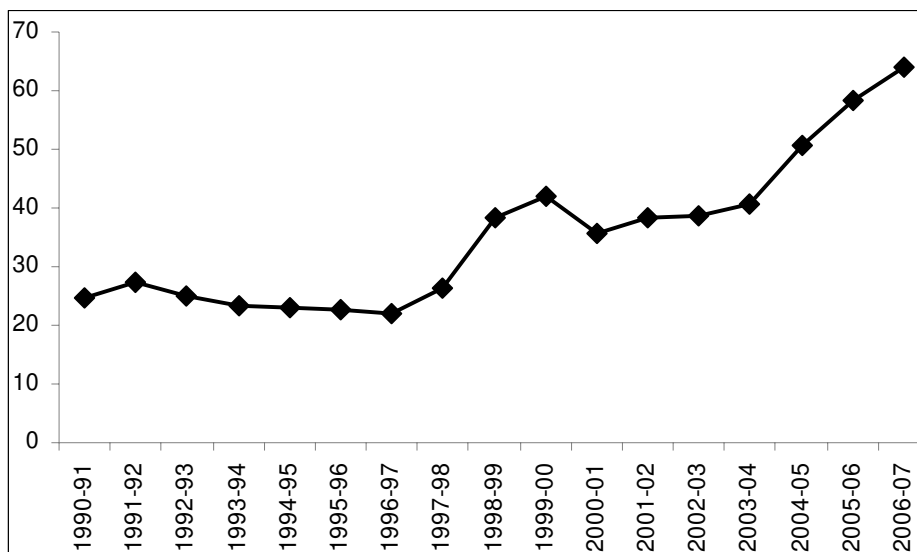
One of the major factors behind investment-growth asymmetry that has characterised the post-1991 Indian economy is that the demand pattern generated by external markets, domestic consumption demand, and public expenditure, has been increasingly tilting towards services at the expense of manufacturing.

As is well known, it is in services rather than in manufacturing that India has been relatively more successful in finding a niche for itself in the international division of labour. In 2005 the share of services in India's total exports (goods and commercial services) at 37% was way above the world average of 19%¹⁰. While India has a substantial deficit in its merchandise trade (which crossed 6% of GDP in 2006-07), services exports and private remittances have ensured that India has maintained a large surplus in invisibles. Services exports have increased from a level that was less than a quarter of manufacturing-intensive merchandise exports in the early 1990s to nearly 64% of merchandise exports by 2006-07 (see Figure-9), which puts their magnitude nearly at par with that of non-oil manufactured exports.

In non-food private final consumption expenditure in the domestic market (excluding that on gross rental and water charges), the share of manufactured commodities has been consistently declining, with only the share of expenditure on manufactured fuels moderating the decline to an extent. Since the early 1990s, expenditures on services have increasingly displaced those on manufactured consumer goods (Figure-10).

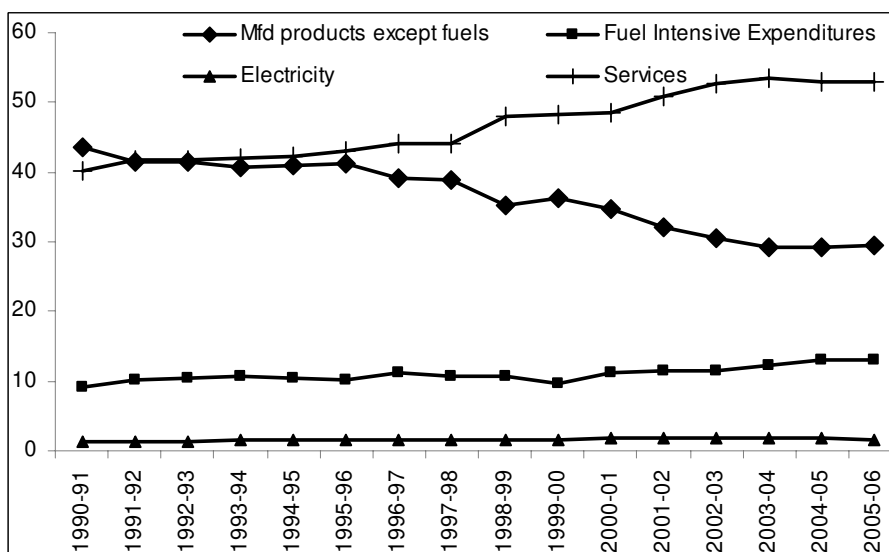
¹⁰ WTO, International Trade Statistics, 2006. This share of services in Indian exports also stands out in contrast to the East Asian economies including China, in whose cases the services share is typically less than or equivalent to the world average.

Figure-9
India's Services Exports as a Percentage of Merchandise Exports, 1990-91 to 2005-06



Source: Based on data in India's Balance of Payments Statistics in RBI, Handbook of Statistics of the Indian Economy

Figure-10
Share of Different Expenditure Groups in Non-Food Private Final Consumption Expenditure in the Domestic Market at Current Prices (Percentages)

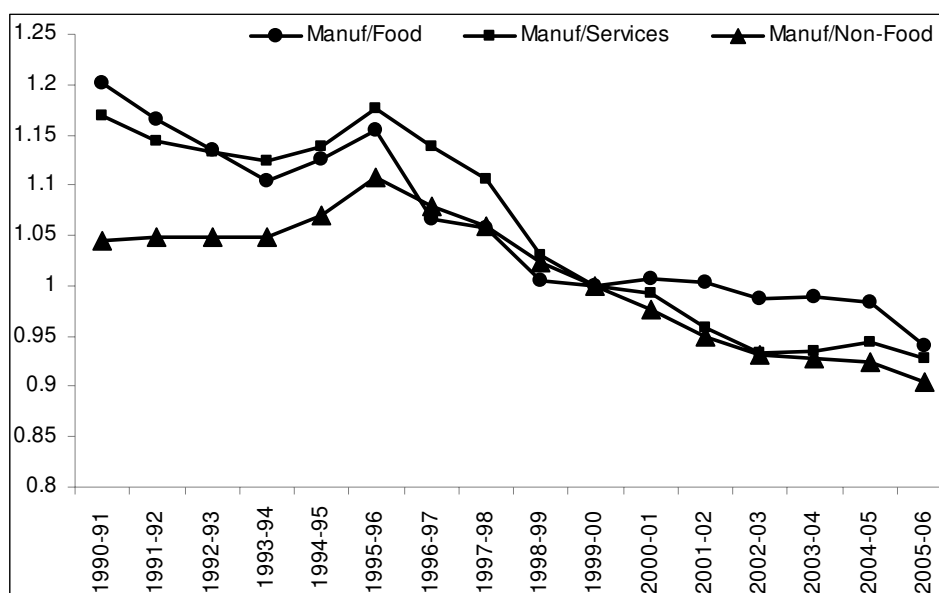


Note: Fuel intensive expenditures include those on LPG, Kerosene and Operation of Transport Equipment.

Source (For Figures 10 to 14): Based on data in CSO, National Accounts Statistics, 2007 and Back Series at 1999-00 prices.

One important proximate factor responsible for the observed trends in the shares of manufactured products and services in consumption expenditures is, of course, the trend in their relative prices. As shown in Figure-11, the prices of manufactured products (with exception of manufactured fuels) entering into consumption have steadily declined relative to prices of both food and services since the mid-1990s. Presumably this reflects the fact that manufactured goods have experienced a greater degree of cheapening as compared to other products. But the widening gap between the shares of manufactured goods and services in consumption holds true even if these are considered at constant prices, and we have seen earlier that real consumption expenditure on services has been growing faster than on manufactured products. Moreover, these trends were visible even in the first half of the 1990s even before the emergence of a consistent trend of decline in the relative prices of manufactured products. Therefore relative price trends do not completely explain the contrasting movements in the shares of services and manufactured products in consumption expenditures.

Figure-11
Ratio of Implicit Price Indices of Manufactured Products to Other Indices
in Private Final Consumption Expenditure



In the context of an economy like India's, where the penetration level of many manufactured consumption goods remains extremely low, the combination of rapidly rising average incomes and the relative cheapening of manufactured products in fact have considerable potential for widening of the market for manufactured goods and

increases in quantities consumed¹¹. If income increases are spread across the populace than the positive effects of these on the demand for manufactured products should be strong enough to counter the effect of declining relative prices. It is only at relatively much higher income levels that one should see a rising share of services in consumption expenditure that is the result of the increasing diversification of demand. If despite these the demand for manufactured consumer goods has not been able to grow rapidly enough to counter the effect of their relative cheapening, then the culprit is most likely the income distribution trend over the same period. Clearly, therefore, the changing consumption demand pattern reflects the fact that income growth under liberalization has been heavily biased in favour of that segment of the Indian population with relatively higher incomes, which was already in the market for manufactured goods and whose income increases have induced greater expenditures on services. This is reinforced by the visible fact in Table-2 of total real food expenditure in the economy being virtually stagnant for a decade since the mid-1990s.

Finally, it is its manufacturing and industry intensive component, namely capital formation, which has borne the major brunt of the squeeze on public expenditure after liberalization. Government final consumption expenditure, almost all of which is expenditure on services, has however better sustained its relative share in total expenditure (see Figure-12).

Thus, in all components of final demand of the Indian economy except *private* capital formation, the relative share of manufacturing/industry has been declining. Further, if industrial products account for a major share of intermediate products, the industrial sector of the economy is also by far the major consumer of intermediate products¹². The intermediate demand for manufactured products therefore is more dependent on the rate of industrial expansion than on anything else. Thus, sustained expansion of demand for manufacturing output has become critically dependent on the rapid growth of private capital formation¹³. Private investment is the only possible counteracting force to a demand pattern induced shift in the production structure towards services. But

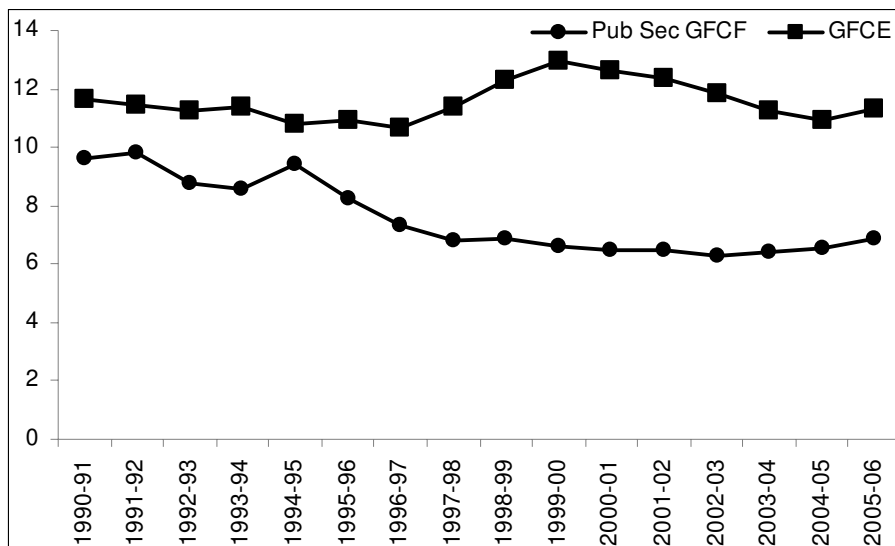
¹¹ An available example of this kind of process is that of expenditures on one service that has also experienced a process of cheapening during the same period, namely communication, in whose case the decline in relative prices since 1997–98 has been accompanied by a *rise* in its share in consumption expenditure even at current prices.

¹² As per the 1998–99 Input-Output Tables for the Indian Economy, 49% of the total demand for secondary output was intermediate demand, of which 36 percentage points (that is nearly three-fourths) was accounted for by the sector's internal demand.

¹³ The net effect of this on manufacturing output, however, will also depend on what happens to

contd...

Figure-12
Public Sector GFCF and Government Final Consumption Expenditure
as Percentages of GDP at Market prices (At current prices)



investment also requires outlets. If the principal sphere of private corporate capital formation has to be the manufacturing sector, then the rapid growth of this investment has to mean high levels of capital accumulation in organised manufacturing. In other words, the extent to which the tendency for the demand pattern to shift towards services can be countered depends on the extent to which the investment pattern can be pushed in favour of manufacturing. When the latter happens and there is rapid growth of private corporate investment, relatively more rapid expansion of demand for manufactured products is created but only by simultaneously expanding organised manufacturing capital stock. If that investment slackens, the pace of capital formation slows down in the sector but so does the demand for its products. This is the underlying reality of the Indian economy that makes for the investment-growth asymmetry.

It is, of course, true that for private capital formation to create demand for manufactured products such capital formation does not have to be limited to the manufacturing sector. If it could take place in other sectors, it would create the same demand without the corresponding level of increase in the organised manufacturing capital stock. It is also true that because private capital formation does not exclusively consist of private corporate investment, the pace of capital formation need not entirely depend on the

the import component of this capital formation, as well as to the relative weight of the induced consumption expenditure (since that consumption expenditure would also be services intensive).

investment behaviour of the private corporate sector. The problem, however, is that liberalization has not only privileged the private sector over the state as the agency for channelling investible resources to productive investments, but within the private sector too it has similarly privileged the private corporate sector over other private units in the household sector. Further, the private corporate sector is not an equally effective agency for investments in different sectors and of different kinds. Outside of the manufacturing sector, there certainly exists a vast potential for capital formation—in the agricultural sector, in infrastructure, as well as in the social sector. Private corporate investment however can fulfil these sectors' need for capital formation only to a limited extent. In comparison to them, however, manufacturing represents one of the most natural outlets for private corporate investment.

A different reason, however, is necessary to explain why there should not be significant absorption of private corporate investment in those services that have displaced manufacturing and industry from their preeminent positions in the private organised sector. This reason is that relative to industry and manufacturing the services that have been growing rapidly have very limited capacity to absorb investment. Given their relatively low capital requirement per unit of output, to be able to absorb equivalent amounts of capital they have to have significantly higher growth rates than are actually observed. That is why the rising importance of services has not eliminated the correlation between private corporate investment and investment in the registered manufacturing sector. This only goes to show that a low capital using services-intensive growth path is not an unambiguously advantageous feature of recent Indian economic development.

The only qualification that may be made to these propositions is that there is one element of capital formation by the household sector, namely in real estate, that can serve to an extent as an alternative to private corporate investment in manufacturing. In the most recent boom phase of the Indian economy, this kind of capital formation has perhaps played a role and partially explains the rapid growth of the construction sector in this period. But if what ultimately drives this kind of real estate boom is the rising incomes of only a small segment of the population then there are inherent limits to both its magnitude as well as its sustainability.

5. The Investment-Growth Asymmetry and Instability after 1991

Once the asymmetry between investment and growth in the Indian economy is recognised, the comprehension of the causes of instability in them is only a step away. The importance of private corporate investment for manufacturing demand easily explains why there should be a strong correlation between the trends in private corporate investment and industrial growth in the post-1991 period. But there is also the

additional side of that investment process, namely the expansion of capacity in the organised manufacturing sector. Unless the pace of capacity expansion in the sector is significantly lower than that of its capital-stock, rapid capital accumulation would be accompanied by a tendency for capacity creation to outstrip demand expansion. The source of this mismatch lies in the disproportional impact of the private corporate capital formation on the pace of expansion of the two. In the aggregate demand for manufactured products, private corporate capital formation is only one part and has to counter the demand bias in favour of services from all other sources. On the capacity creation side, however, it is the most important determinant of the pace.

This disproportionality related to the investment-growth asymmetry means that any phase of rapid expansion of private corporate investment in the organised manufacturing sector would inevitably face the problem of demand not having kept pace with it. This would make any such investment boom prone to an eventual collapse, which would further aggravate the demand constraint for manufacturing. No matter what 'favourable' climate may exist or be created for inducing private corporate investment in the economy, as long as the investment-growth asymmetry of the kind highlighted here remains a structural feature of the Indian economy, instability in investment and industrial growth would be unavoidable.

This analysis would thus suggest that the reversal in the 1990s of the declining trend that the capital-output ratio in manufacturing displayed in the 1980s is a result of demand factors¹⁴. This is also consistent with the fact that this reversal was not a reflection of a general trend in the economy. Other sectors, including some in industry, have exhibited opposite trends. Moreover, even the capital-output ratio in organised manufacturing has exhibited fluctuations in the post-liberalisation period that can be related to the investment and growth trends. Indeed, as Figure-13 shows, there has been a clear correlation between the post-liberalisation rates of growth of registered manufacturing NDP with the index of the output-capital ratios of the sector (taking 1995–96 = 100 and all magnitudes at 1999–00 prices). It attained its highest magnitude after 1991 in the mid-1990s, when industrial growth of the first half of the 1990s peaked, and declined sharply in the second half when growth faltered with the collapse of the earlier investment boom.

¹⁴ Azeez (2002) has however shown that *economic* capacity utilisation did not significantly decline in the 1990s compared to the 1980s and the correlation between it and the minimum capital-output ratio based measure of capacity utilisation actually came down. Azeez, however, only considered the period up to 1998 and did find that economic capacity utilisation dipped towards the end of the period. Additionally, his results have to be interpreted keeping in kind questions about his methodology that he himself refers to in his footnote 18, p. 16.

Also, the failure of demand to keep pace with it offers the most plausible explanation for the collapse of that investment boom¹⁵.

Figure-13
Index of Capital-Output Ratio (1995–96 = 100) of the Registered Manufacturing Sector
and its NDP Growth Rate (% per annum)

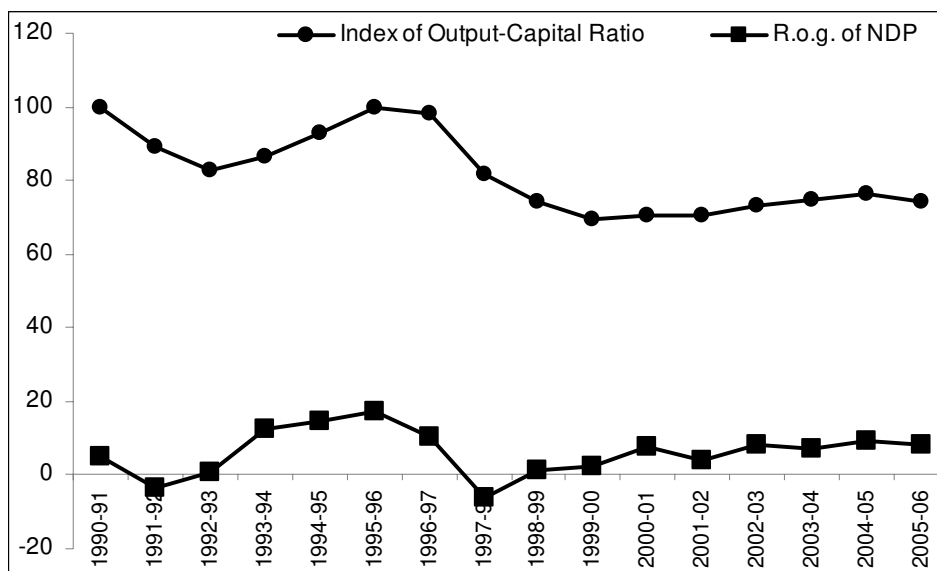
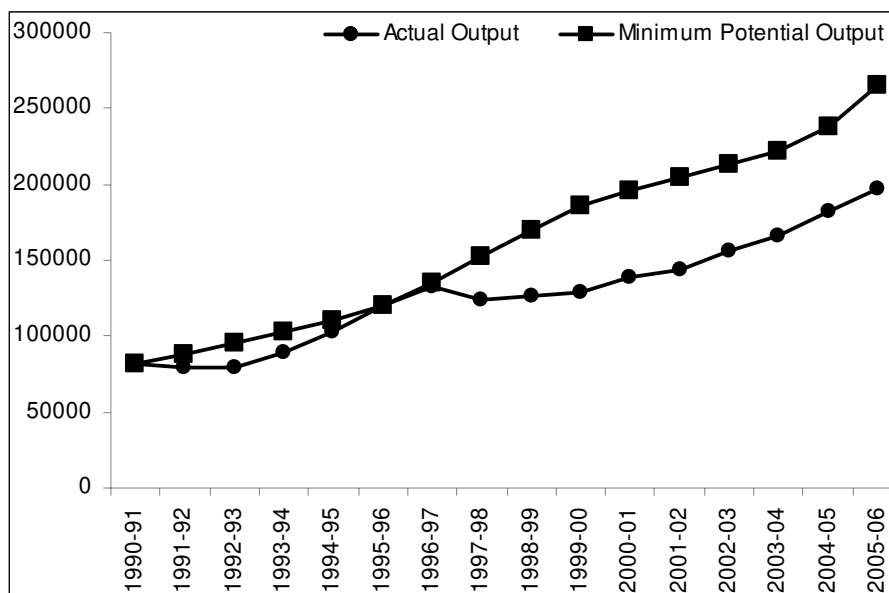


Figure-13 also additionally shows something that points towards the distinct possibility of another investment collapse of the kind that happened in the second half of the 1990s being imminent. If the index of the output-capital ratio can be viewed as an approximate measure of the degree of capacity utilisation in registered manufacturing relative to the highest capacity utilisation achieved after 1991, then it would have to be concluded that even in the most recent phase of high manufacturing growth the levels of capacity utilisation have been relatively low and generally below four-fifths of the post-1991 peak level achieved in 1995–96. This persistent demand gap can also be depicted slightly differently as in Figure-14, which shows the trends in actual output and the minimum potential output in organised manufacturing, the latter in any year being the product of that year’s average capital stock and the highest value attained by the output-capital ratio after 1991 (that is the value in 1995–96). It appears, therefore, that the existence of substantial unutilised capacity has become endemic to the Indian manufacturing sector

¹⁵ Nagaraj (2003) has argued along similar lines. The decline in total factor productivity growth rates in manufacturing in the 1990s has also been attributed to low capacity utilisation [Goldar and Kumari (2003)].

in the liberalization era given that such excess capacity has lasted for nearly a decade and even through a phase of high manufacturing growth.

Figure-14
Minimum Potential Output and Actual Output in Registered Manufacturing



6. Conclusion

This paper has tried to show that a specific investment-growth asymmetry has characterised the growth trajectory of the Indian economy since the 1991 exchange crisis induced shift in the economy policy paradigm. While the capital formation process has displayed an enhanced bias towards manufacturing activities, particularly the organised manufacturing sector, the output structure has increasingly moved in favour of services in response to the demand expansion pattern. This asymmetry has created the conditions for cyclical fluctuations in both manufacturing investment as well as output, which in turn has affected aggregate growth. This asymmetry and its associated instability is, however, typical only of the period after 1991, and in addition has been responsible for the reversal of many other trends that were observed in the 1980s like the declining capital-output ratio in manufacturing. It is, therefore, inappropriate to treat the growth from 1980 onwards as movement along a single trajectory. Moreover, the asymmetry has meant a coincidence of the rising importance of services and increase in capital use per unit of output in the manufacturing sector because of demand constraints. The services-intensive growth trajectory after 1991 is, therefore, more correctly viewed as one which is

unable to fully utilise the capital accumulation potential of the economy rather than as a trajectory cheap in the use of capital.

Those who have interpreted the growth experience of the past two and a half decades as being a pointer to the future growth potential of the Indian economy also typically hold the view that realisation of this potential is contingent upon continuation along the path of liberalisation. But the asymmetry between capital accumulation and growth is not a transient phenomenon, rather it is structurally embedded in the growth trajectory initiated by the liberalization measures after 1991. If this asymmetry persists, industrial growth will remain highly prone to instability. Since agriculture too has neither graduated to a higher growth path, nor become more stable, it is premature to conclude that India has embarked on a virtuous cycle of stable and high growth simply on the basis of the continued momentum of growth in services. It will certainly be grossly incorrect to conclude that India is on the path towards successful industrialisation.

If in fact the future growth of the Indian economy is to be put on a more stable basis, then it requires the State to take measures that are incompatible with its designated role under a liberal economic policy regime. Income distribution patterns have to be altered so that the market for manufactured products is widened. Investment in agriculture and other sectors like infrastructure have to be promoted that could both absorb capital as well as expand the market for manufactured products. A lot of this restructuring of the investment pattern depends on there being appropriate growth of public investment. Sustained public investment in any case would generate stability in investment and growth. Public investment could be the channel for directing investible resources to sectors short of capital and also act as an inducement for private investment in agriculture (by households) and industry. Public investment in economic and social infrastructure could also contribute to increasing the international competitiveness of Indian manufactured products and generate increases in their exports. But, each of these sets of measures involves an 'activist' State of a kind that is anathema to a liberal economic policy regime.

References

- Acharya, Shankar (2007), "India's Growth: Past Performance and Future Prospects", paper for presentation at the Eighth Annual Global Development Conference of the Global Development Network, January 14–16, 2007.
- Azeez, E. Abdul (2002), "Economic Reforms and Industrial Performance: An Analysis of Capacity Utilisation in Indian Manufacturing", Working Paper 334, CDS, Thiruvananthapuram.
- Balakrishnan, Pulapre and M. Suresh Babu (2003), "Growth and Distribution in Indian Industry in the Nineties", *Economic and Political Weekly*, Vol. 38, No. 38, September 20.
- Bosworth, Barry and Susan M. Collins (2007), "Accounting for Growth: Comparing china and India", National Bureau of Economic Research Working Paper 12943, <http://www.nber.org/papers/w12943>
- Debroy, Bibek (2006), "India's demographic dividend", *The Telegraph*, December 6, 2006.
- DeLong, J. Bradford (2003), "India Since Independence: An Analytic Growth Narrative", in Dani Rodrik (ed.) *In Search of Prosperity: Analytic Narratives on Economic Growth*, Princeton, New Jersey: Princeton University Press.
- Felipe, J. and F. Fisher (2003), "Aggregation in production functions: What applied economists should know", *Metroeconomica*, 54:208–262.
- Goldar, Bishwanath and Anita Kumari (2003), "Import Liberalization and Productivity Growth in Indian Manufacturing Industries in the 1990s", *The Developing Economies*, XLI-4, Pp. 436–60, December 2003.
- Hatekar, Neeraj and Ambrish Dongre (2005), "Structural Breaks in India's Growth: Revisiting the Debate with a Longer Perspective", *Economic and Political Weekly*, Vol. 40, No. 14, April 2.
- Kelkar, Vijay L. (2004), 'India: On the Growth Turnpike', 2004 Narayanan Oration, Australian National University, Canberra.
- Kohli, Atul (2006a), "Politics of Economic Growth in India, 1980-2005, Part I: The 1980s", *Economic and Political Weekly*, Vol. 41, No. 13, April 1.
- Kohli, Atul (2006b), "Politics of Economic Growth in India, 1980-2005, Part II: The 1990s and Beyond", *Economic and Political Weekly*, Vol. 41, No. 14, April 8.
- Krugman, Paul (1994), "The Myth of Asia's Miracle: A Cautionary Fable", *Foreign Affairs*, November/December.
- Mishra, Deepak (2006), "Can India Attain the East Asian Growth with South Asian Saving Rate?", paper presented at the World Bank-ICRIER Workshop on 'Increased Integration of China and India in the Global Financial System: Issues and Implications', May 26, 2006, New Delhi.
- Nagaraj, R. (2003), "Industrial Policy and Performance since 1980: Which Way Now?", *Economic and Political Weekly*, Vol. 38, No. 35, August 30.

- Nagaraj, R. (2005), "Industrial Growth in China and India: A Preliminary Comparison", *Economic and Political Weekly*, Vol. 40, No. 21, May 21.
- Nayyar, Deepak (2006), "Economic Growth in Independent India: Lumbering Elephant or Running Tiger?", *Economic and Political Weekly*, Vol. 41, No. 15, April 15.
- Panagariya, Arvind (2004), "Growth and Reforms during 1980s and 1990s", *Economic and Political Weekly*, Vol. 39, No. 25, June 19.
- Poddar, Tushar and Eva Yi (2007), "India's Rising Growth Potential", Goldman Sachs Global Economics Paper No: 152.
- Purushothaman, Roopa (2004), "India: Realizing BRICs Potential", Goldman Sachs Global Economics Paper No: 109.
- Ranjan, Rajiv, Rajeev Jain and Sarat C. Dhal (2007), "India's Potential Economic Growth: Measurement Issues and Policy Implications", *Economic and Political Weekly*, Vol. 42, No. 17, April 28.
- Riddle, Dorothy I. (1986), *Service-Led Growth: The Role of the Service Sector in World Development*, Praeger, New York.
- Rodrik, Dani and Arvind Subramanian (2004), "Why India Can Grow at 7 Per Cent a Year or More: Projections and Reflections", *Economic and Political Weekly*, Vol. 39, No. 16, April 17.
- Rodrik, Dani and Arvind Subramanian (2005), "From "Hindu Growth" to Productivity Surge: The Mystery of the Indian Growth Transition", *IMF Staff Papers* Vol. 52, No. 2.
- Shetty, S.L. (2005), "Savings and Investment Estimates: Time to Take a Fresh Look", *Economic and Political Weekly*, Vol. 40, No. 7, February 12.
- Sinha, Ajit and Shirin Tejani (2004), "Trend Break in India's GDP Growth Rate Some Comments", *Economic and Political Weekly*, Vol. 39, No. 52, December 25.
- Srinivasan, T.N. (2005), Comments on "From 'Hindu Growth' to Productivity Surge: The Mystery of the Indian Growth Transition", *IMF Staff Papers*, Vol. 52, No. 2.
- Babu, M. Suresh (2005), "India's Recent Economic Growth: Some Limits and Limitations", *Economic and Political Weekly*, Vol. 40, No. 30, July 23.
- Virmani, Arvind (2004a), "India's Economic Growth: From Socialist Rate of Growth to Bharatiya Rate of Growth", Working Paper No. 122, Indian Council for Research in International Economic Relations (ICRIER).
- Virmani, Arvind (2004b), "Sources of India's Economic Growth: Trends in Total Factor Productivity", Working Paper No. 131, Indian Council for Research in International Economic Relations (ICRIER).
- Wallack, Jessica Seddon (2003), "Structural Breaks in Indian Macroeconomic Data", *Economic and Political Weekly*, Vol. 38, No. 41, October 11.
- Wilson, Dominic and Roopa Purushothaman (2003), "Dreaming With BRICs: The Path to 2050", Goldman Sachs Global Economics Paper No: 99.

List of ISID Working Papers

- WP2008/06** Media the Key Driver of Consumerism: Macro-Micro Linkage and Policy Dimension—A Case Study of FM Radio, *Abhilasha Kumari*.
- WP2008/05** Structural Change in Employment in India since 1980s: How Lewisian is it?, *Satyaki Roy*.
- WP2008/04** Crony Capitalism and India: Before and After Liberalization, *Surajit Mazumdar*.
- WP2008/03** Exchange Rate Movement of Developing Countries: An Alternative Theoretical Framework, *Atulan Guha*.
- WP2008/02** Crony Capitalism: Caricature or Category? *Surajit Mazumdar*.
- WP2008/01** Iron Foundries in Duress: Identifying Impediments in Organisations and Institutions, *Satyaki Roy*.
- WP2007/10** Trends and Patterns of Overseas Acquisitions by Indian Multinationals, *Jaya Prakash Pradhan*.
- WP2007/09** National Innovation System and the Emergence of Indian Information and Software Technology Multinationals, *Jaya Prakash Pradhan*.
- WP2007/08** Estimates of Import Intensity in India's Manufacturing Sector: Recent Trends and Dimensions, *T P Bhat, Atulan Guha, Mahua Paul and Partha Pratim Sahu*.
- WP2007/07** How do Indian Multinationals Affect Exports from Home Country?, *Jaya Prakash Pradhan*.
- WP2007/06** Five years of China in WTO: An Assessment, *T P Bhat*.
- WP2007/05** Expanding Productive Employment Opportunities: Role and Potential of the Micro and Small Enterprises Sector, *Partha Pratim Sahu*.
- WP2007/04** Growth of Indian Multinationals in the World Economy: Implications for Development, *Jaya Prakash Pradhan*.
- WP2007/03** Tata Steel's Romance with Orissa: Minerals-based Underdevelopment and Federal Politics in India, *Jaya Prakash Pradhan*.
- WP2007/02** New Policy Regime and Small Pharmaceutical Firms in India, *Jaya Prakash Pradhan*.
- WP2007/01** Subcontracting in India's Small Manufacturing Enterprises: Problems and Prospects, *Partha Pratim Sahu*.
- WP2006/11** Quality of Foreign Direct Investment, Knowledge Spillovers and Host Country Productivity: A Framework of Analysis, *Jaya Prakash Pradhan*.
- WP2006/10** The Indian Stock Market in 2005–06: An Examination of Two Major Events, *K S Chalapati Rao and K V K Ranganathan*.
- WP2006/09** Ownership Pattern of the Indian Corporate Sector: Implications for Corporate Governance, *K S Chalapati Rao and Atulan Guha*.

* Already Published. Most of the working papers are downloadable from the institute's website:
<http://isidev.nic.in/> or <http://isid.org.in/>

About the ISID

The Institute for Studies in Industrial Development (ISID), successor to the Corporate Studies Group (CSG), is a national-level policy research organization in the public domain and is affiliated to the Indian Council of Social Science Research (ICSSR). Developing on the initial strength of studying India's industrial regulations, ISID has gained varied expertise in the analysis of the issues thrown up by the changing policy environment. The Institute's research and academic activities are organized under the following broad thematic areas:

Industrial Development: Complementarity and performance of different sectors (public, private, FDI, cooperative, SMEs, etc.); trends, structures and performance of Indian industries in the context of globalisation; locational aspects of industry in the context of balanced regional development.

Corporate Sector: Ownership structures; finance; mergers and acquisitions; efficacy of regulatory systems and other means of policy intervention; trends and changes in the Indian corporate sector in the background of global developments in corporate governance, integration and competitiveness.

Trade, Investment and Technology: Trade policy reforms, WTO, composition and direction of trade, import intensity of exports, regional and bilateral trade, foreign investment, technology imports, R&D and patents.

Employment, Labour and Social Sector: Growth and structure of employment; impact of economic reforms and globalisation; trade and employment, labour regulation, social protection, health, education, etc.

Media Studies: Use of modern multimedia techniques for effective, wider and focused dissemination of social science research and promote public debates.

ISID has developed databases on various aspects of the Indian economy, particularly concerning industry and the corporate sector. It has created On-line Indexes of Indian Social Science Journals (OLI) and Press Clippings on diverse social science subjects. These have been widely acclaimed as valuable sources of information for researchers studying India's socio-economic development.

Institute for Studies in Industrial Development

4, Institutional Area, Vasant Kunj, New Delhi - 110 070, India

Phone: +91 11 2689 1111; Fax: +91 11 2612 2448

E-mail: info@vidur.delhi.nic.in; Website: <http://isid.org.in>

ISID