Growth and Structural Changes in Output in India since Independence: A Study Report

Surajit Mazumdar

Institute for Studies in Industrial Development

New Delhi

A Study Prepared as a Part of a Research Programme

STRUCTURAL CHANGES, INDUSTRY AND EMPLOYMENT IN THE INDIAN ECONOMY

Macro-economic Implications of Emerging Pattern

Sponsored by

Indian Council of Social Science Research (ICSSR)

New Delhi

Contents

Preface

Introduction

Data Sources

I. Industry and Services in Growth and Structural Change in India since Independence

Growth, Structural Change and the Indian Economy: An Introductory Overview

The Issue of Industrial Classification

Industry and Services in Non-Agricultural Growth: 1980 as a Dividing Line

The Mid-1960s Collapse: The Beginning of the End of Industrialization Centered Growth and Structural Change?

Services Dominated Growth: The Transition from Public to Private Sector Led

Phases of Growth and Structural Change: A Summing Up

II. Industry and Manufacturing

The Composition of Industrial Output

Changes in the Structure of Manufacturing Output: The Organized and Unorganized Sectors

Mining and Quarrying

The Declining Input Productivity of Indian Manufacturing

Summing Up

III. Services

The Acceleration in the Growth of Services

The Increasing Share of Services in GDP: The Four Major Services

Changes in Services Output and the Transition to Services Dominated Growth

Summing Up

IV. Agriculture

The Declining Share of Agriculture in GDP: The Unevenness across Segments

Changes in the Composition of Agricultural Output

The Paradoxical Combination of Changes in the Output and Input Composition in Indian Agriculture

Agriculture in the Indian Story of Structural Change

Summary and Conclusion

Summary of Findings

The Indian Story of Growth and Structural Change: Some Issues and Questions

Appendix Tables

References

List of Tables

1 Share of Manufacturing in Total GSDP (%) at 1993–94 Prices

I.1 Percentage Shares in GDP at Current Prices

I.2 Percentage Shares in GDP at 1999–00 Prices

I.3 Contribution to Point-to-Point Increase in GDP

II.1 Distribution of Manufacturing GDP (Unadjusted) at Current Prices and Changes in IT

II.2 Input Consumption Ratios in Registered Manufacturing

III.1 Rates of Growth of Services at 1999–00 prices

List of Figure

I.1 Percentage Share of Industry and its Components in GDP at Current Prices

I.2 Percentage Share of Registered and Unregistered Manufacturing in GDP at Current Prices

I.3 Percentage Share of Industry and its Components in GDP at 1999–00 Prices

I.4 Percentage Share of Registered and Unregistered Manufacturing in GDP at 1999–00 Prices

I.5 Ratio of Services GDP to Industrial GDP at Current Prices

I.6 Ratio of Services GDP to Industrial GDP at 1999–00 Prices

I.7 Average Growth Rate over 15 Year Period in Year Ending 1964–65 to 2007–08 (GDP at 1999–00 prices)-1

I.8 Average Growth Rate over 15 Year Period in Year Ending 1964–65 to 2007–08 (GDP at 1999–00 prices)- 2

I.9 Average Growth Rate over 15 Year Period in Year Ending 1964–65 to 2007–08 (GDP at 1999–00 prices)-3

I.10 Distribution of Unorganized Sector NDP at Current Prices

I.11 Distribution of Organized Sector NDP at Current Prices

I.12 Shares in Public Sector NDP

I.13 Shares in Private Organized NDP

I.14 Ratio of Private Organized NDP to Public Sector NDP

I.15 Shares in Non-Agricultural NDP

I.16 Shares in Services 1 NDP

I.17 Shares in Services 2 NDP

II.1 Shares in Industry 1 GDP at Current Prices of Different Segments (Percentages)

II.2 Shares in Industry 1 GDP at 1999–00 Prices of Different Segments (Percentages)

II.3 Distribution of Registered manufacturing GDP at Current Prices

II.4 Distribution of Registered manufacturing GDP at 1999–00 Prices

II.5 Distribution of Unregistered manufacturing GDP at Current Prices

II.6 Distribution of Unregistered manufacturing GDP at 1999–00 Prices

II.7 Share of Unorganized Sector in GDP of Manufacturing (Unadjusted) at Current Prices

II.8 Share of Unorganized Sector in GDP of Manufacturing (Unadjusted) at 1999–00 Prices

II.9 Shares of Group 1 and 2 Minerals in Value of Output of Mining and Quarrying at Current Prices

II.10 Shares of Group 1 and 2 Minerals in Value of Output of Mining and Quarrying at 1999–00 Prices

II.11 Share of NDP in the Value of Output of Registered Manufacturing (Percentage)

II.12 Trends in the Consumption of Fixed Capital per Unit of NDP at Current and at 1999–00 prices in the Registered Manufacturing Sector

II.13 Trends in the Consumption of Intermediates per Unit of NDP at Current and at 1999–00 prices in the Registered Manufacturing Sector

II.14 Trends in the Consumption of Intermediates per Unit of Fixed Capital Consumed at Current and at 1999–00 prices in the Registered Manufacturing Sector

III.1 Share of Services 1 in GDP at Current and at 1999–00 prices

III.2 Share of REODBS and Other Services in Aggregate GDP (Percentage) at 1999–00 prices

III.3 Share of REODBS and Other Services in Aggregate GDP (Percentage) at Current prices

III.4 Distribution of GDP at Current Prices from Real Estate, Ownership of Dwellings and Business Services

III.5 Share of Services 1 and Selected Group of Services in GDP at Current and at 1999–00 prices

III.6 Share of Selected Group of Services in GDP at Current and prices

III.7 Share of Selected Services in GDP at 1999–00 prices

III.8 Share of Private Sector in Output of Banking and Insurance and Communication

IV.1 Share of Agriculture, including Livestock, in GDP (Percentage), 1950–51 to 2007–08

IV.2 Share in GDP of Forestry and Logging

IV.3 Share in GDP of Fishing

IV.4 Distribution of GDP of Agriculture, Forestry and Fishing at Current Prices

IV.5 Distribution of GDP of Agriculture, Forestry and Fishing at Current Prices

IV.6 Ratio of Value of Output of Agriculture Proper to Value of Output of Livestock

IV.7 Share of Livestock in Aggregate GDP, 1980–81 to 2007–08

IV.8 Ratio of Value of Output of Non-Foodgrain Food Products to Value of Output of Foodgrains

IV.9 Share of Cereals in Foodgrain Value of Output at Current prices

IV.10 Share of Cereals in Foodgrain Value of Output at 1999–00 prices

IV.11 Shares in Value of Inputs at 1999–00 prices: Agriculture, including Livestock

IV.12 Shares in Value of Inputs at 1999–00 prices: Agriculture, including Livestock

IV.13 Shares in Value of Inputs at 1999–00 prices: Agriculture, including Livestock

IV.14 Shares in Value of Inputs at current prices: Agriculture, including Livestock

IV.15 Shares in Value of Inputs at current prices: Agriculture, including Livestock

IV.16 Shares in Value of Inputs at current prices: Agriculture, including Livestock

IV.17 Percentage to Value of Output of Agriculture including Livestock at Current Prices

IV.18 Percentage to Value of Output of Agriculture including Livestock at 1999–00 Prices

IV.19 GDP as Percentage of Value of Output of Livestock Sector at Current prices

IV.20 GDP as Percentage of Value of Output of Livestock Sector at Constant prices

IV.21 GDP as Percentage of Value of Agriculture Proper at current prices

IV.22 Shares in Value of Livestock Output at 1999–00 prices
IV.23 Shares in Value of Livestock Output at current prices

Introduction

This study presents an analytical description of the twin processes of growth of output and changes in its composition in the Indian economy since independence, primarily with the objective of bringing out in sharper relief some of the key questions posed by what appears to have been a rather uniquely Indian trajectory of economic change. The study is presented in four parts.

The *first part* adds some twists in the known tales of post-independence growth *and* structural change in output and their key turning points by looking at the time-paths of the two dimensions simultaneously. Structural changes are examined in this part mainly in terms of the broad tripartite division of the economy into the agriculture, industry, and services sectors. The subsequent three parts then look at the stories of change in the composition output within each of the three broad sectors in somewhat greater detail, which serve to highlight the important changes that took place within each sector over the long run as also the shifts in their patterns that occurred from time to time.

Based on their patterns over time, four distinct phases of growth and structural change from 1950–51 onwards are identified in the first part of the study. Each of the first three of these had durations of roughly a decade and a half while the last phase accounts for the remaining period since the mid-1990s. The *second part* on the industrial sector then shows that the different phases of overall growth and structural change can also be clearly distinguished from each other in terms of their respective patterns of change in the composition of industrial output. The *third part* on services draws attention to the combination of two features that mark out the post-independence development of the sector. These are the long term stability in the broad direction of shift in the composition of services output, both before and after the acceleration in services growth since 1980, and the exceptional role of some steadily growing but initially minor services in the later phase of rapid services growth. The *fourth part* then brings the agricultural sector into the larger story of structural change. By highlighting the important changes it experienced in the

structure of its output as well as in its input structure over time, it is emphasized that agriculture was not merely a sector receding in importance.

The main results are summarized in the fifth and final part of the study and some key conclusions that can be drawn on their basis are pointed out.

Data Sources

The analysis presented in this study report is based virtually entirely on data drawn from the Central Statistical Organization's (CSO) National Accounts Statistics (NAS), 1999–00 base year series. NAS 2008 and 2009 and the NAS 1999–00 base year back series between themselves cover the entire period 1950–51 to 2007–08, and it is from these that data at both at current prices as well as constant 1999–00 prices are taken for this report. In addition, the 1980–81 and 1993–94 series are used for a small part in the section on agriculture.

The results based on the above data are depicted in the form of graphs and a few summary tables in the main report, while detailed tables are included as appendices.

I. Industry and Services in Growth and Structural Change in India since Independence

That major structural shifts in output and employment always accompany a sustained and rapid growth of per capita output of a country has been an established truism since the original studies of economic growth by Fisher, Clark and Kuznets[1]. Such structural shifts have been seen as mechanisms influencing the pace of growth as well as being the result of growth. Either of two tripartite divisions of the economy closely resembling each other—the primary-secondary-tertiary or agriculture-industry-services divisions—have been used to describe the typical pattern of structural change associated with what Kuznets called modern economic growth[2]. This typical pattern involves initially a shift from an agricultural to an industrial economy through industrialization—an increase in the share of the industrial/secondary sector in output and employment combined with a declining importance of the agriculture/primary sector. The subsequent post-industrialization or de-industrialization stage is one whose chief feature is the rising importance of the services/tertiary sector, even at the expense of industry, or the transition to a service economy[3].

A variety of factors have been highlighted in attempts to explain the observed association between growth and structural shifts in output and employment[4]. On the demand side, the operation of Engel's Law leading to shifts in the pattern of demand as incomes rise has been one such factor. On the supply side, inherently differential productivities and productivity growth of the three sectors has been advanced as an important source of this association. The growing demand of firms for services and increasing outsourcing of these have also been highlighted as important in explaining at least the eventual shift towards services. While these explanatory factors do indicate why structural changes in output and employment are an inevitable part of economic growth, it remains unclear why the patterns of these cannot be different

[1] Fisher (1935,1952), Clark (1940/1951, 1949), Kuznets (1972)

[2] Soubbotina and Sheram (2000)

[3] Riddle (1986) however emphasized the continuous importance of services.

[4] Apart from the those of the pioneers, some of the other major works are Kaldor (1967), Baumol (1967), Fuchs (1968), and Rowthorn and Ramaswami (1997). Schettkat and Yocarini (2003) provide a review of the literature on the shift towards services.

for countries making their transitions to rapid and sustained growth at very different points of time and under very different technological and trade contexts. However, leaving aside the Indian case, the historical experience of not only developed countries but also developing economies appears to support the case for there being a *universal* pattern[5].

The only significant difference in the situation of late-industrializing developing countries in comparison to developed countries that is acknowledged relates to the employment potential of industrialization[6]. For a late-starting country with access to high-productivity capital-intensive technology from developed countries, this potential is considerably reduced if output expansion is based primarily on the domestic market. The implication of this is that in developing countries the process of shift of employment away from agriculture becomes slower, while the de-industrialization and tertiarization of employment can begin at lower levels of income than it had in the case of developed countries.

Growth, Structural Change and the Indian Economy: An Introductory Overview

Generally the literature on India's growth history has been preoccupied with the issue of turning points in growth rates rather than with the structural changes accompanying them. A parallel discourse however exists on the phenomenon of services rather than industry accounting for an extraordinarily large share of the expansion of non-agricultural output in India. As regards growth rates, two major turning points have been referred to[7]. While it has been debated as to which was the more important and significant one, the status of both as key turning points has not been questioned. The first is associated with independence and the transition from the stagnation of the colonial era to the 'Hindu rate of growth. It is only with this that anything that could be described as modern economic growth began in India.

---

[5] Chenery and Syrquin (1975), UNCTAD (2003), United Nations (2006).

[6] UNCTAD (2003)

[7] The second of these has been focused on by many and finds particular reference in the context of the debate on the 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)]. Others have however stressed on the first being the more important turning point [Hatekar and Dongre (2005) and Nayyar (2006)].

The second turning point is 1980, after which the Indian economy appears to have graduated to a higher trend growth of 5.5–6 per cent per annum. One could also say that the early years of the current century saw a third turning point with GDP growth rates accelerating further. However, in the background of the current slowdown which has set in within a few years of the appearance of 8–9 per cent growth rates, there are questions about whether 2003–04 initiated a long-term shift in the same way as did the previous two turning points. In this report we focus on these two earlier ones, suggesting however that they were fundamentally different in nature from each other because of the pattern of structural change in output that accompanied the rise in the growth rate. In other words, independence and 1980 were turning points in more senses than one.

When the large role of services in Indian growth was first noted, it tended to be described as "disproportionality" or an "excess growth" of services[8]. Currently, many are prone to term it as India's "services revolution"[9]. The phenomenon has also provoked a lot of debate regarding the factors explaining it, its desirability and long-term sustainability[10]. It has also led to the raising of the question—is India pioneering a new pattern where services can play the same role as industry had for other countries in the past?[11] Measurement issues have also come under the scanner—how much of the growth of services is real and how much purely statistical?[12] Whatever be one's preferred viewpoint on these issues, however, there is little doubt that the exceptional growth of services makes the Indian case of structural change an odd one, an exception to the general rule. Two widely noted features have marked out this oddness. The first is the premature nature of the transition to a services dominated economy, at an exceptionally low level of per capita income and without achieving a full-fledged industrialization. The second is that the large share of services in output has not been matched by a corresponding one in employment. These have of course distinguished the Indian case from the experience of the developed countries, where *both* the attainment of high levels of industrialization and the shift of *employment* towards services preceded the decisive

[8] Mitra (1988), Bhattacharya and Mitra (1990)
[9] Gordon and Gupta (2004), World Bank (2004)
[10] Papola (2006), Banga (2005), Joshi (2004)
[11] Dasgupta and Singh (2005)
[12] Nagaraj (2009), Shetty (2007)

shift towards tertiarization of output[13]. It has also however been shown that the prominence of services in Indian distinguishes it from many other Asian developing countries experiencing growth over the same period[14]. One may add to this that the increasing importance of services in India is also not comparable with a similar trend in Latin America since the 1980s. One reason for this is because of the significantly higher levels of per capita income in Latin America. But more importantly, de-industrialization and the shift towards services in Latin America was associated with a significant slowing down of growth[15]. This is certainly not true for India. This report shall in fact highlight that the Indian story is quite the opposite—the shift coincides with the transition around 1980 to a higher growth path.

This coincidence has perhaps not received adequate attention either in the discussions on Indian growth or those on the phenomenal growth of services, though a relationship between continuous acceleration in services and aggregate growths since independence has been referred to[16]. In fact, one finds that there is little clear cut discussion on the issue of dating the beginnings of the shift towards services in India. Different authors have located it at widely different points of time. For example, Mitra thought it began in the mid 1970s, while Rakshit and some others see it as mainly a phenomenon emerging from the mid-1990s[17]. This report shall however make the case that the original shift was around 1980 and both this and the accompanying acceleration in overall growth rate separates the period after from that before. However, there are discontinuities within the two broad phases of the post-independence period on either side of 1980. It is in that context that the turning point in the mid-1990s, as also another one in the mid-1960s, is important. Indeed, both acquire a new significance not normally attached to them.

The mid-1960s is usually seen as marking the end of the first phase of rapid industrial growth after independence, which was followed by the decade of stagnation from which recovery happened in the late 1970s to the early 1980s. This report will however suggest that what ended in the mid-1960s was also a chapter of

[13] It is only after 1970s and slowing down of growth that services share in output has increased.
[14] Papola (200)
[15] UNCTAD (2003)
[16] Mohan (2008)
[17] Mitra (1988), Rakshit (2007)

India's growth and structural change that has never been repeated since, and from which a decisive break took place after 1980. The beginning of the 1990s, it is now widely accepted, represented a significant break in Indian economic policy but this had no discernible impact on its growth trend. This report does not contest that view. It will however argue that following liberalization, most sharply from the mid-1990s, the pattern of growth in India did shift in important ways that actually decisively reinforced the trajectory that had been prevalent since 1980.

The Issue of Industrial Classification

As mentioned earlier, the analysis of structural change in output over time is normally based on a division of the economy into agriculture-industry-services or primary-secondary-tertiary sectors. This report uses the former. The demarcation of the industrial sector from the services sectors has however never been an easy matter. Thus Simon Kuznets included transport and communication in industry while Colin Clark put even construction in the category of services. Riddle included even utilities in services. The general practice that has come to be established however is to include construction and utilities in industry, along with mining and manufacturing, and all other non-agricultural activities including transport and communication in services.

The choice of classification scheme is of course something extremely important because it can affect the conclusions one draws about the patterns of structural change accompanying growth. It could also perhaps be argued that meaningful classification schemes may need to be contextualized in space and time as the nature of activities making up each broad sector and their characteristics, the relative importance of different activities making up any sector, and the relationships between the growths of different activities are all variable. Software services are for instance may be an important component of services today but nothing of equivalent nature existed earlier. At one time non-tradability was almost a defining characteristic of services but that is no longer true. The growth of transport and communication in an earlier era meant the expansion of railways and the telegraph. Today the growth of aviation and mobile telephony may be the driver of growth in the same sector. The linkages between industrial growth and the expansion of such

services, and maybe even with construction in the contemporary world, are unlikely to be of the same kind as the past relationship between industrialization and railway expansion.

This report however will not enter into a minefield by trying to address complications of the kind indicated by the above. Instead, it will generally follow the conventional classification of activities into the three broad sectors. However, as shall subsequently become clear, there are some practical problems associated with including construction in industry. To circumvent these, an approach of using two parallel classification schemes is adopted. Thus, the economy is divided into agriculture-industry 1-services 1 in one classification and agriculture-industry 2-services 2 in the other.

Agriculture – Agriculture, Forestry and Fishing (1)

Industry 1 – Mining and Quarrying (2); Manufacturing (3); Electricity, Gas and Water Supply (4); Construction (5)

Industry 2 – Industry 1 excluding Construction

Services 1 – Trade, Hotels and Restaurants (6); Transport, Storage and Communication (7); Financing, Insurance, Real Estate and Business Services (8); Community, Social and Personal Services (9)

Services 2 – Services 1 and Construction

Note: Numbers in Brackets Refer to the Relevant Industry Codes.

Industry and Services in Non-Agricultural Growth: 1980 as a Dividing Line

Figure-I.1 shows the movement in the share of the industrial sector in GDP at current prices over the entire reference period. A noticeable difference can be seen to emerge between the trends for Industry 1 and Industry 2 towards the very end of the period—in the phase of very high growth after 2002–03. Thus while Industry 1's share in GDP attained its highest level in 2007–08 Industry 2 crossed its peak level much further back, in 1995–96. This difference is obviously attributable to

the fact that construction is included in the first but not in the second. However, what is noteworthy is that it is only the construction sector whose share in GDP attained its highest value in 2007–08. For all other components of the industrial sector these peak values were earlier. The same is also true of the registered and unregistered segments of the manufacturing sector seen separately (Figure-I.2). The pattern of movement of the share of Industry 2 is thus more representative of the pattern exhibited by the entire industrial sector barring construction, including of it's most important component, namely manufacturing

Figure-I.1
Percentage Share of Industry and its Components in GDP at Current Prices

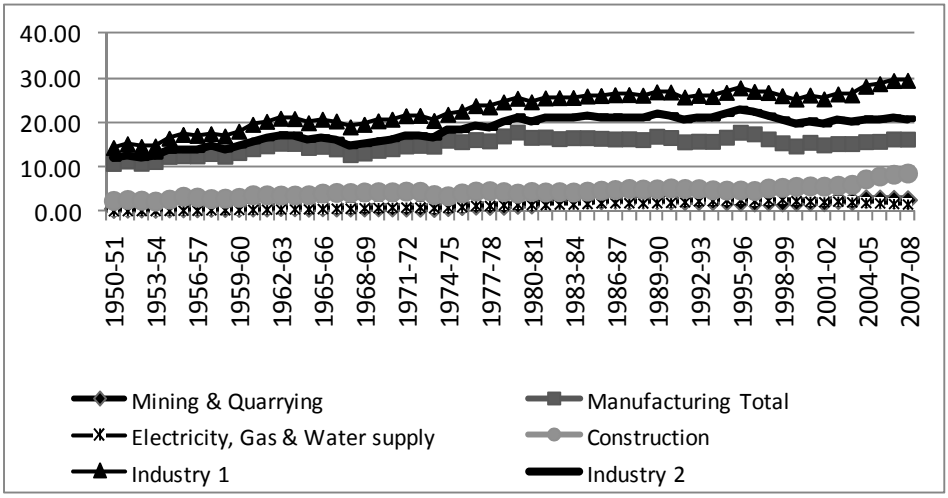


Figure-I.2
Percentage Share of Registered and Unregistered Manufacturing in GDP at Current Prices

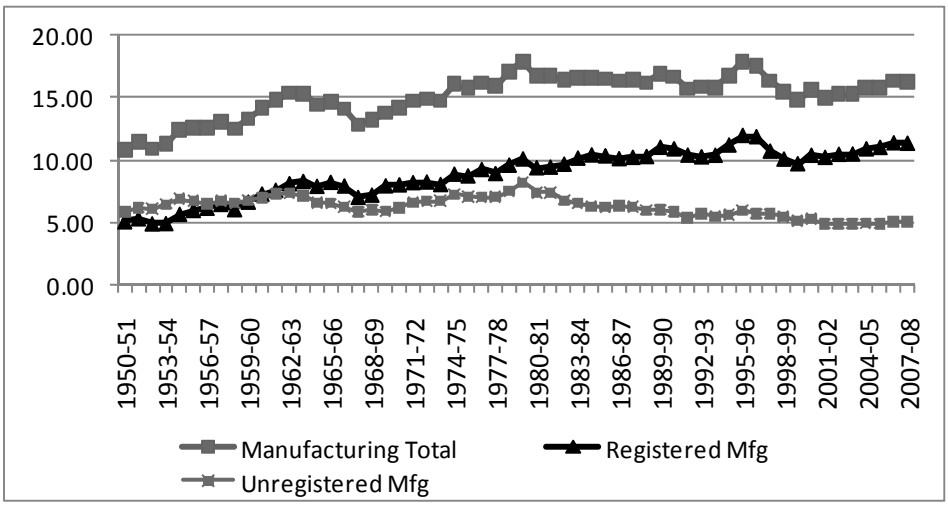


Table-I.1 brings the above out clearly by showing that excepting for construction, the peak values of the share in GDP all components of the industrial

sector were attained within the period stretching from 1979–80 to 1995–96. It in addition demonstrates that a substantial part of the change in the share of the industrial sector, and its components other than construction, in GDP occurred between 1950–51 and 1979–80. The picture subsequently is of relative stability. This is contrast to the pattern exhibited by the share of services in GDP, which increases to a greater extent after 1979–80 than before like in the case of construction. In fact, it is virtually entirely services and construction that account for the increase in the share of non-agriculture after 1979–80. In contrast, in the earlier period industry had accounted for half or more of this increase.

Table-I.1
Percentage Shares in GDP at Current Prices

Item	Peak Value of Share in Aggregate GDP		Share in Aggregate GDP in			Change in Percentage Share	
	Year	Percentage Share	1950–51	1979–80	2007–08	1950–51 to 1979–80	1979–80 to 2007–08
Mining & Quarrying	1982–83	2.95	0.77	1.68	2.72	0.91	1.03
	2004–05	2.95					
Manufacturing Total	1979–80	17.89	10.87	17.89	16.32	7.03	-1.57
	1995–96	17.88					
Registered Mfg	*1995–96*	*11.93*	*5.08*	*10.07*	*11.31*	*4.98*	*1.24*
Unregistered Mfg	*1979–80*	*8.2*	*5.84*	*8.20*	*5.01*	*2.36*	*-3.19*
Electricity, Gas & Water supply	1998–99	2.84	0.24	1.69	1.76	1.46	0.07
Construction	2007–08	8.71	2.56	4.20	8.71	1.64	4.51
Industry 1	**2007–08**	**29.51**	**14.44**	**25.47**	**29.51**	**11.03**	**4.04**
Industry 2	**1995–96**	**22.93**	**11.87**	**21.27**	**20.80**	**9.39**	**-0.47**
Services 1			**32.73**	**40.85**	**52.38**	**8.12**	**11.53**
Services 2			**35.29**	**45.05**	**61.09**	**9.76**	**16.04**
Non-Agriculture			**47.17**	**66.32**	**81.89**	**19.15**	**15.57**

The picture presented above does not change significantly if constant price figures are used instead of current price ones. Figures -I.3 & -I.4 and Table-I.2 based on data at 1999–00 prices are near mirror images of Figures –I.1 & -I.2 and Table-I.1 respectively. The only notable differences are the following. *Firstly*, the difference between Industry 1 and 2 is less sharp in this case, with the share in GDP of even Industry 1 also peaking in 1995–96. *Secondly*, at constant prices the difference between the movements of the shares in GDP of construction and other components of Industry 1 in the pre- and post- 1980 periods also disappears. What these reflect is that the sharp rise of the output share of construction (at current prices) in recent times reflected both a rapid real growth as well as a relatively faster increase of its prices. Moreover, because it was preceded by a phase where its real

share in the economy was declining, the recent rapid real growth of the construction sector has not had a dramatic impact on that share when seen over a longer time period. The important point however is that all of these only reinforce the fact that the process of structural change after 1979–80 has lacked the *industrial* character that was visible earlier.

Figure-I.3
Percentage Share of Industry and its Components in GDP at 1999–00 Prices

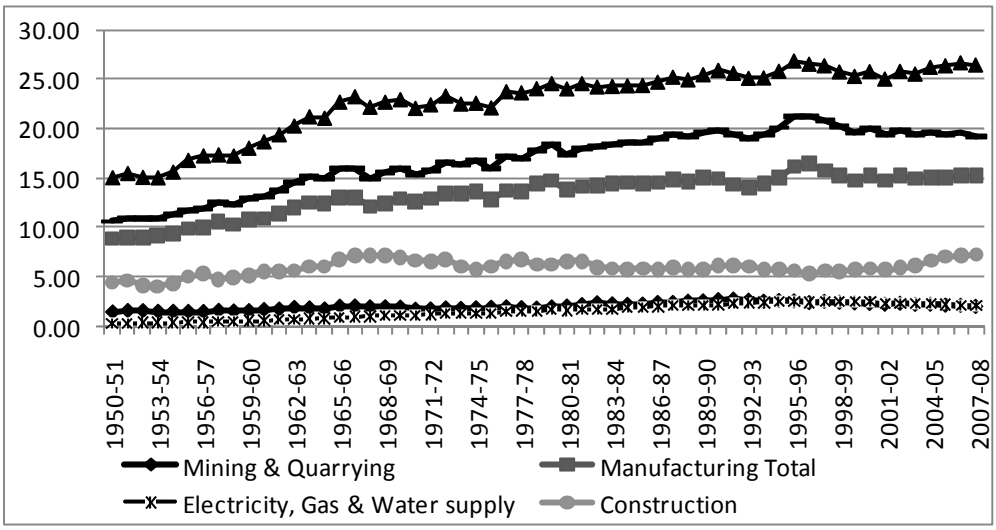


Figure-I.4
Percentage Share of Registered and Unregistered Manufacturing in GDP at 1999–00 Prices

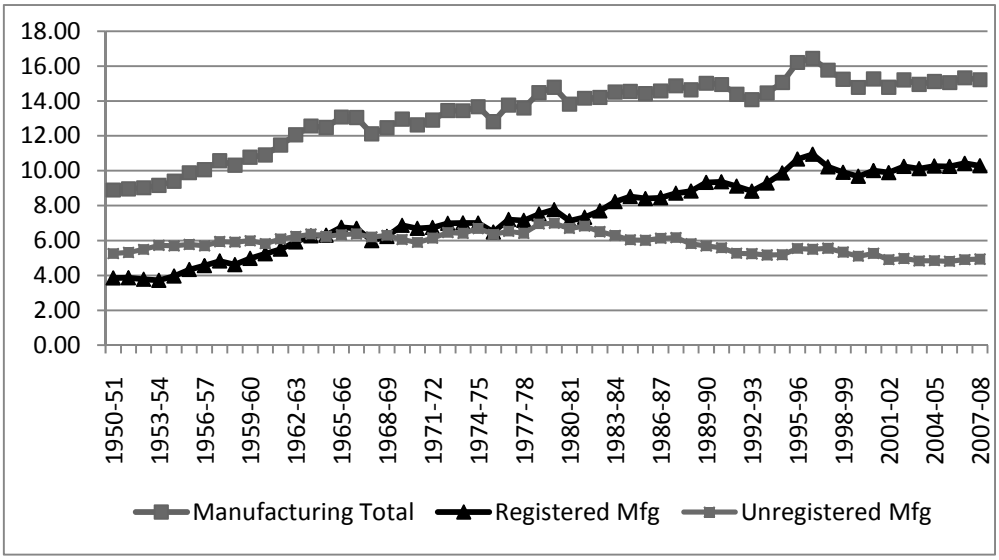


Table-I.2
Percentage Shares in GDP at 1999–00 Prices

item	*Peak Value of Share in Aggregate GDP*		*Share in Aggregate GDP in:*			*Change in Percentage Share*	
	Year	*Percentage Share*	*1950–51*	*1979–80*	*2007–08*	*1950–51 to 1979–80*	*1979–80 to 2007–08*
Mining & Quarrying	1991–92	2.73	1.41	1.92	1.98	0.51	0.06
Manufacturing Total	1996–97	16.44	8.90	14.79	15.22	5.89	0.43
Registered Mfg	*1996–97*	*10.94*	*3.85*	*7.77*	*10.29*	*3.91*	*2.52*
Unregistered Mfg	*1979–80*	*6.99*	*5.25*	*6.99*	*4.93*	*1.74*	*-2.06*
Electricity, Gas & Water supply	1997–98	2.51	0.31	1.63	2.04	1.33	0.40
	1998–99	2.51					
Construction	1968–69	7.21	4.42	6.25	7.23	1.83	0.99
	2007–08	7.23					
Industry 1	**1995–96**	**26.87**	**15.03**	**24.59**	**26.47**	**9.55**	**1.88**
Industry 2	**1995–96**	**21.24**	**10.62**	**18.34**	**19.24**	**7.73**	**0.89**
Services 1			**29.55**	**39.05**	**55.73**	**9.50**	**16.68**
Services 2			**33.96**	**45.29**	**62.96**	**11.33**	**17.67**
Non-Agriculture			**44.58**	**63.64**	**82.20**	**19.05**	**18.56**

The focus on 1979–80 or 1980 as the dividing line is not arbitrary. Quite apart from the fact that it very neatly divides our entire reference period into two sub-periods of virtually identical time spans is the following. The movement of ratio of services GDP to industrial GDP at both current and constant prices exhibits a U-shaped pattern (Figures –I.5 & -I.6) with the base of the U being around 1980.

Figure-I.5
Ratio of Services GDP to Industrial GDP at Current Prices

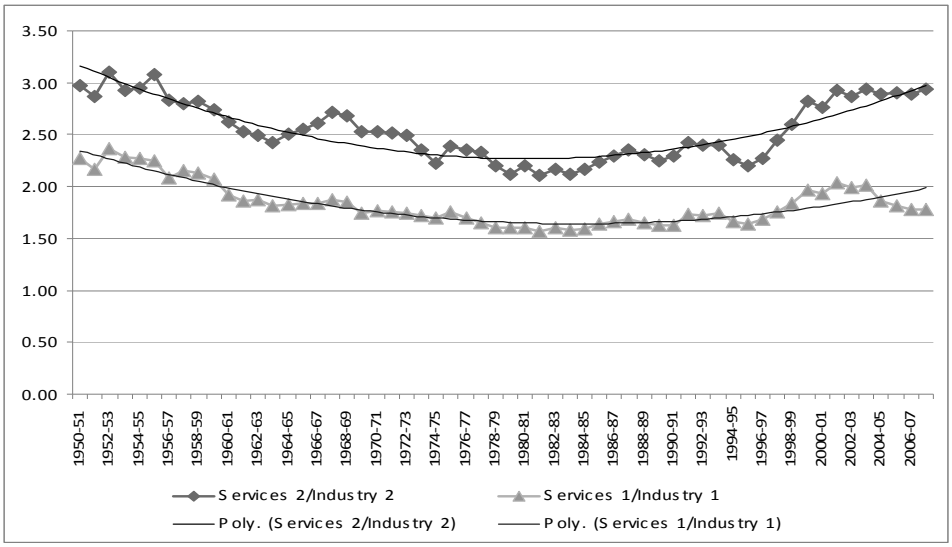
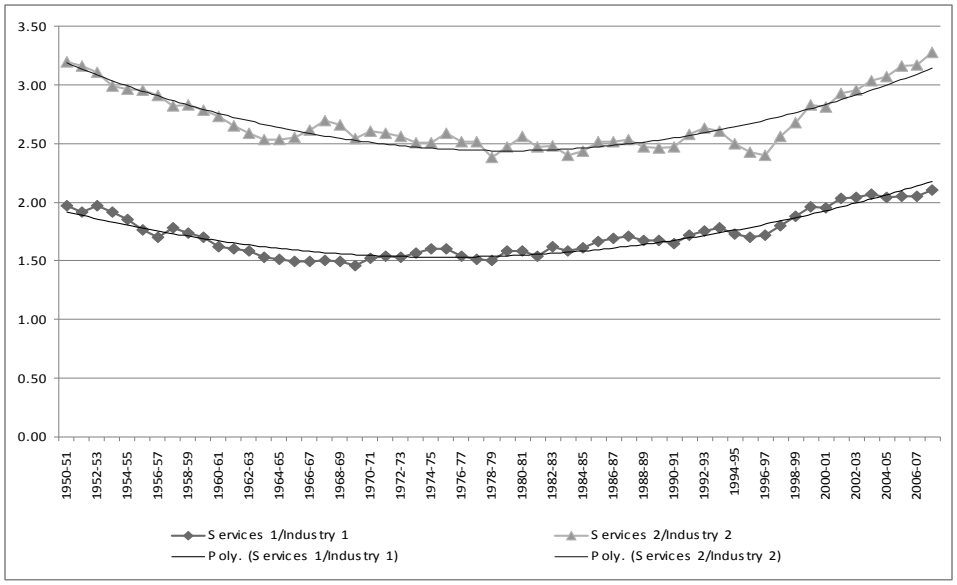


Figure-I.6
Ratio of Services GDP to Industrial GDP at 1999–00 Prices



In other words, even as growth accelerated after 1980 accompanying it was a clear reversal in the direction of movement of the composition of the non-agricultural sector. Table-I.3 sums this up by showing that like in the pattern of structural change, the growth process of the economy as a whole as well as of its non-agricultural component were much less industrial after 1980 than before. This is despite the fact that at independence the share of the industrial and manufacturing sectors in the economy was much smaller than in 1980. Services, which accounted for a significantly larger share of output in 1950–51, did not however contribute as much to growth before 1980 as it has done after that.

Table-I.3
Contribution to Point-to-Point Increase in GDP

item	Percentage Contribution to Total GDP Growth		Percentage Contribution to Non-Agricultural Growth	
	1950–51 to 1979–80	1979–80 to 2007–08	1950–51 to 1979–80	1979–80 to 2007–08
Mining & Quarrying	2.23	1.99	2.97	2.30
Manufacturing Total	18.33	15.32	24.41	17.69
Registered Mfg	*10.12*	*10.88*	*13.48*	*12.57*
Unregistered Mfg	*8.03*	*4.44*	*10.69*	*5.13*
Electricity, Gas & Water supply	2.43	2.13	3.23	2.46
Construction	7.34	7.46	9.78	8.62
Industry 1	**30.33**	**26.91**	**40.39**	**31.08**
Industry 2	**22.98**	**19.45**	**30.61**	**22.46**
Services 1	**44.76**	**59.68**	**59.61**	**68.92**
Services 2	**52.10**	**67.14**	**69.39**	**77.54**
Non-Agriculture	**75.08**	**86.59**	**100.00**	**100.00**

The Mid-1960s Collapse:
The Beginning of the End of Industrialization Centered Growth and Structural Change?

Since the above analysis has indicated that the industrial sector played a more prominent role in the process of growth and structural change before 1980, it is only natural that note is taken of the fact that the pace of industrial growth was highly uneven within that period. Indeed, one of the remarkable features of that period is that it includes both the decade of industrial stagnation as well as the decade and a half with the highest rate of industrial growth achieved after independence. The latter is shown by Figure-I.7, which plots the average growth rate of *all* possible 15 year periods whose starting and ending years fell between 1950–51 and 2007–08. The first of these 15-year periods stretches from 1950–51 to 1964–65, the second from 1951–52 to 1965–66, the third from 1952–53 to 1966–67 and so on till the last one from 1993–94 to 2007–08. The figure shows that the high values of the initial few 15-year periods gave way to a sharp decline thereafter as a result of the industrial slowdown from the mid-1960s onwards. The revival of industrial growth from the late 1970s or so then gradually pushed up the previous 15-year growth rates. Another half-decade slowdown from the second half of the 1990s however resulted in another dip before the previous 15 year growth rate could reach the initial high levels. Further, even though this slowdown was followed by a period of extremely rapid industrial growth from 2003–04 till 2007–08, it still did not carry the previous 15-year growth rate till 2007–08 past those levels. Thus one may say that the rates of industrial growth achieved before the mid-1960s collapse, roughly covering the period of the first three plans, were not replicated in any subsequent 15-year period. This conclusion emerges even more sharply if we consider Industry 2 rather than Industry 1.

Figure-I.8 further shows that behind the above mentioned pattern of 15-year industrial growth rates is the failure of the manufacturing and the electricity sectors to attain ever again the growth rates of the Nehruvian period. Moreover, the increase in the share of the industrial sector in GDP was more significant up to the mid-1960s than after.

Figure-I.7
Average Growth Rate over 15 Year Period in Year Ending 1964–65 to 2007–08
(GDP at 1999–00 prices)-1

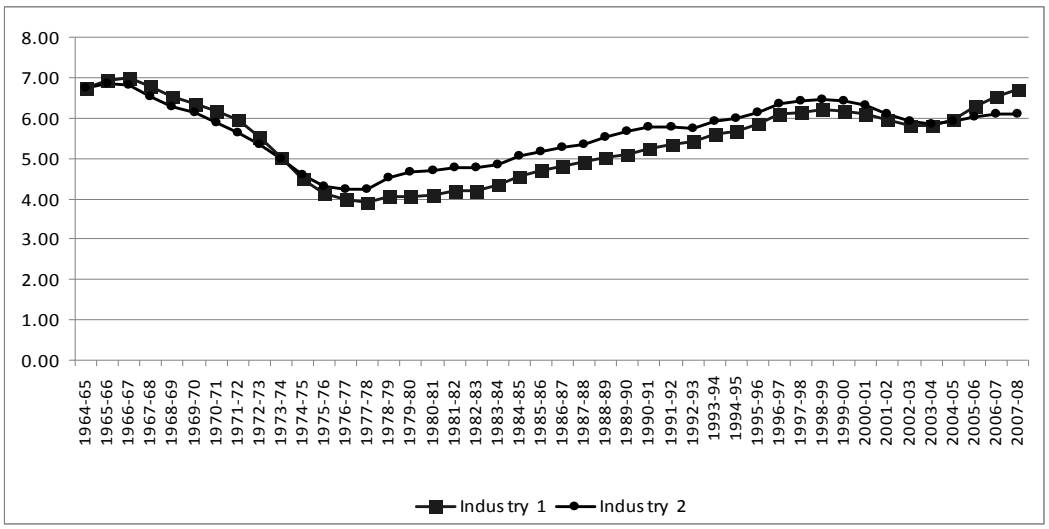
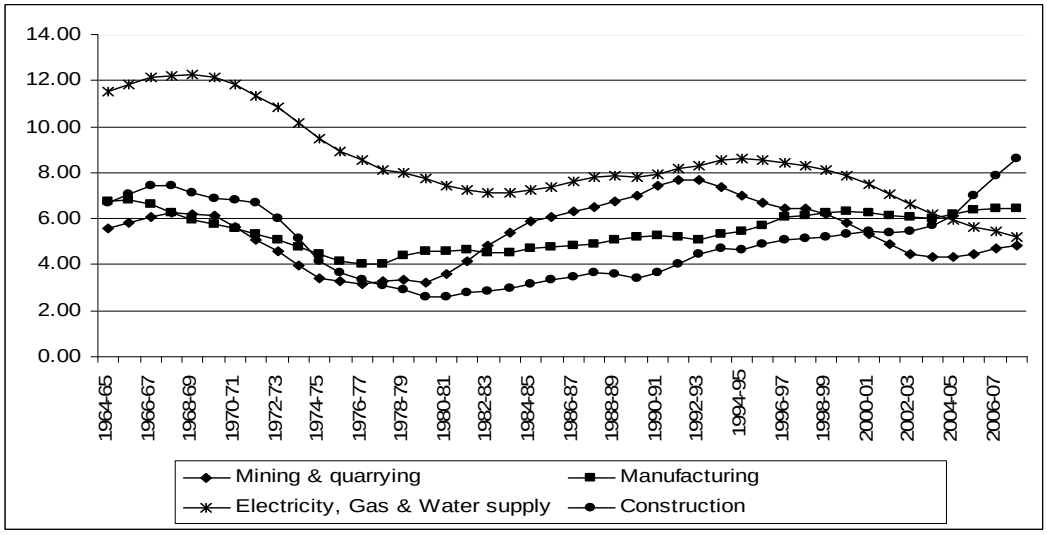
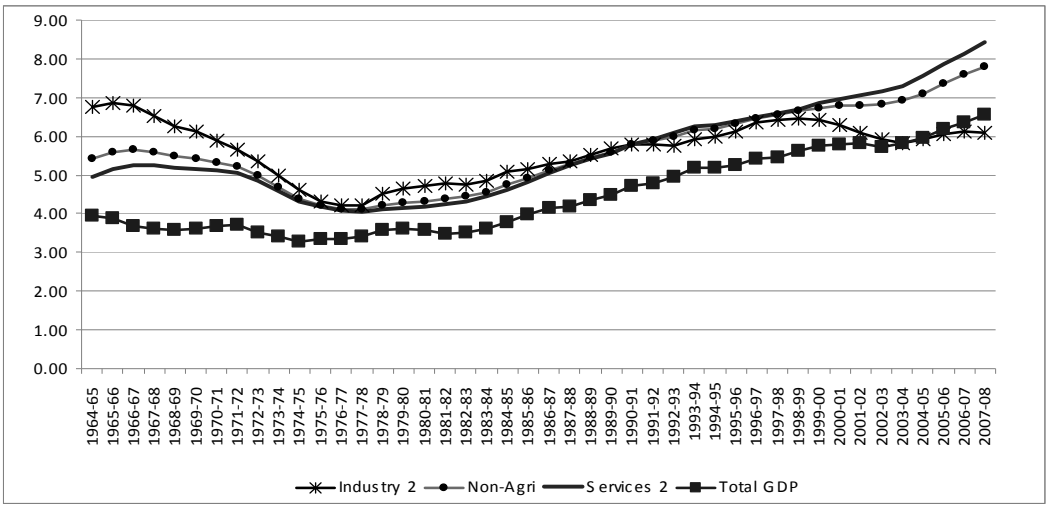


Figure-I.8
Average Growth Rate over 15 Year Period in Year Ending 1964–65 to 2007–08
(GDP at 1999–00 prices)- 2



The pattern of the post-independence 15-year growth rates of services is similar to that of the industrial sector to the extent that it too exhibited a dip after the mid-1960s before moving upwards after 1980. The difference is that this upward movement in the case of services was sharper, and the steady rise in the 15-year growth rates in every successive period has carried it to a level far higher than in the initial periods. Indeed, if the patterns of the industrial and services sector are juxtaposed to each other (Figure-I.9), then the following emerges.

Figure-I.9
Average Growth Rate over 15 Year Period in Year Ending 1964–65 to 2007–08 (GDP at 1999–00 prices)-3



Till the mid-1960s, previous 15-year industrial growth rates were much higher than that of services. The gap started closing thereafter as the industrial growth rate fell more sharply and more or less disappeared by the mid to late 1970s. Both then moved in tandem till the mid-1990s after which preceding 15-year period industrial growth rates tapered off and were left far behind by the corresponding services growth rates. In other words, the tilt towards a more service dominated growth trajectory after 1980 was further reinforced from the mid-1990s. This only serves to emphasize that the period up to the mid-1960s was the only proper phase of an *industry* driven process of growth and structural change which took the Indian economy out of the stagnation characteristic of the colonial era. The beginning of the end of this process or its slow unwinding, and not a mere slowing down of industrial growth, was thus heralded by the crisis of the mid-1960s.

Services Dominated Growth: The Transition from Public to Private Sector Led

The shift towards a more services dominated pattern of growth and structural change after 1980 did not initially reflect the emergence of a trend of an increasing importance of services relative to industry in every institutional segment of the Indian economy. Only in the case of the unorganized sector can one observe a more or less consistent but slow trend of relative deindustrialization of its output (NDP), and an increasing share of services, since 1980 (Figure-I.10). Figures –I.11 to –I.13 reveal however that no similar trend was displayed for a decade and a half after

1980 by either the organized sector as a whole or its public and private components individually. The decisive shift of the output composition towards services seems to have occurred in both of them only in the early to mid-1990s.

Figure-I.10
Distribution of Unorganized Sector NDP at Current Prices

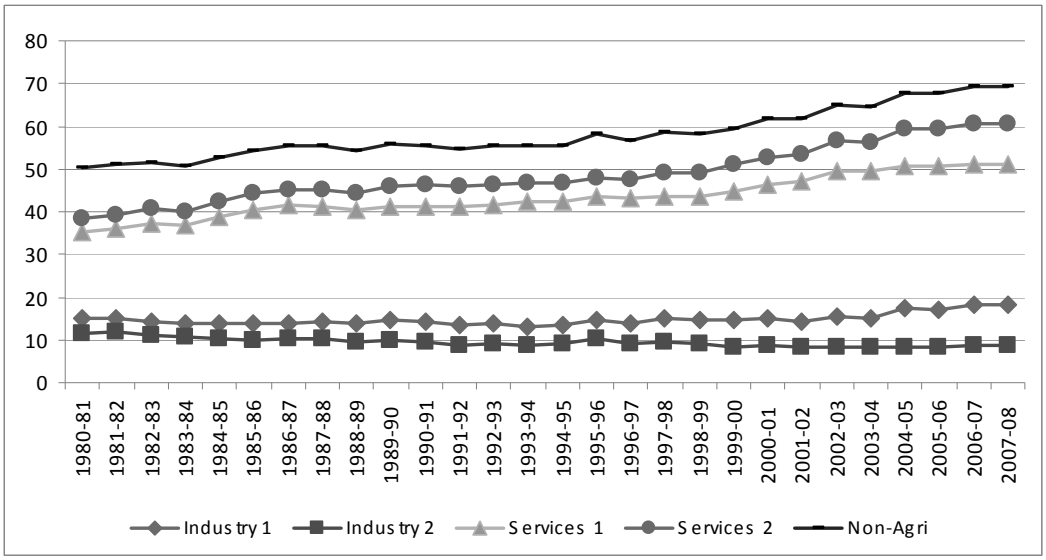
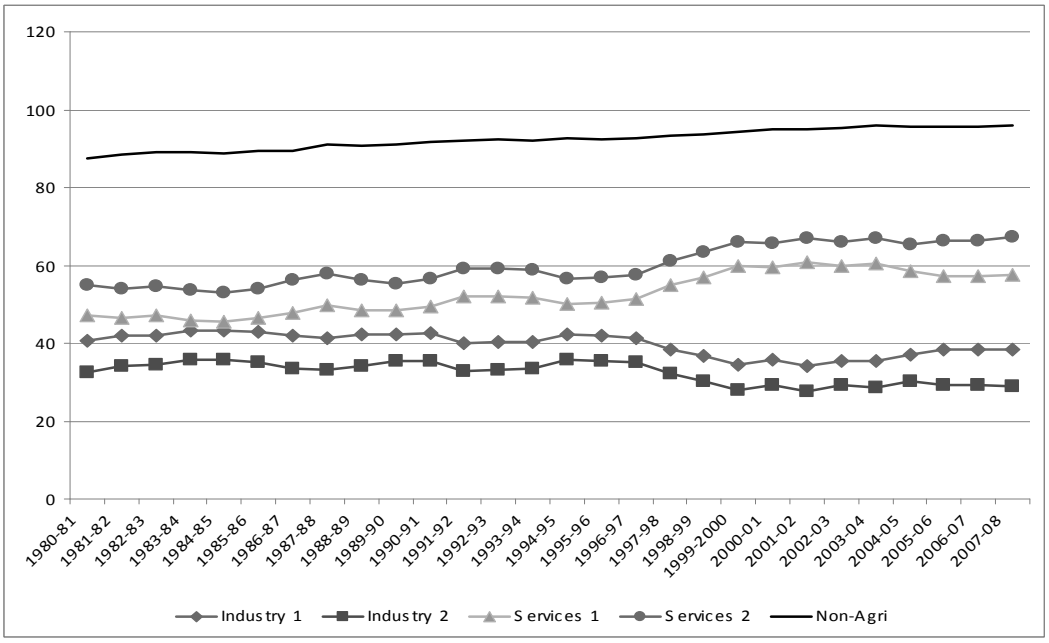


Figure-I.11
Distribution of Organized Sector NDP at Current Prices



As far as the public sector is concerned, the trend in the 1980s if anything was in the opposite direction with the share of industry increasing. A slow rise of the share of services in the private organized NDP in the 1980s, more however at the expense of its agricultural rather than industrial segment, is more perceptible.

However, while services accounted for an overwhelming share of public sector NDP both before and after the 1980s, in private organized NDP a dramatic reversal took place in the shares of services and industry in the 1990s. Till the mid-1990s, the industrial sector accounted for a significantly greater share of private organized NDP than did services. But sharply opposite movements in these shares thereafter decisively reversed the position in just a few years. Industry 2's share in private organized NDP, which was nearly 48 per cent in 1980–81 and still over 45 per cent in the mid-1990s, fell to just above 31 per cent by 2007–08. In contrast, Services 2 increased its share from around 40 per cent in the mid-1990s to over 63 per cent by 2007–08.

Figure-I.12
Shares in Public Sector NDP

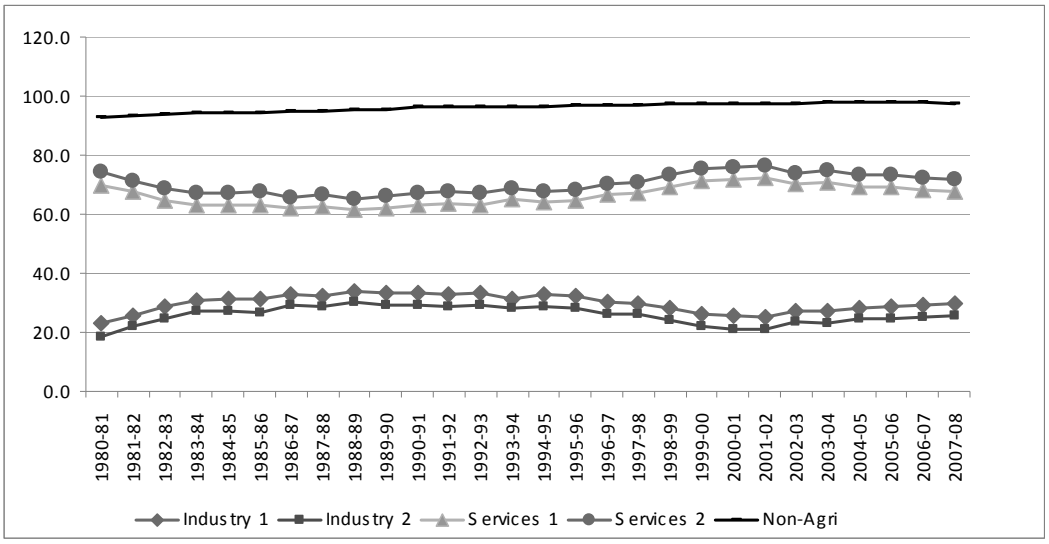
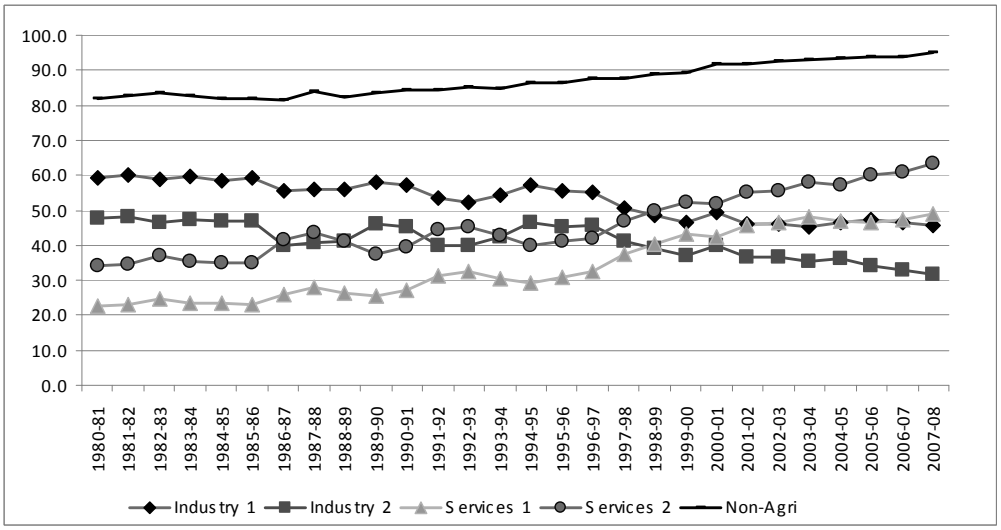
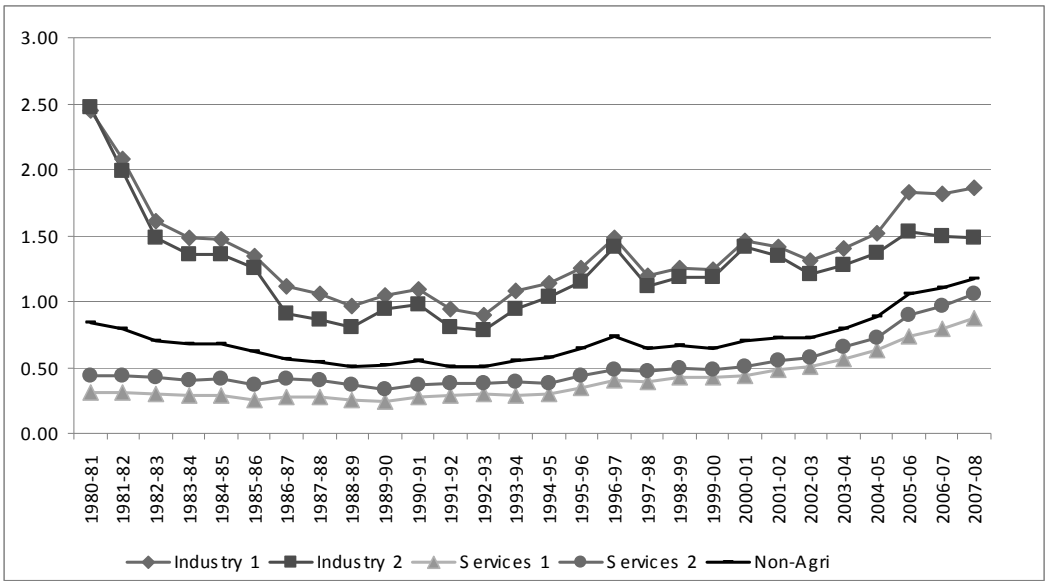


Figure-I.13
Shares in Private Organized NDP



When one is considering the organized sector, one very important difference between the 1980s and the 1990s is with regard to how the relative sizes of its public and private components moved in the two periods. In the 1980s, the private sector share was falling in industry and in services (Figure-I.14). This trend was however decisively reversed after 1991.

Figure-I.14
Ratio of Private Organized NDP to Public Sector NDP



The picture that then emerges is that the shift towards a services dominated pattern of growth and structural change after 1980 went through two different stages. In the 1980s and the early 1990s, the trend of the increasing importance of services relative to industry was primarily attributable to the increasing importance of the public sector in the economy. Though public sector output was not de-industrializing over this period, the share of services in public sector output was consistently significantly greater than in the economy's aggregate output. Consequently as the public sector share in aggregate output increased, it also pushed up the overall share of services. On the other hand, whatever little trend there was towards the rising share of services in the non-agricultural output of both the unorganized sector and the private organized sector in the 1980s had little effect on the overall share of services because the share of these sectors in non-agricultural NDP was declining at the same time (Figure-I.15). The share of services increased after the mid-1990s in the non-agricultural output of all the three institutional segments. Between the early and mid-1990s however, the private organized sector

replaced the public sector as the segment increasing its share in non-agricultural NDP. At the same time the private organized sector made its decisive shift towards services. As shown by Figures-I.16 & -I.17, the private organized sector began to rapidly increase its share in services NDP too. Thus, rapid growth of private organized output and the increasing share of services in it were the key factors reinforcing the services dominated growth trajectory after the mid-1990s.

Figure-I.15
Shares in Non-Agricultural NDP

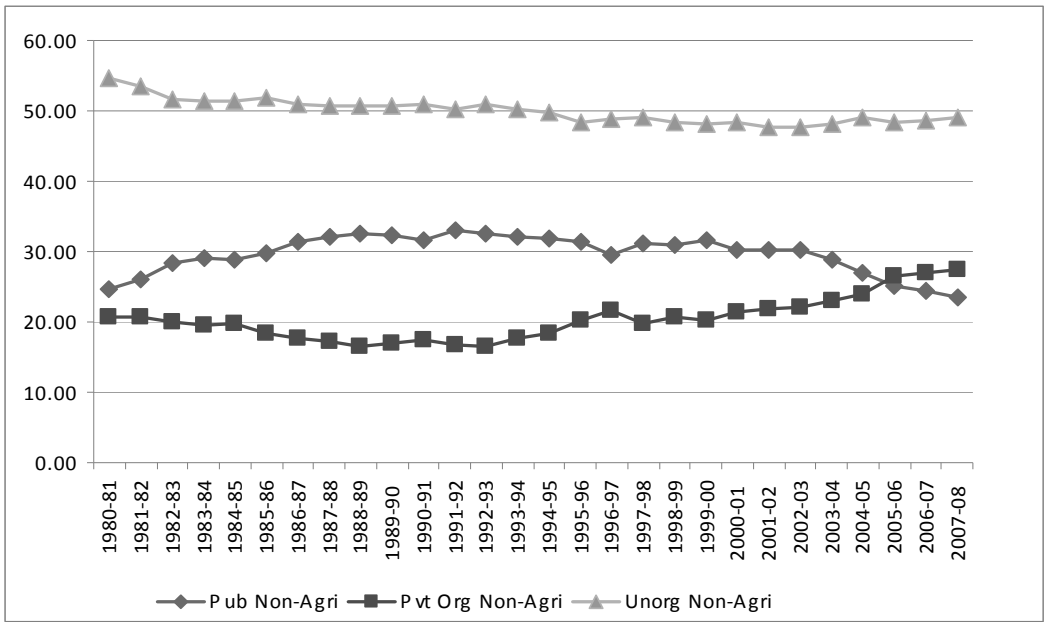


Figure-I.16
Shares in Services 1 NDP

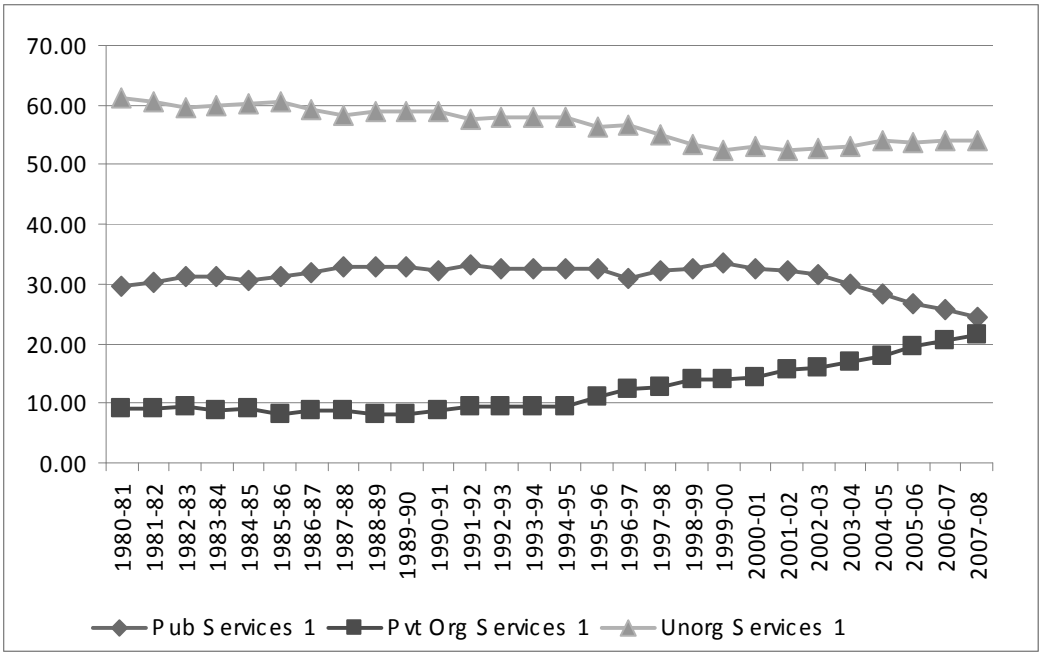
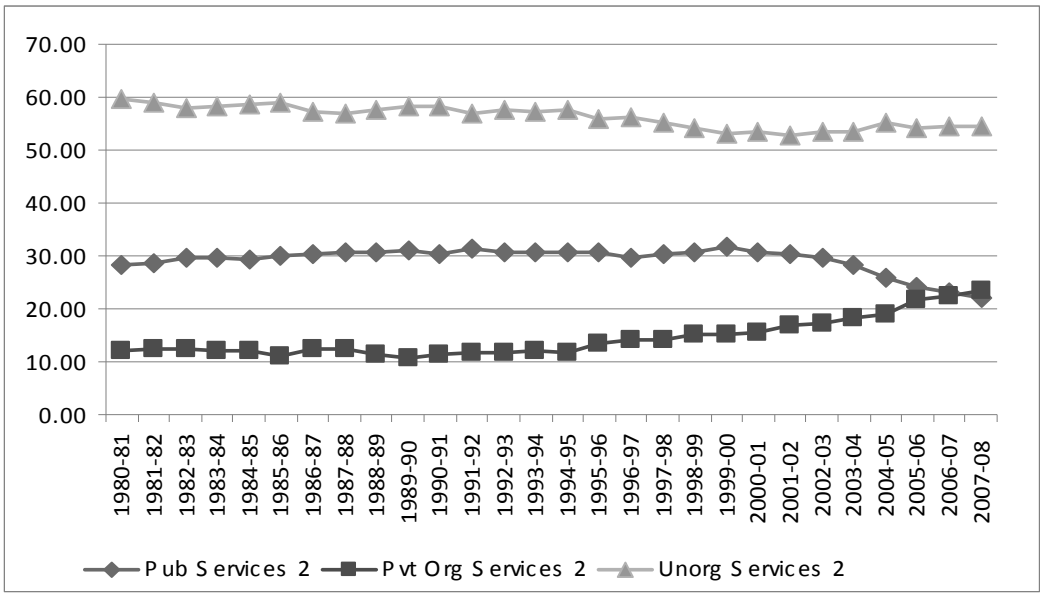


Figure-I.17
Shares in Services 2 NDP



Phases of Growth and Structural Change: A Summing Up

Drawing together everything discussed above, one can say that the post-independence process of growth and structural change in India is divisible into four phases, each with its own distinguishing features:

Phase 1: Independence to Mid-1960s—This was the phase in which there was acceleration in the pace of growth in comparison to the preceding colonial period, and an accompanying process of structural change marked by increasing share of non-agriculture, both driven chiefly by the industrial sector.

Phase 2: Mid-1960s to 1980—In this the momentum of industrial growth slackened and the trajectory observed in the first phase started winding down, setting the stage for the next phase which was to show an entirely different pattern.

Phase 3: 1980 to Early and Mid-1990s—In this phase, there was second stage growth acceleration which was accompanied by shift towards the ascendancy of services relative to industry in growth. The rising share of public sector was the main source of increasing share of services in GDP.

Phase 4: Mid-1990s onwards—This was the phase in which the private organized grew rapidly relative to the public sector, increasingly shifted towards services relative to industry, and led the decisive reinforcement of a services dominated growth trajectory.

II. Industry and Manufacturing

That the larger process of growth and structural change of the Indian economy after independence was not a steady process of industrialization has been seen in the previous section. This section shall show that the change in the structure of the industrial sector itself was also not a steady process but one marked by important discontinuities and directional shifts from time to time.

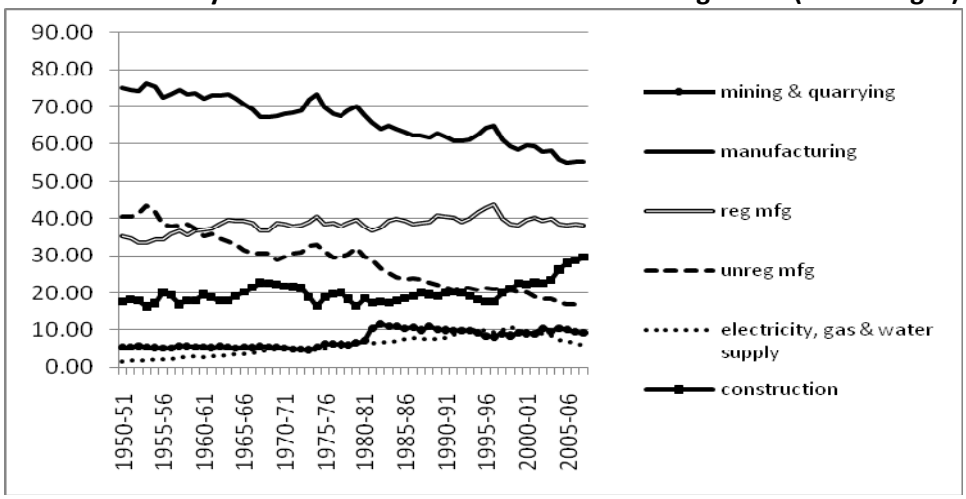
The Composition of Industrial Output

Whether we consider industry 1 or industry 2, the manufacturing sector has throughout been the largest segment of India's industrial sector. However, at current prices the share of manufacturing in the industrial sector's GDP has exhibited a long-term declining trend, coming down from over 75 per cent to just over 55 per cent of industry 1 GDP between 1950–51 and 2007–08 (Figure-II.1). This process of the squeezing of manufacturing's share has been spread over the entire period since 1950–51, with *all* four phases of growth and structural change showing the same trend. However, the pace was not the same throughout. The decline took place more slowly before 1980 than after and most slowly during the period of relatively slack industrial growth between the mid-1960s and the end of the 1970s. The sharpest decline of manufacturing's share in industrial GDP on the other hand happened after the mid-1990s. From 64.81 per cent in 1996–97, the share fell to 55.31 per cent by 2007–08.

While the overall share of manufacturing in the industrial sector's GDP at current prices declined relatively consistently, the trends for its registered and unregistered segments were not the same. It is the share of unregistered manufacturing in industrial GDP that declined over the entire period, coming down from over 40 per cent in 1950–51 to under 17 per cent in 2007–08. Most of this decline took place in two instalments, in periods of relatively faster industrial growth. The first was up to the mid-1960s and the second after 1980. Registered manufacturing however showed an opposite trend in the first of these periods, and also again after 1980 till its share too declined after mid-1990s. Registered manufacturing's share in industrial GDP at current prices went up from about 35 per

cent in 1950–51 to nearly 40 per cent by the mid-1960s, and then from that level it increased to nearly 44 per cent between 1980 and 1996–97. Subsequently it came down, being a little over 38 per cent by 2007–08. Thus up to mid-1960s and then between 1980 and mid-1990s, the decline in the relative share of unregistered manufacturing in industrial GDP was partially compensated by the growth of registered manufacturing's share. Between the mid-1960s and 1980, the shares of both were relatively stable. But after the mid-1990s, both declined simultaneously and brought about the sharp decline in the overall manufacturing share in industrial GDP.

Figure-II.1
Shares in Industry 1 GDP at Current Prices of Different Segments (Percentages)

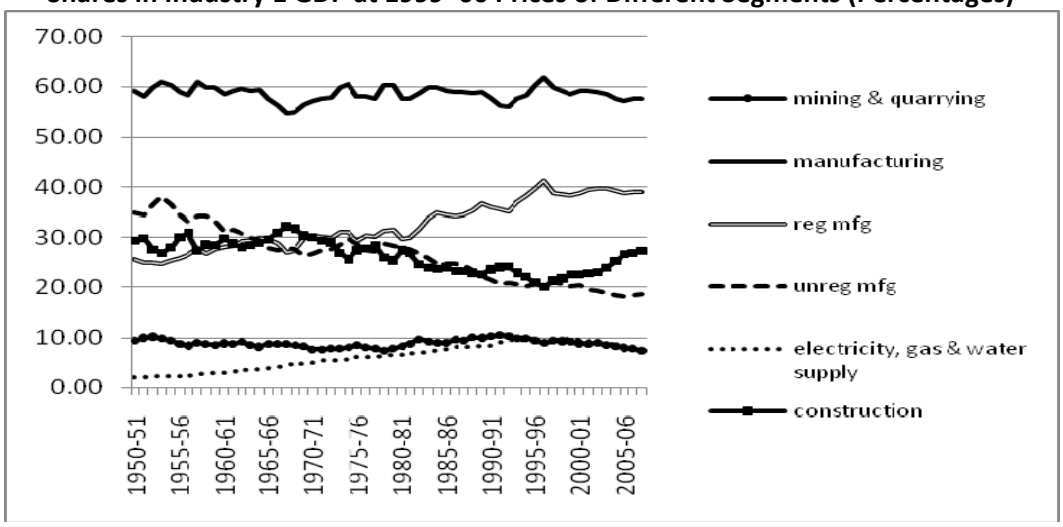


Comparing on a point-to-point basis from 1950–51 to 2007–08, the share of all three non-manufacturing segments of the industrial sector—namely mining, Electricity, Gas and Water Supply (EGWS), and construction—in industrial GDP at current prices increased. However, the time patterns of their movements were not the same. In particular, the shares in industrial GDP of construction and EGWS showed somewhat diverging trends. The share of EGWS increased steadily from 1950–51 till 1995–96—from 1.64 per cent to 9.70 per cent. Over the same period however, construction's share did not really move up from the level of just under 18 per cent it had in 1950–51, the slow drift upwards till the mid-1960s being replaced by a slowly declining trend till the mid-1990s The major turning point for construction, as indicated in the first section, was the mid-1990s. Since 1996–97 there has been a sharp rise in its share in industrial GDP—from 17.73 per cent to 29.51 per cent at current prices. In the same period, however, EGWS's share has fallen. The rise in the share in industrial GDP at current prices of the other non-

manufacturing component of the industrial sector, namely Mining and Quarrying, was highly concentrated in a short period. From just 6.61 per cent in 1979–80 it went up to 11.53 per cent in 1982–83. This was however followed by the only phase in which this share tended to decline, to 8.20 per cent in 1996–97. A slow increase in mining's share in industrial GDP happened thereafter.

The trends in the shares of its different components in industrial GDP at constant 1999–00 prices differ in important ways from those at current prices (see Figure-II.2). The most important such difference is that unlike the declining trend exhibited by it at current prices, the manufacturing's share in industry 1 has remained relatively steady at close to the 60 per cent mark in constant 1999–00 prices (however, even at constant prices this share peaked in the mid-1990s, at just under 62 per cent in 1996–97). In other words, the squeezing of the share of the manufacturing sector in industrial output has been entirely due to the decline in relative price of manufacturing compared with the other components of industry. The growth of real manufacturing GDP has not been of a lesser order than the rest of the industrial sector[18].

Figure-II.2
Shares in Industry 1 GDP at 1999–00 Prices of Different Segments (Percentages)



[18] It should however be clarified that the decline of industry relative to services after 1980 cannot be attributed to a similar process of real growth being accompanied by a decline in relative prices. The reversal in the ratio of services to industrial output happened at both constant as well as current prices. Moreover, even the ratio of the prices of services and just manufacturing did not move in favour of the former after 1980.

The erosion in the share of unregistered manufacturing in industrial GDP was however significant even at 1999–00 prices—from 34.93 per cent in 1950–51 to 18.63 per cent in 2007–08—and its time-path was also similar to that at current prices. On the other hand, the rise in the share of registered manufacturing was more pronounced at constant than at current prices—from under 26 per cent in 1950–51 to nearly 39 per cent in 2007–08. The periods of its rise were also, like at current prices, before the mid-1960s and from 1980 to the mid-1990s, with the peak share being over 41 per cent in 1996–97. The movement of the share of EGWS in industrial GDP at 1999–00 prices too was similar to that at current prices—rising steadily from 2.04 per cent in 1950–51 to 9.25 per cent in 1995–96, and then declining to 7.69 per cent by 2007–08.

In the case of construction and mining, over the entire period from 1950–51 to 2007–08, the direction of movement in their shares in industrial GDP were different at constant 1999–00 prices from those at current prices. The share of neither increased at 1999–00 prices but rather declined somewhat. Mining's share declined from 9.40 per cent to 7.48 per cent and construction's from 29.39 to 27.32 per cent. These declining trends were however not consistent ones over time.

Unlike the slow rise at current prices, construction retained its share in industrial GDP at 1999–00 prices at around 30 per cent till the mid-1960s. After the mid-1960s and till the mid-1990s, this share declined much more significantly than the marginal decline at current prices, moving from nearly 29 per cent to just over 20 per cent. Then since 1996–97 construction's share experienced a sharp rise, like at current prices but not of the same order. In other words, construction was one segment of the industrial sector which throughout experienced an improvement in its relative price. This checked the decline in its share in periods when it's real output grew slowly relative to the rest of the industrial sector, and exaggerated the increase in its share when this growth was more rapid. Construction's case in this way was the exact opposite of manufacturing. The latter experienced a significant decline in its share in industrial GDP at current prices despite growing at a similar rate than the industrial sector as a whole. Construction on the other hand showed a significant increase despite not having grown any faster in real terms.

At constant 1999–00 prices, mining's share tended to decline till the end of the 1970s, coming down from 9.40 per cent in 1950–51 to 7.49 per cent in 1978–79. After that, it improved to cross 10 per cent by the end of the 1980s. From the mid-1990s however it again began again moving downwards. This movement pattern over time was nearly the opposite of that at current prices suggesting that mining's relative price has tended to be somewhat inversely related to its relative growth.

From the above it follows that the different phases of overall growth and structural change highlighted in the first part can also be clearly distinguished from each other in terms of their respective patterns of change in the composition of industrial output. In the first phase till mid-1960s industrial output was shifting in favour of organized manufacturing and EGWS, while unorganized manufacturing was the sector clearly declining in importance. After that, till 1980 only EGWS continued to increase its share in industrial output. Construction became the segment clearly receding in importance, while the declining trend in the share of unorganized manufacturing was somewhat arrested. In the third phase from 1980 till the mid-1990s, organized manufacturing along with EGWS increased its relative share. In real terms, mining which had till then seen a decline also enhanced its share. Construction continued to decline in importance and was now accompanied in this by unorganized manufacturing. In the final phase after the mid-1990s, construction turned around to become the solitary segment showing a trend of increase in its share of industrial output. With this, the combined share in industrial GDP of segments other than construction, which was increasing till the mid-1990s, declined sharply. In other words, theirs peak share in both aggregate GDP as well as in industrial GDP were attained at the same point of time.

Changes in the Structure of Manufacturing Output: The Organized and Unorganized Sectors

It is well known that the structure of manufacturing output in India has changed considerably over time, marked by a relative decline of the traditional light industries that dominated the industrial sector at independence. This change happened in both the organized and unorganized manufacturing sectors but at different speeds and to different extents (Figures -II.3 & -II.4, and -II.5 & -II.6).

Figure-II.3
Distribution of Registered manufacturing GDP at Current Prices

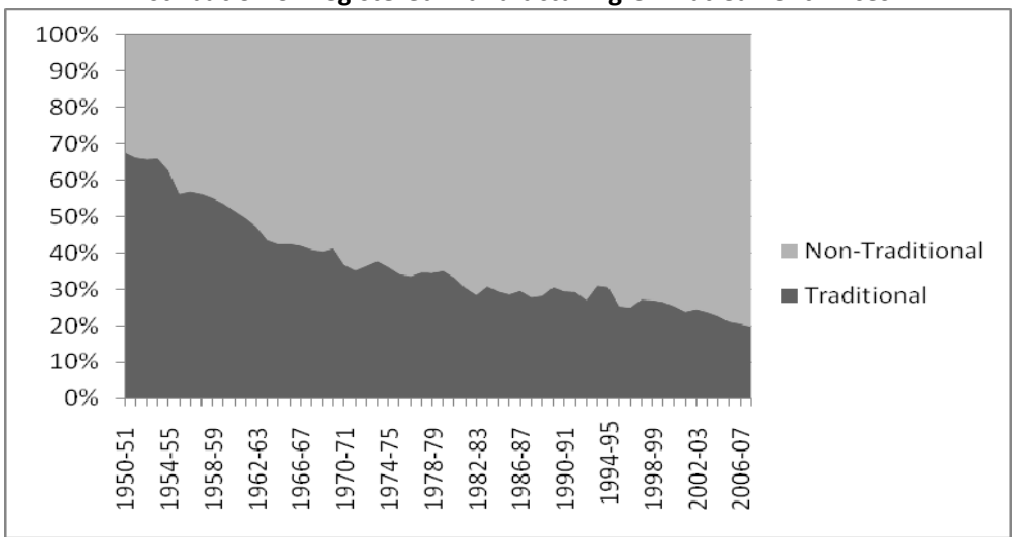
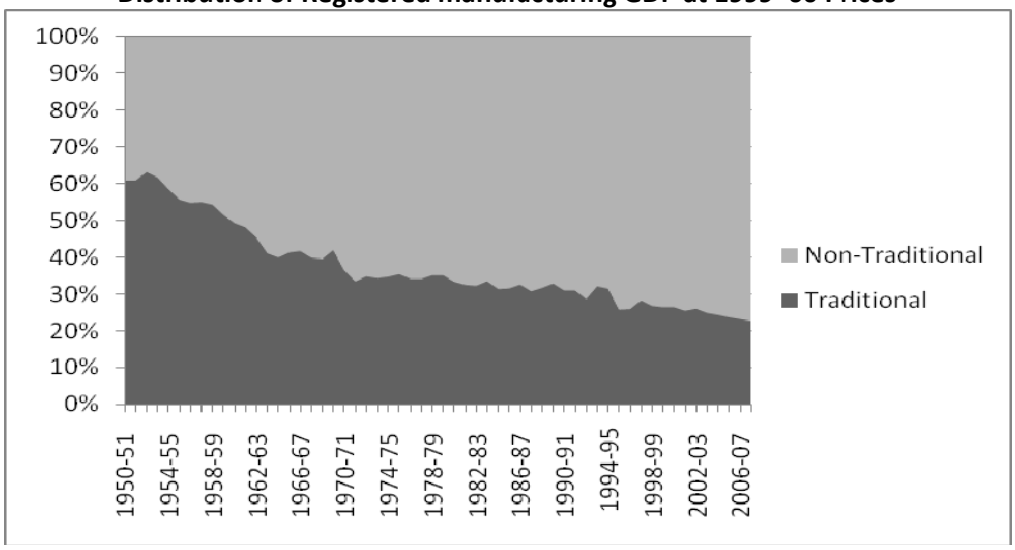


Figure-II.4
Distribution of Registered manufacturing GDP at 1999–00 Prices



In organized manufacturing, the group of traditional industries—food, beverages and tobacco, textiles, wood products and paper—accounted for nearly 68 per cent of gross value added at current prices, and 61 per cent at 1999–00 prices, in 1950–51. Within a decade, however, the share of the remaining group of non-traditional manufacturing industries—rubber and petroleum products; chemical and chemical products; non-metallic products; basic metals; metal products and machinery; electrical machinery; transport equipment; and other manufacturing—had become larger at both current as well as constant prices. By 1970, the original shares of the two groups of industries had been completely reversed. The trends were maintained even thereafter though the pace of change slowed down. By 2007–08, barely a fifth of

organized manufacturing GDP was accounted for by the first group of industries. Thus in organized manufacturing the greater part of the broad structural change in composition of output happened before 1970. In contrast, in unorganized manufacturing virtually the entire change happened after 1970 and more slowly.

Figure-II.5
Distribution of Unregistered manufacturing GDP at Current Prices

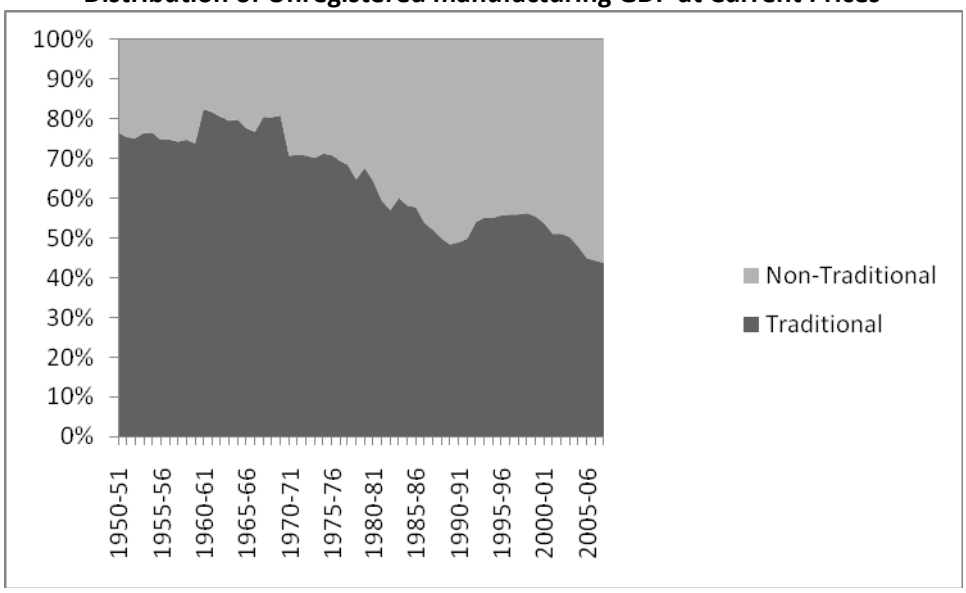
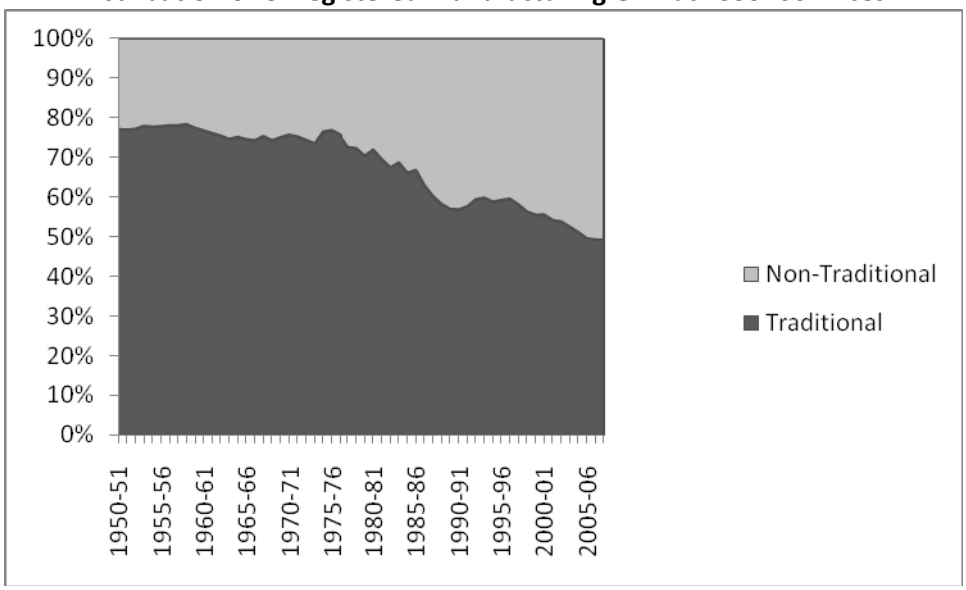


Figure-II.6
Distribution of Unregistered manufacturing GDP at 1999–00 Prices



In unorganized manufacturing output, the original share of the traditional industries was a little greater than in organized manufacturing—over 75 per cent in both current and constant 1999–00 prices in 1950–51. This degree of dominance of traditional industries within the unorganized manufacturing sector was maintained

over the next two decades. Thus the structure of output in organized and unorganized manufacturing became very different from each other. After 1970, the composition of unorganized manufacturing output did start changing. The difference with the organized segment was however still maintained, with the change in composition of output being of a lesser degree in unorganized manufacturing. No complete reversal happened and the share of traditional industries in unorganized manufacturing was still around half at current prices (and greater than that at 1999–00 prices) at the end of the 1980s. At this point the direction of structural change was temporarily reversed but reverted to the original path from the mid-1990s. Even in 2007–08, however, the group of traditional industries accounted for nearly 44 per cent of unorganized manufacturing GDP, and nearly half at 1999–00 prices.

Apart from the industrial distribution of organized and unorganized manufacturing output, even the distribution of the output of individual industries between their organized and unorganized segments changed over time. The trend of decline in the share of the unorganized sector in aggregate manufacturing GDP was observed in both traditional as well as non-traditional manufacturing industries seen as groups (Figures –II.7 & -II.8). In both, the unorganized sector share was greater in 1950–51, more so in the traditional industries group than in the non-traditional one. In both groups of industries, this share declined considerably over the entire period but their time patterns were very different. Till the late 1970s, the unorganized share in the traditional group of industries at 1999–00 prices remained steady at about 70 per cent. At current prices it initially rose from the original level of about 60 per cent to nearly 70 per cent by the late 1960s before reverting to the original level over the 1970s. The major part of the decline in the unorganized sector share in traditional industries therefore happened in the 1980s and till the mid-1990s—from about 60 per cent to close to 45 per cent at current prices and from 66 per cent to 49 per cent at constant prices. In contrast to these trends in the traditional group of industries, in the non-traditional much of the unorganized sector's relative decline had happened by the end of the 1960s. At current prices it came down from over 51 per cent in 1950–51 to under 27 per cent by 1969–70, and in 2007–08 stood at just a little over 23 per cent. At constant 1999–00 prices, the unorganized sector share in non-traditional manufacturing GDP was over 53 per cent in 1950–51, under 27 per cent in 1970–71 and 23 per cent in 2007–08.

Figure-II.7
Share of Unorganized Sector in GDP of Manufacturing (Unadjusted) at Current Prices

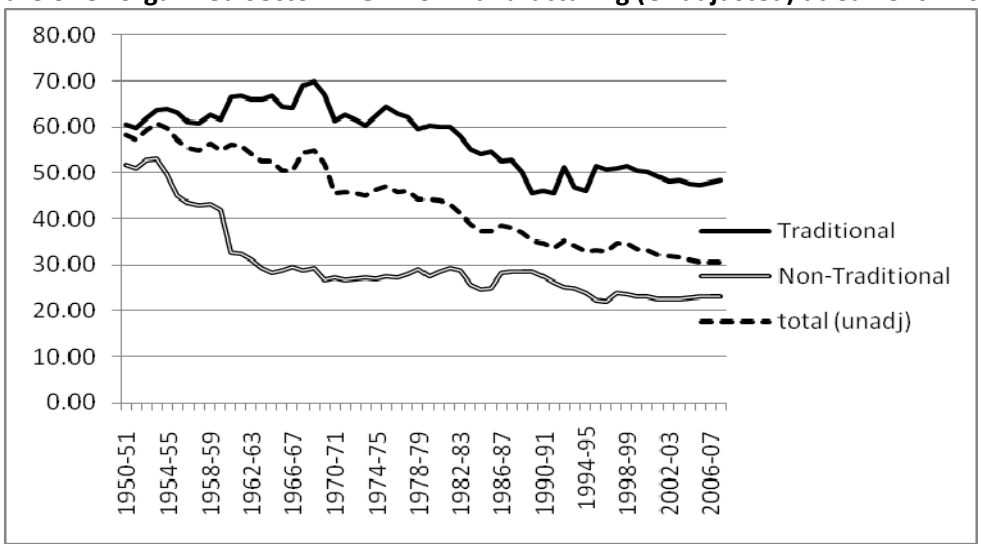
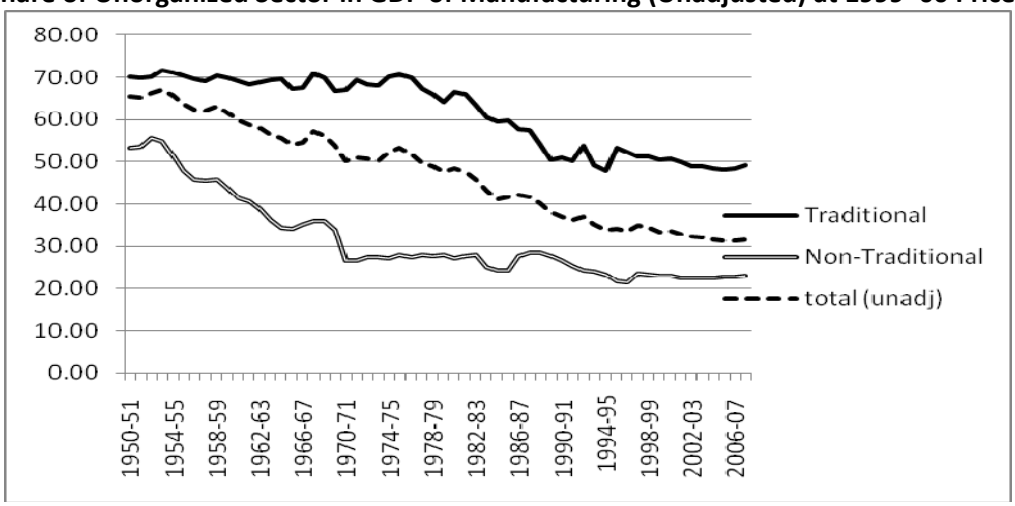


Figure-II.8
Share of Unorganized Sector in GDP of Manufacturing (Unadjusted) at 1999–00 Prices



The above mean that before 1970 both the share of the unorganized sector in the group of traditional industries, as well as the share of these industries in unorganized manufacturing output, did not decline. The initial decline in the share of unorganized manufacturing in total manufacturing GDP was therefore the combined effect of the declining share of traditional industries in aggregate manufacturing output and the declining share of the unorganized sector in non-traditional manufacturing output. The picture after 1970, however, was very different. As the share of traditional industries in unorganized manufacturing output started declining, the unorganized sector's share in these industries also receded. The later decline of the unorganized sector's share in aggregate manufacturing output was related to this declining trend in the share of the unorganized sector in the GDP of the traditional industries. In these

industries the unorganized dominance had been greater and had been sustained till then, unlike in the non-traditional industries. With this transition, the squeezing of the unorganized sector share in manufacturing output was cemented, and soon after the share of unorganized manufacturing in aggregate GDP also started declining.

Table-II.1 sums up the above mentioned transition. It shows that between 1950–51 and 1969–70 the share of unregistered manufacturing in manufacturing GDP declined by 6.65 percentage points. The decline in the share of traditional unregistered manufacturing however contributed less than three of these points, while that of non-traditional unregistered manufacturing was 3.70 percentage points. It was registered traditional manufacturing which contributed 8.52 of the total 11.47 percentage points decline in the share of traditional industries in manufacturing GDP.

Table-II.1
Distribution of Manufacturing GDP (Unadjusted) at Current Prices and Changes in IT

Segment	*Share in Total Manufacturing GDP (Unadjusted) (per cent)*			*Change in Share (Percentage Points)*	
	1950–51	*1969–70*	*2007–08*	*1950–51 to 1969–70*	*1969–70 to 2007–08*
Reg Non-Traditional	13.63	28.80	56.29	15.17	27.49
Reg Traditional	28.82	20.30	13.90	-8.52	-6.40
Unreg Non-Traditional	13.37	9.68	16.75	-3.70	7.07
Unreg Traditional	44.18	41.22	13.06	-2.95	-28.16
Total	**100**	**100**	**100**	**0**	**0**
Traditional Total	**72.99**	**61.52**	**26.96**	**-11.47**	**-34.56**
Non-Traditional Total	**27.01**	**38.48**	**73.04**	**11.47**	**34.56**
Registered Total	**42.45**	**49.10**	**70.19**	**6.65**	**21.09**
Unregistered Total	**57.55**	**50.90**	**29.81**	**-6.65**	**-21.09**

It was also registered manufacturing and not unregistered manufacturing which was the source of increase in the share of non-traditional industries in aggregate manufacturing output. Between 1969–70 and 2007–08 however, unregistered traditional manufacturing was exclusively responsible for the bulk of the decline in the share of unorganized manufacturing as a whole—the former's decline by over 28 percentage points being in fact greater than the 21 percentage point decline of the latter. In this period, the decline in the share of unregistered traditional manufacturing also accounted for the bulk of the nearly 35 percentage point decline in the share of traditional industries. However, unregistered manufacturing also made a positive contribution in this period to the increasing share of non-traditional industries.

This contribution was still less than that of registered manufacturing, but nearly proportionate to the original share of unregistered manufacturing in these industries.

Mining and Quarrying

Apart from manufacturing, the NAS data also provide a disaggregated picture of the mining and quarrying sector in the form of value of output data. An examination of these reveals that major changes have taken place in the output composition of India's mining sector over time. At the beginning of the post-independence period, the coal mining industry contributed two-thirds of the value of output of the mining sector and coal accounted for virtually the entire production of fuel minerals at both current as well as 1999–00 prices. Amongst metallic minerals, manganese and gold were the two most important while mica was the principal non-metallic mineral. Between them these four products (which we shall call Group 1 minerals) accounted for over four-fifths of mineral production. Another group (designated as Group 2 minerals) consisting of petroleum and gas from the fuel minerals category, iron ore from the metallic one, and minor minerals, accounted for less than 7 per cent at current prices. The stable feature throughout the post-independence period was that the two groups together always accounted for around 90 per cent of the value of output of minerals (the remaining 10 per cent being distributed between other fuel, metallic and non-metallic minerals like lignite, bauxite and copper, and lime stone respectively). The change that happened, most of it up to the early 1980s, was a change in the relative contributions of the two groups to this (Figures -II.9 & -II.10).

In Group 1, only coal survived as a significant mineral though its share too came down—from about two-thirds in both cases in 1950–51 to just over 30 per cent and 44 per cent of mining value of output in 2007–08 at current and 1999–00 prices respectively. However, this did not bring down the share of fuel minerals in the aggregate value of mineral output because of the rise in the share of petroleum and natural gas. Iron ore replaced gold and manganese as the major contributor to the output of metallic minerals. Minor minerals too grew in importance relative to the major ones. The Group 2 minerals thus increased their combined share so that the shares of the two groups became similar, by the early 1980s at current prices and by

the end of the 1980s at constant 1999–00 prices. Since the beginning of the current century however, primarily on account of sharp improvements in the relative prices, the second group's share at current prices has increased at the expense of the former. In 2001–02 both groups had a share in mining output at current prices between 45 to 46 per cent. By 2007–08, Group 1's share was just 31 per cent while Group 2's crossed 61 per cent. A combination of a jump in real output and a sharp rise in prices of petroleum products (presumably Bombay High and Second Oil Shock effects) had also led to a steep rise in the share of petroleum products in mining output in the early 1980s—from under 20 per cent to nearly 40 per cent in the space of a couple of years. These, therefore, underlay the quick rise noted earlier in the share of mining in industrial GDP that took place at the same time.

Figure-II.9
Shares of Group 1 and 2 Minerals in Value of Output of Mining and Quarrying at Current Prices

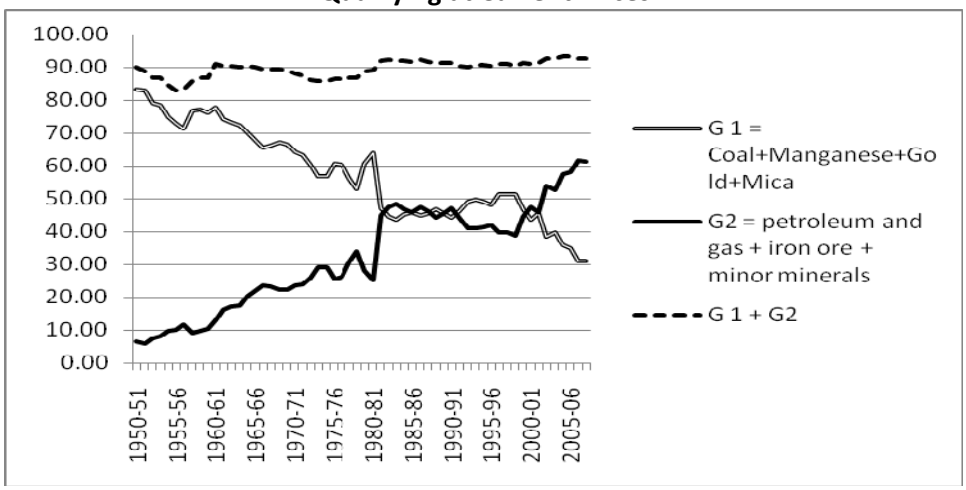
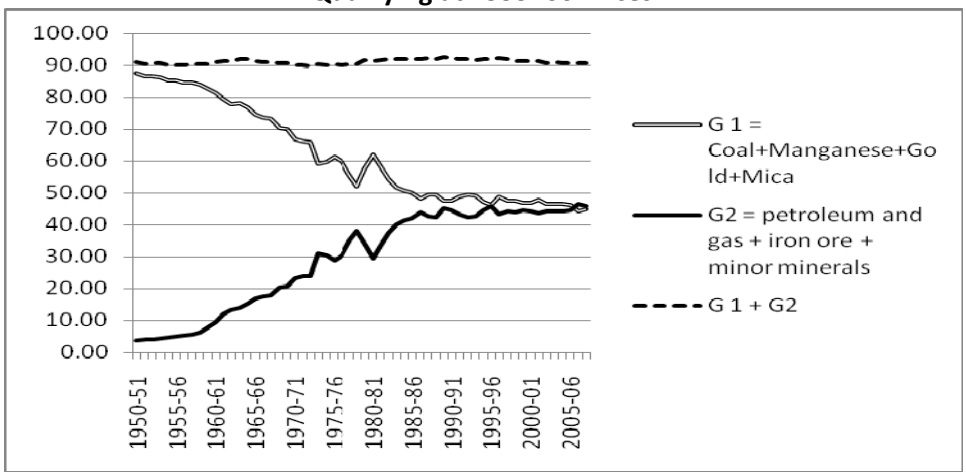


Figure-II.10
Shares of Group 1 and 2 Minerals in Value of Output of Mining and Quarrying at 1999–00 Prices

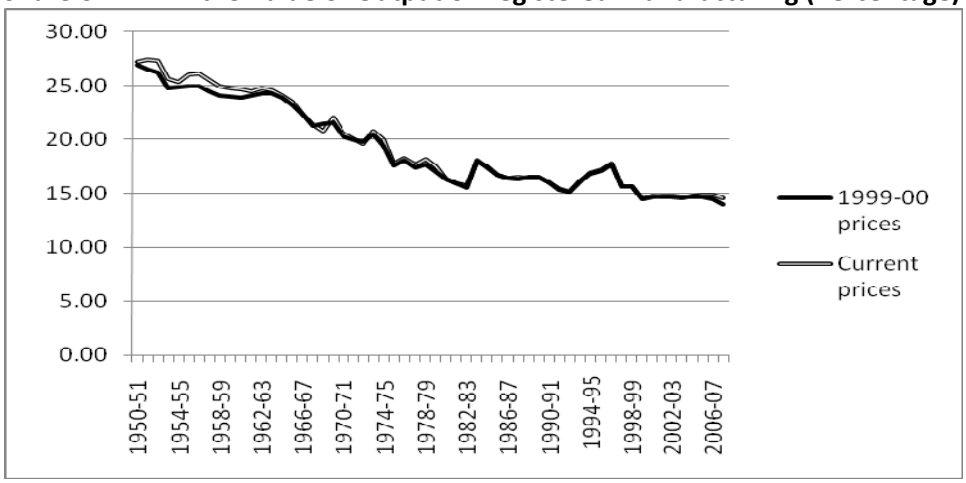


The Declining Input Productivity of Indian Manufacturing

So far we have been using the GDP measure of manufacturing output while looking at that sector. The NAS also provides NDP figures for all sectors, and it is the NDP of a sector that represents its contribution to national income. Consumption of fixed capital accounts for the difference between NDP and GDP. For some sectors, including the registered manufacturing sector, the NAS also gives figures for another output measure, namely the value of output. The value of output includes in addition to GDP the value of intermediates consumed. Given the figures for NDP, GDP and Value of Output therefore, the value of fixed capital and value of intermediates (circulating capital) consumed to produce a unit (rupee worth) of net value added can be determined. Both of these tend to be significantly higher in manufacturing activities than in agriculture and many services and they also change over time. Examining them in the Indian case reveals the notable phenomenon that in the organized manufacturing sector they have *increased* significantly over time. The consequence has been the squeezing of the net value added share in the value of output of registered manufacturing, which has come down from around 27 per cent in 1950–51 to about 14 per cent in 2007–08 at both current as well as constant prices (Figure-II.11). In other words, the quantity of manufacturing output required to generate the same quantity of net value added has nearly doubled.

As can be seen, the movement over time of the share of NDP in value of output at current and at constant prices has been virtually identical. It stands to reason why this should be the case. A significant share of the intermediate and fixed inputs consumed in manufacturing activities are themselves manufactured products. Input and output prices in these circumstances are likely to move in tandem. The implication of this is that the declining trend in the NDP to value of output ratio cannot be attributed to the decline in the relative prices of manufactured products. *Real* increases in the consumption of intermediates and fixed capital for every unit of net value added must therefore have happened.

Figure-II.11
Share of NDP in the Value of Output of Registered Manufacturing (Percentage)



If we look at the consumption of the two kinds of inputs individually, an increase over time is visible in both cases. Intermediate consumption per unit of net value added has however always been significantly greater than the corresponding fixed capital consumption. It increased from 2.65 in 1950–51 to 5.74 in 2007–08 at constant 1999–00 prices and 2.61 to 5.62 at current prices. Fixed capital consumptions increased between the two periods from 0.07 to 0.40 at 1999–00 prices and from the same level to 0.37 at current prices. These of course imply that the value of intermediates used up in the process of a unit of fixed capital being consumed (that is the number of rupees worth of intermediates for every rupee of fixed capital consumed) declined between 1950–51 and 2007–08—from 36.30 to 14.31 at constant 1999–00 prices and from 37.75 to 15.02 at current prices. These changes have however not happened in a linear fashion (Table-II.2). In the case of both the consumption of intermediates and of fixed capital per unit of net value added, the increasing trends were visible before 1980 and then again from the mid-1990s but not in the intervening period (Figures -II.12 & -II.13). Even the value of intermediates used up in the process of consuming a unit of fixed capital did not move consistently in one direction (Figure–II.14). Its declining trend till the late 1960s was reversed thereafter from which there was another reversal in the 1990s.

Table-II.2
Input Consumption Ratios in Registered Manufacturing

Ratio	At	1950–51	1964–65	1980–81	1995–96	2007–08
(VOI+CFK)/ NDP	1999–00 prices	2.72	3.20	5.14	4.84	6.14
	Current Prices	2.68	3.16	5.11	4.83	5.88
CFK/NDP	1999–00 prices	0.07	0.16	0.29	0.24	0.40
	Current Prices	0.07	0.18	0.29	0.25	0.37
VOI/NDP	1999–00 prices	2.65	3.03	4.85	4.60	5.74
	Current Prices	2.61	2.98	4.82	4.59	5.52
VOI/CFK	1999–00 prices	36.30	18.74	16.59	19.13	14.31
	Current Prices	37.75	17.00	16.54	18.60	15.02

Note: VOI = Value of Inputs; CFK = Consumption of Fixed capital; NDP = Net Domestic product

Figure-II.12
Trends in the Consumption of Fixed Capital per Unit of NDP at Current and at 1999–00 prices in the Registered Manufacturing Sector

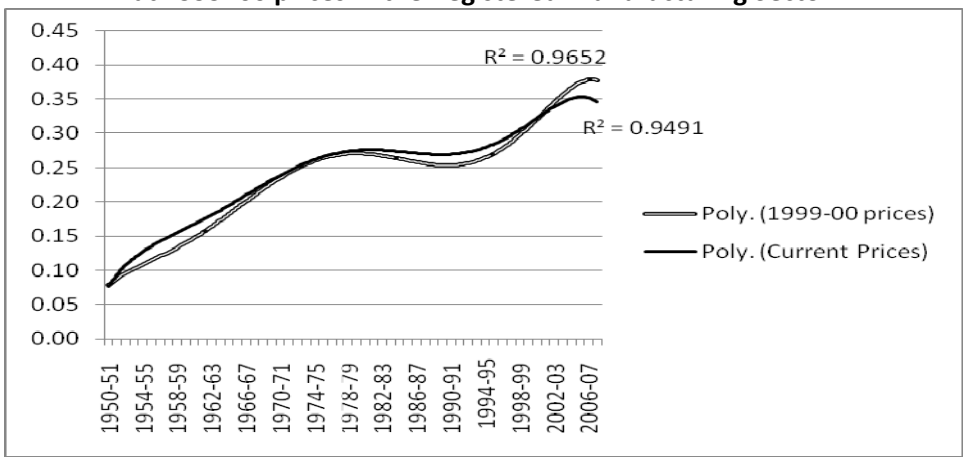
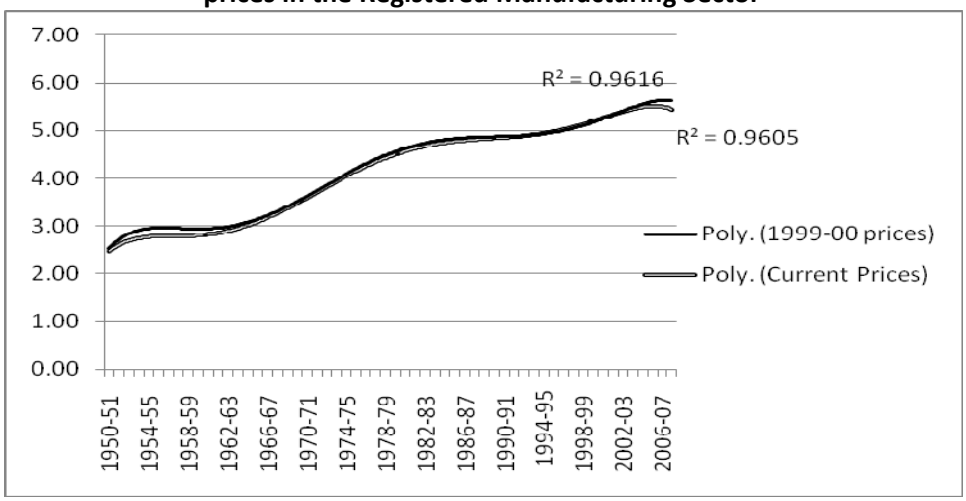


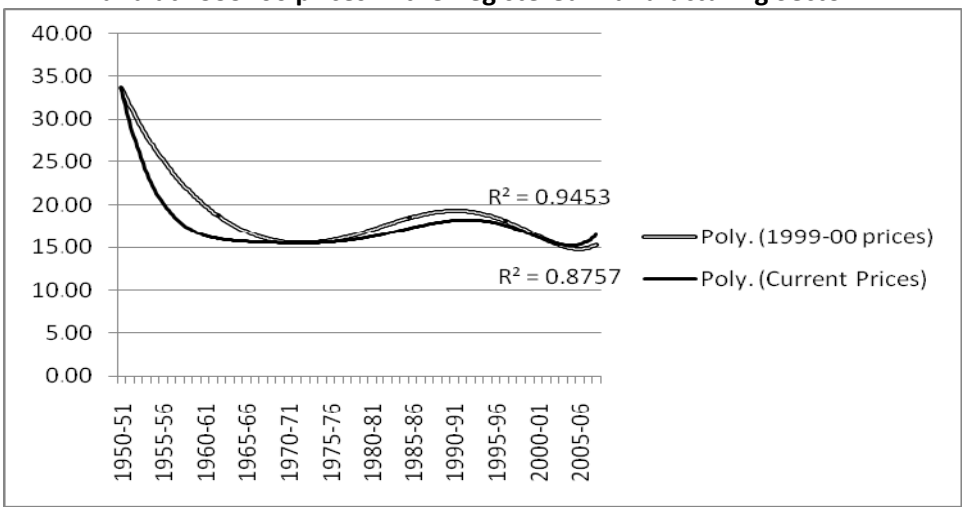
Figure-II.13
Trends in the Consumption of Intermediates per Unit of NDP at Current and at 1999–00 prices in the Registered Manufacturing Sector



The above observed patterns imply that the trend of declining input productivity cannot be said to be entirely a result of industrialization and structural changes in manufacturing output. We have seen earlier that the major part of the

structural change in registered manufacturing happened before 1970. However, the increase in input consumption was much steeper after the mid-1960s than in the decade and a half before. Moreover, it ceased with the revival of industrial growth in the 1980s only to reappear in the mid-1990s. The two phases belonging to the period of services-dominated growth (from 1980 to the mid-1990s and after the mid-1990s) can therefore also be distinguished on this count which relates to the manufacturing sector.

Figure-II.14
Trends in the Consumption of Intermediates per Unit of Fixed Capital Consumed at Current and at 1999–00 prices in the Registered Manufacturing Sector



Summing Up

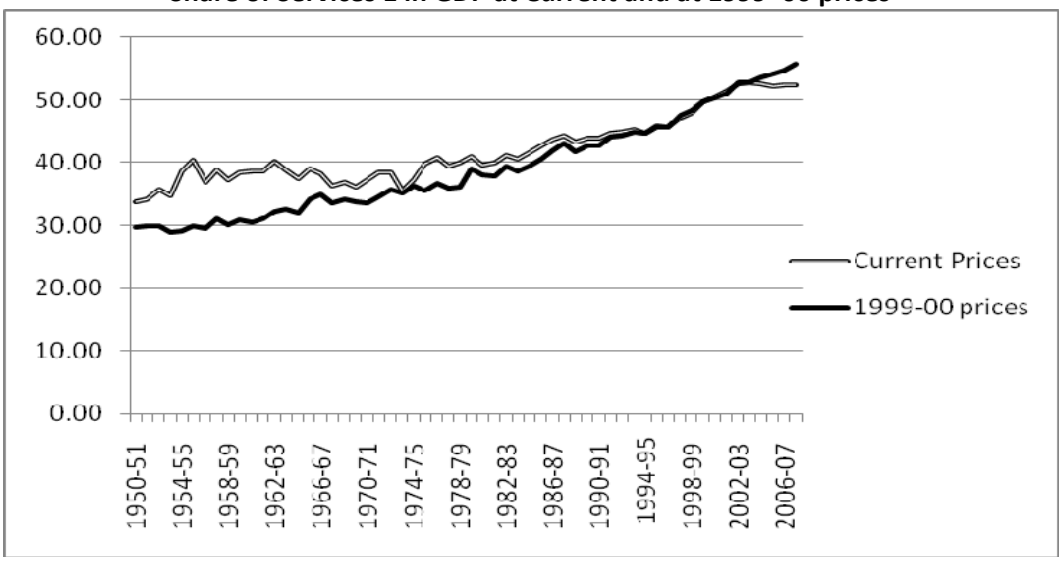
The story of the changes within the industrial sector unfolding through the different phases of growth and structural change, which emerges from the above discussion, may be summed up as follows. The period till the mid-1960s was characterized by a rising importance of registered manufacturing and Electricity Gas and Water Supply (EGWS) in industrial output at the expense of unorganized manufacturing. Organized and unorganized manufacturing were also different in this phase with regard to the structural changes in their output. It is only organized manufacturing which exhibited a marked shift in the distribution of output between the initially dominant traditional light manufacturing industries and other more modern industries in favour of the latter. The period between the mid-1960s and till 1980 was marked by relative stability in the distribution of manufacturing's output between its organized and unorganized components, while EGWS was the only segment which increased its share in industrial output, this time at the expense of

mainly construction. The structure of unorganized manufacturing also began to change, following the pattern observed in the organized sector earlier. In the period after 1980, the broad pattern of change of the first phase was restored. Registered manufacturing once again started growing more rapidly than its unorganized counterpart, and EGWS continued to enlarge its share at the expense of construction. This time around, however, unorganized manufacturing lost out to the organized sector even in the traditional manufacturing industries in which it had till then maintained its dominance. The pattern of change in industrial output shifted again in the final phase after the mid-1990s, rather dramatically in fact. This was the only phase where construction grew in importance significantly, so rapidly in fact that the share of all the other components of the sector declined. The period since the mid-1990s also saw a reappearance of a trend of declining input productivity in the registered manufacturing sector which had characterized the period of rapid structural change before the mid-1960s and also the period of depressed industrial growth between then and the end of the 1970s.

III. Services

We have seen in the first part that while the size of India's services sector relative to its industrial one started increasing only around 1980, the share of services in India's GDP was rising even before that (Figure-III.1). At 1999–00 prices, the share (Services 1, that is not including construction) increased steadily from the end of the 1950s, when it stood at around 30 per cent. By 2007–08 it was close to 56 per cent. At current prices however, after an initial jump from under 34 per cent to over 40 per cent between 1950–51 and 1955–56, the services share in GDP remained relatively stable till 1980. It rose thereafter to over 52 per cent by 2007–08. However, important changes did take place in the composition and pace of services growth with the initial transition to a service dominated growth trajectory after 1980 and also with the shift from a public sector to a private organized sector led growth pattern from the mid-1990s.

Figure-III.1
Share of Services 1 in GDP at Current and at 1999–00 prices



The Acceleration in the Growth of Services

1980 marked a clear upward shift in the pace of growth of services at constant prices, which was followed by a further stepping up from the mid-1990s (Table-III.1). The acceleration in services growth after 1980 was quite broad-based, with only storage, public administration and defence, and railways being excluded from its ambit. Of these, railways did grow more rapidly after the mid-1990s while

public administration and defence lost the status it previously had (before 1980) of being one of the fastest growing services.

Table-III.1
Rates of Growth of Services at 1999–00 prices

Sector	*1950–51 to 1979–80*	*1979–80 to 1995–96*	*1995–96 to 2007–08*
Trade, hotels & restaurants	**4.88**	**5.93**	**8.22**
trade	4.86	5.89	8.06
hotels & restaurants	4.86	6.46	9.94
Transport, storage & communication	**5.86**	**6.11**	**12.06**
railways	4.39	3.77	6.16
transport by other means	6.36	6.78	8.23
storage	4.31	2.68	2.44
communication	6.73	7.65	23.90
Financing, insurance, real estate & business services	**3.47**	**8.76**	**8.27**
banking & insurance	6.68	10.39	9.25
real estate, ownership of dwellings & business services	2.72	7.87	7.49
Community, social & personal services	**4.53**	**5.62**	**6.55**
public administration & defence	6.61	5.83	5.56
other services	3.37	5.45	7.29
Services 1 Total	**4.56**	**6.52**	**8.45**

One of the implications of the post-1980 acceleration in services growth was that it reversed a *declining* trend which was shown till then by the share in aggregate GDP of two services that were very significant to begin with (Figures -III.2 & -III.3). These two were real estate, ownership of dwellings and business services (REODBS) and other services. At constant 1999–00 prices the share of REODBS in aggregate GDP and came down from 6.5 per cent in 1950–51 to 5 per cent by 1980–81. It then climbed to nearly 7.5 per cent by the mid-1990s, and stayed around that level thereafter. At current prices REODBS had accounted for a third or more of services GDP in the 1950s, and 11.4 per cent of aggregate GDP. The latter share declined till the mid-1990s when it fell below 7 per cent. Since then it has moved up beyond 8 per cent. Other services had accounted for over 8 per cent of aggregate GDP at both current as well as 1999–00 prices. In 2007–08 these share were similar at close to 8 per cent. However, the levels in 2007–08 reflected a climb back after having been reduced to about 7 per cent over the three decades since 1950–51.

Figure-III.2
Share of REODBS and Other Services in Aggregate GDP (Percentage) at 1999–00 prices

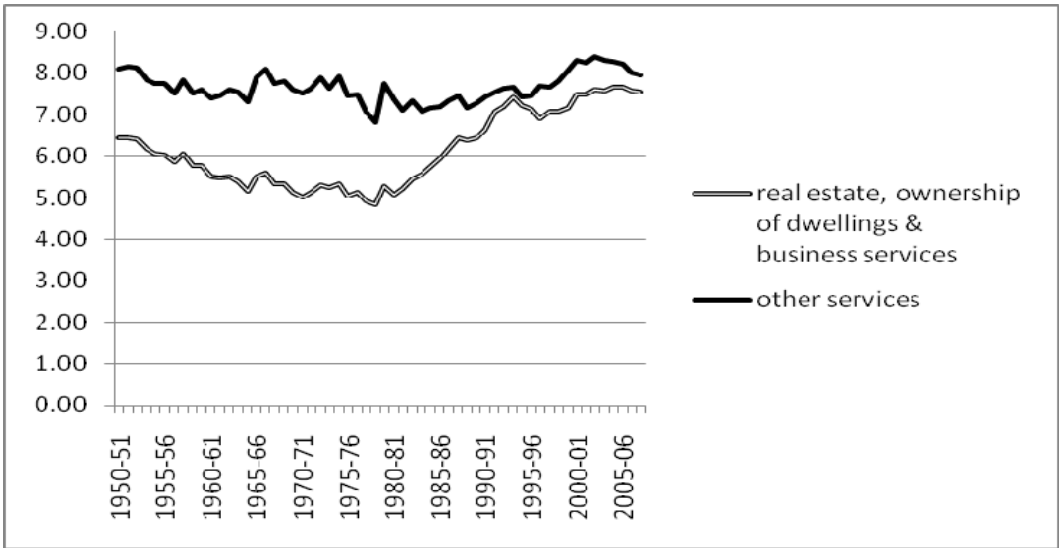
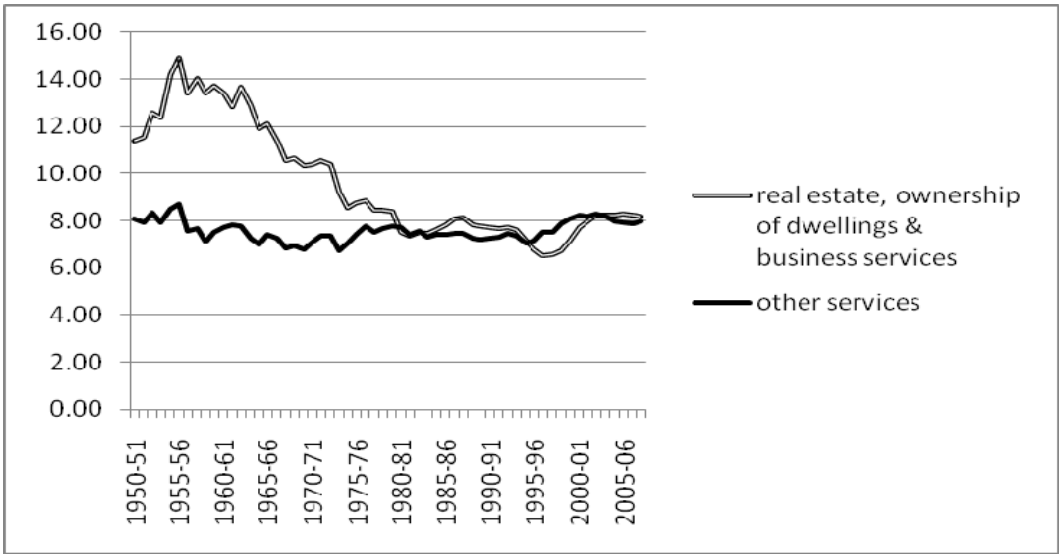


Figure-III.3
Share of REODBS and Other Services in Aggregate GDP (Percentage) at Current prices

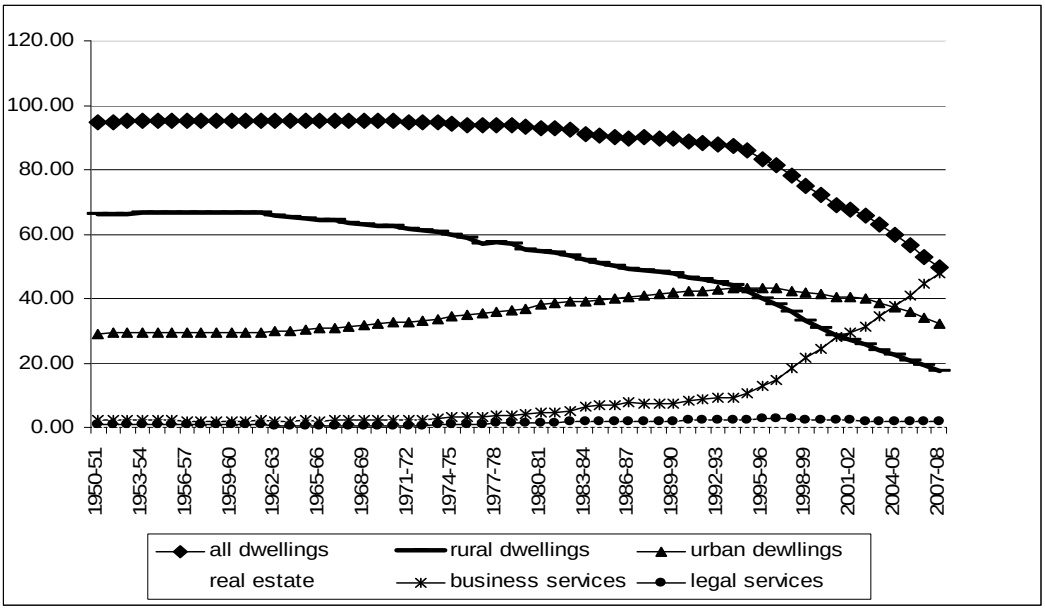


The reversals of the declining trend in their share in aggregate GDP of REODBS and of other services were somewhat different in nature. In the case of REODBS, sharp shifts in the composition of the sector's output were associated with both the 1980 and mid-1990s reversals. In the case of other services on the other hand, while the composition of output did change, the process was steadier and more evenly distributed between the pre- and post-acceleration phases.

This rising importance of the contribution of business services to this segment's GDP, at the expense of its traditionally main component, namely

dwellings, was the distinguishing feature of the post-1980 growth of REODBS (Figure-III.4). This happened particularly dramatically after the mid-1990s. At current prices, business services accounted for just 2.5 per cent of the GDP of REODBS in 1950–51 and less than 5 per cent in 1980–81. By 1995–96 its contribution stood at nearly 13 per cent and by 2007–08 had climbed to nearly 48 per cent. At 1999–00 prices, the growth was equally dramatic—the share rising from barely 11 per cent in 1994–95 to 50 per cent in 2007–08. The share of dwellings, which was in excess of 90 per cent before 1980, came down to 83 per cent in 1995–96 and below 50 per cent by 2007–08.

Figure-III.4
Distribution of GDP at Current Prices from Real Estate, Ownership of Dwellings and Business Services



Within dwellings itself, a significant shift that took place over time was in the distribution of GDP between rural and urban dwellings. In 1950–51, GDP of urban dwellings was less than half that of rural dwellings. In 2007–08 however, it was 1.82 times the GDP of rural dwellings. It appears however that this redistribution in favour of urban dwellings has more to do with a rise in urban rental values relative to rural ones than with changes in the relative proportions of the 'quantities' of rural and urban dwellings. This is indicated by the fact that the expenses on repairs and maintenance moved less decisively in favour of urban dwellings than the gross rental amounts. Till the mid-1960s all three rural to urban ratios—of gross rental, GDP, and expenses on repairs and maintenance—were relatively stable. Since then

however, urban rental values started increasing and their ratio to rural gross rental values climbed from less than half to 1.7 by 2007–08. The ratio of GDP's also followed a similar pattern. The ratio of urban to rural expenditures on repairs and maintenance however increased only from 0.3 to 0.52 over the same period.

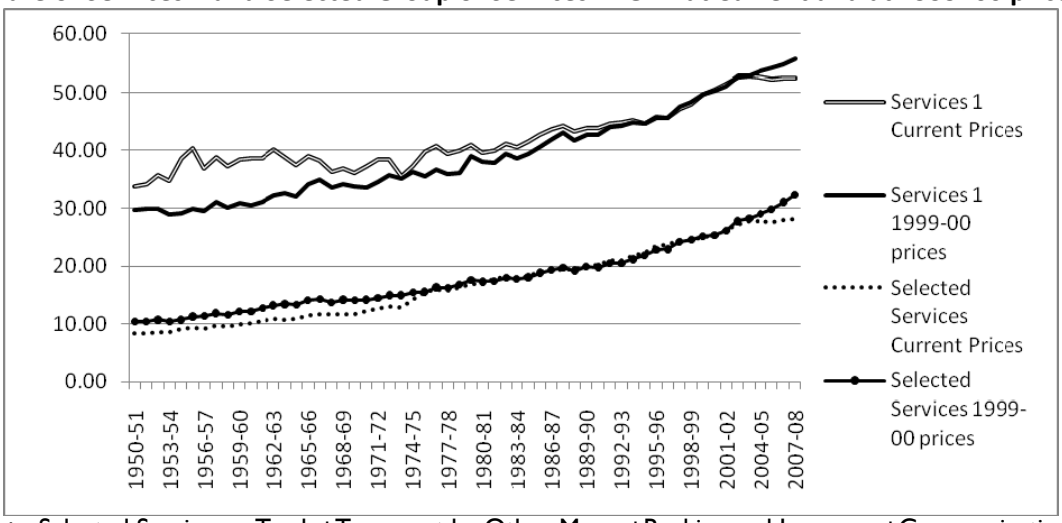
As far as other services are concerned, the main long-term trend has been a clear rise in the importance of community services relative to personal services. The former raised its share to over three-fourths of other services GDP at both current and constant prices, having started from levels of 37 per cent and 42 per cent or so respectively. Amongst community services, education followed by medical and health services have been by far the most prominent in driving the segment's growth. Surprisingly, the contribution of radio and TV broadcasting to the segment's GDP has not only remained low but become even more depressed since the mid-1990s. At both current and constant prices, radio and TV broadcasting accounted for only 0.25 per cent or so of the GDP of other services in 2007–08. In aggregate GDP therefore its share was miniscule. The rapid and visible expansion of television broadcasting in India in the last two decades therefore does not appear to have generated significant value added growth.

The Increasing Share of Services in GDP: The Four Major Services

Comparing on a point-to-point basis, or seen continuously over time (Figures -III.5, -III.6 & -III.7), virtually the entire increase in the share of services in India's GDP between 1950–51 and 2007–08 can be attributed to four services—Trade, Transport by other means (excluding railways that is), Communication, and Banking and Insurance. At current prices, these accounted for less than quarter of Services 1 output in 1950–51 and only a third at 1999–00 prices. At current prices their share in aggregate GDP increased from 8.32 per cent to 33.8 per cent between 1950–51 and 2007–08 while aggregate services output increased from 33.80 to 52.38 per cent. At constant 1999–00 prices the increase in shares was from 10.45 per cent to 32.27 per cent and 29.8 per cent to 55.73 per cent respectively. Apart from these four services, public administration and defence also made an important contribution to the growth of the services share till the end of the 1980s—the increase in its share in GDP being in the range of 3 to 4 percentage points at current and constant

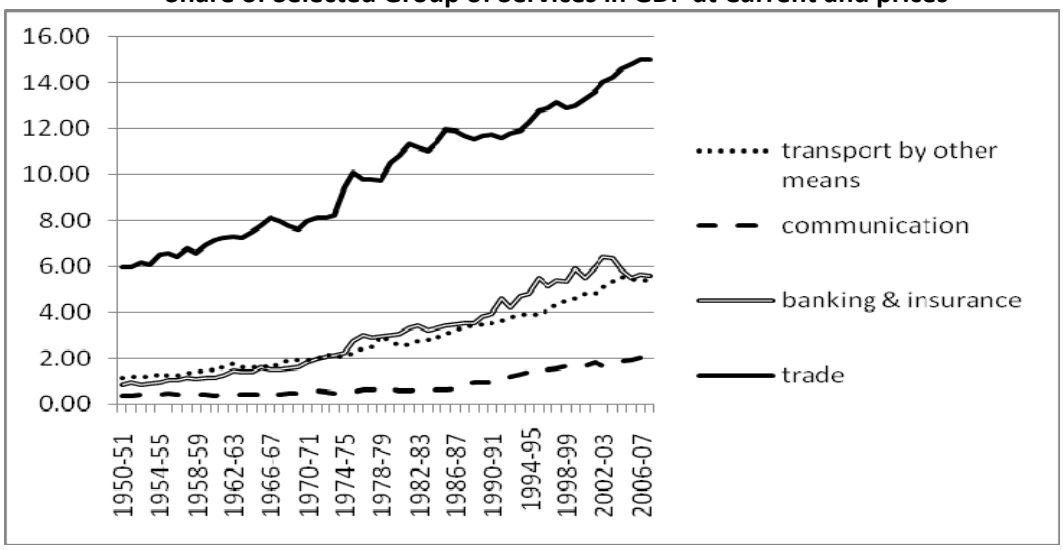
prices. In the two decades since then, albeit with a discontinuity as a result of the Fifth Pay commission, public administration and defence's share in GDP has been going down.

Figure-III.5
Share of Services 1 and Selected Group of Services in GDP at Current and at 1999–00 prices



Note: Selected Services = Trade+Transport by Other Means+Banking and Insurance+Communication

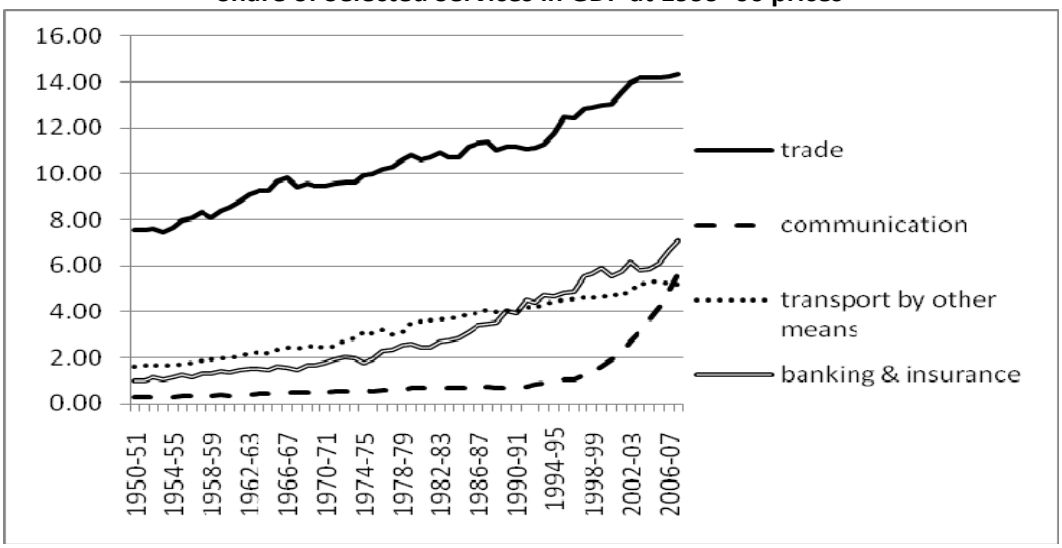
Figure-III.6
Share of Selected Group of Services in GDP at Current and prices



Amongst the four services responsible for most of the increased share of services, trade has grown steadily to become the most important, accounting for over 15.01 per cent and 14.35 per cent of aggregate GDP at current and 1999–00 prices respectively in 2007–08 after having started from a level of 6 per cent and under 8 per cent in 1950–51. Transport by other means has also similarly increased its share in GDP steadily over time even as the contribution of the railways has

declined. At constant 1999–00 prices the increase in its share was from 1.61 per cent in 1950–51 to 5.18 per cent in 2007–08 while at current prices the increase was from 1.14 per cent to 5.37 per cent. However, this service throws up another case of the apparent growth of a sector not showing up in value added terms, namely that of air transport. The rising trend in the share in GDP of transport by other means primarily reflects the trend of its dominant component, namely road transport. Since the mid-1990s, the relative contribution of road transport has increased further—from around 80 per cent in 1995–96 in both cases to 84 per cent and 86 per cent at 1999–00 and current prices respectively. At the same time, the share of air transport has declined, and in 2007–08 was just 3.88 per cent and 1.48 per cent of the sectoral GDP of transport by other means at 1999–00 and current prices respectively.

Figure-III.7
Share of Selected Services in GDP at 1999–00 prices



The growth of banking and insurance's share in GDP has also been a consistent feature, though it has been sharper since 1980. At 1999–00 prices in 1950–51, this segment accounted for just 1 per cent of aggregate GDP, increased to 2.60 per cent in 1979–80, 4.85 in 1995–96, and 7.09 per cent in 2007–08. At current prices, the shares in the same years were 0.86 per cent, 3.00 per cent, 5.49 per cent and 5.59 per cent respectively. Thus, the increase in the share of banking and insurance at constant prices after the mid-1990s was not replicated at current prices. This is mainly because of a decline of the current price share from a peak value of 6.40 per cent in 2002–03 in the same period in which the 1999–00 price share increased by nearly a percentage point from a 6.14 per cent level.

In the case of communication the mid-1990s were clearly an important turning point, when it became by far the fastest growing of all services. At constant 1999–00 prices, its share in aggregate GDP increased from 0.27 per cent in 1950–51 to 1.04 per cent in 1995–96 and then climbed steeply to reach 5.65 per cent by 2007–08. The movement in the share at current prices was similar till the mid-1990s but a little slower after mid-1990s—increasing from 0.37 per cent in 1950–51 to 1.45 per cent in 1995–96 and to 2.15 per cent in 2007–08.

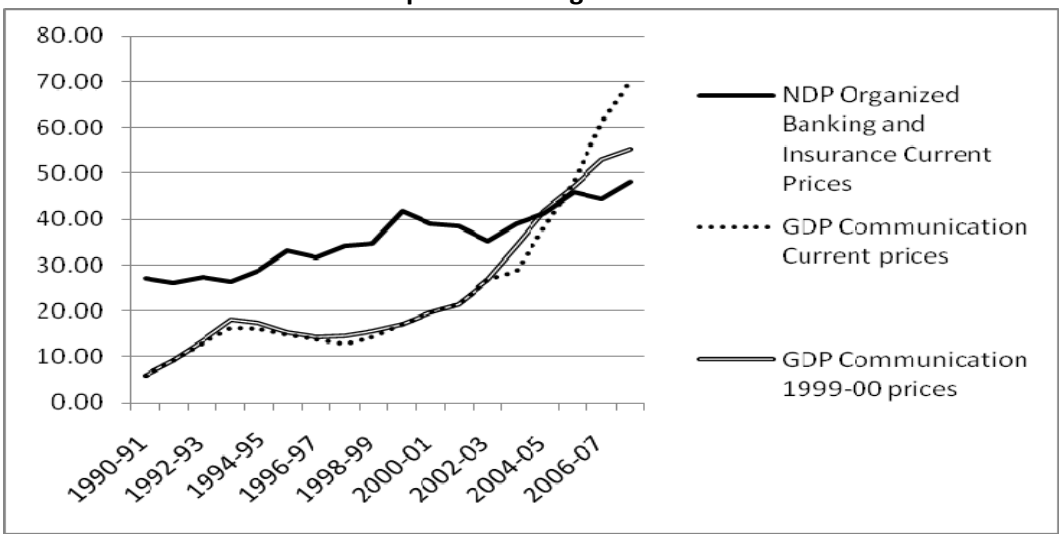
Changes in Services Output and the Transition to Services Dominated Growth

The rising share of services in GDP was accompanied by important changes in the composition of its output over the period 1950–51 to 2007–08. The broad patterns of change were similar before and after the transition to the services dominated growth pattern from 1980. Services like Real estate and ownership of dwellings, personal services, and railways accounted for a very large share of services output in 1950–51 but exhibited a long-term trend of declining importance. Others like trade, transport by other means, and banking and insurance, and community services exhibited the opposite trend. Thus the acceleration in services growth after 1980 was not associated with any major discontinuity in the direction of change in the structure of services output. The only difference was that business services and communication, which also belonged to the category of services steadily growing in importance, played an exceptional role in driving services growth after 1980 that was disproportionate to their original position of being very small segments of the services sector. This was however far more prominent after the mid-1990s than in the decade and a half before. By that time, the long-standing trend of rise in the share of public administration and defence in GDP had also reversed. Thus the shift from a public sector led to a private organized sector led growth pattern reflected to a greater extent changes in the kinds of services driving growth.

Changes in the composition of services output however can only partially account for the rising share of the private organized sector in services after the mid-1990s. The rapid growth of business services, a sector where the private organized sector was dominant, certainly contributed to this rise. But so did the increasing privatization of many services where the public sector had been dominant. Figure-

III.8 shows this for two major services—banking and insurance and communication. The output of the former did not grow more rapidly after the mid-1990s, but the share of the private organized sector in it increased significantly from less than 30 per cent in the early 1990s to nearly half by 2007–08. In the case of communication, the very sharp acceleration in growth after the mid-1990s was mainly through the private sector. Beginning from a situation where there was a public sector monopoly in communication at the beginning of the 1990s, the private sector share has now become twice that of the public sector. However, the NAS data for some reason suggests that this growth of the private sector in communication services is entirely due to its unorganized rather than organized segment. In fact, even in 2007–08, the entire NDP of organized communication is shown to be from public sector communication. If this is a result of some error then the increase in the share of the private organized sector in services and in aggregate GDP may have been underestimated.

Figure-III.8
Share of Private Sector in Output of Banking and Insurance and Communication



Summing Up

The transition to a more services dominated growth trajectory after 1980 was associated with a distinct acceleration in the pace of growth of the services sector. To a large extent this acceleration in growth hastened the pace of change in the composition of services output rather than changing its pattern. Four services—trade, transport by other means, banking and insurance, and communication—were

responsible for the major part of the increase in the share of services in GDP, both before and after 1980. The element of continuity in relation to the pre-1980 trends was greater in the period till the mid-1990s, before the transition to a private organized sector-led growth of services began. The emergence of a declining trend in public administration and defence, and the more pronounced contribution of business services and communication to services growth, made for a slightly different pattern in the last phase. This combined with increasing privatization of many services made for the rising importance of the private organized sector.

IV. Agriculture

The steady and significant decline in the share of agriculture in total output, as a result of its much slower growth, has been one of the singular features of the process of structural change in India since independence. Amongst the three broad sectors of the economy, agriculture was the largest contributor to India's GDP at the beginning. By now however it is by far the smallest. The sector however still remains the most important employer. Moreover, the apparently declining significance of the agricultural sector has been accompanied by important changes in it, including in the structure of its output. Many of these changes have happened slowly, not necessarily in a linear fashion, and become perceptible only over long periods of time. Yet they have happened so that the structure of agriculture's output is quite different now compared to what it was at independence. This section highlights some of these changes and their time patterns.

The agricultural sector consists of three broad segments—agriculture and allied activities, forestry and logging, and fishing. The first of these in turn has two components, agriculture proper and livestock and livestock production[19]. In order to clearly distinguish between them, we shall refer to the agricultural sector as a whole (i.e. agriculture and allied activities + forestry and logging + fishing) as simply agriculture, agriculture and allied activities (agriculture proper and livestock) as agriculture including livestock, and agriculture proper as agriculture proper.

The Declining Share of Agriculture in GDP: The Unevenness across Segments

The consistent decline in agriculture's share in GDP primarily reflects the trend in the share of it dominant component, namely agriculture including livestock (Figure-IV.1). At current prices, the share of agriculture and allied activities declined from 49.40 per cent in 1950–51 to 16.62 per cent in 2007–08. At 1999–00 prices, the

[19] According to the National Accounts Statistics Sources and Methods 2007, these two activities often go together and it is not always possible to separate the input use between them. In fact, while the value of output of agriculture and livestock are available in the NAS separately for the entire period, GDP is not. The back series with 1999-00 as base does not even give figures for domestic product of the livestock sector, though the 1999-00 series and earlier ones have included this variable since 1980-81.

decline over the same period was from 48.21 per cent to 16.34 per cent. Neither forestry and logging nor fishing however exhibited a similar consistent decline.

Forestry and logging's share in GDP began declining at both current and constant prices only in the early 1980s, coming down from over 2.2 per cent to barely 0.65 per cent by 2007–08 (Figure-IV.2). Till then the share did not decline at current prices but at constant 1999–00 prices it had fallen from an over 5.5 per cent level in 1950–51. In other words, improving relative prices of forestry and logging compensated for the slower growth in physical output before 1980. This however ceased thereafter so that the current and constant price shares declined in tandem.

The declining importance of fishing in India's GDP emerged even later than in the case of forestry and logging, only in the mid-1990s (Figure-IV.3). At constant 1999–00 prices, the share of this sector in GDP was less than 1 per cent in 1950–51, peaked at 1.28 per cent in 1974–75 but was still close to that level, at 1.24 per cent, in the mid-1990s. After that it declined to around 0.8 per cent of GDP by 2007–08. Between the mid-1990s and 2007–08, the decline in the share at current prices was similar, having started from 1.09 per cent in 1994–95. However it rose to that level from just a 0.41 per cent in 1950–51. Thus, till the mid-1990s both its real growth as well as movement in relative prices contributed to maintaining and even marginally improving the relative position of fishing in the India economy's output. This however changed afterwards.

The differences in the rates of growth of agriculture including livestock and those of forestry and fishing did not have any effect on the overall trend for agriculture's share in GDP because the latter two segments remained very small relative to the first (Figures -IV.4 & -IV.5). Fishing certainly grew faster than agriculture proper over a long period of time, but its share in the GDP of agriculture at its peak was a little over 5 per cent at both current and constant 1999–00 prices. Forestry and logging did not over the long run grow faster, but for some period gained relative to agriculture including livestock because of price movements. Its share in GDP at current prices however peaked at around 6.5 per cent at the end of the 1970s. At constant 1999–00 prices it had touched or came close to 10 per cent only till the mid-1960s, but declines significantly thereafter. Thus the dominant

position within agriculture of agriculture including livestock was never disturbed and it virtually always accounted for over 90 per cent of the GDP of agriculture. The positions of fishing and forestry relative to each other changed more significantly, with the former growing in importance in comparison to the latter.

Figure-IV.1
Share of Agriculture, including Livestock, in GDP (Percentage), 1950–51 to 2007–08

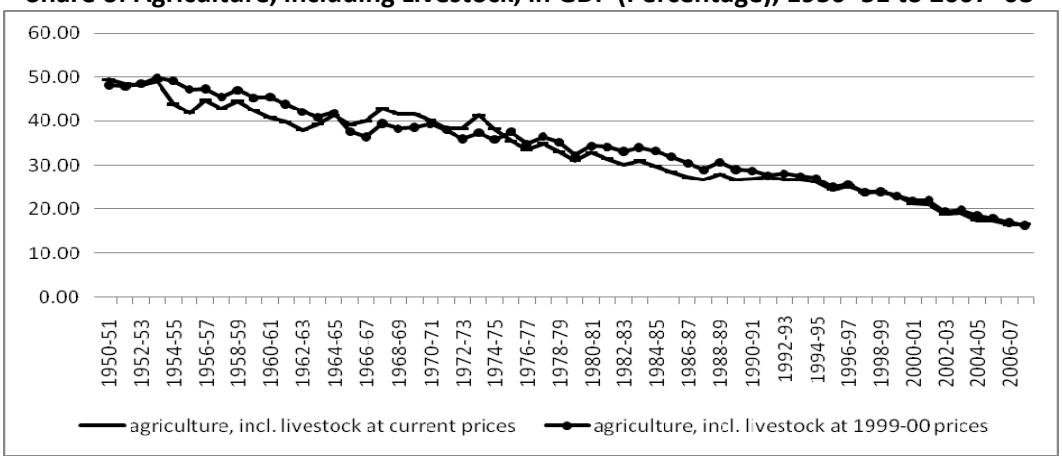


Figure-IV.2
Share in GDP of Forestry and Logging

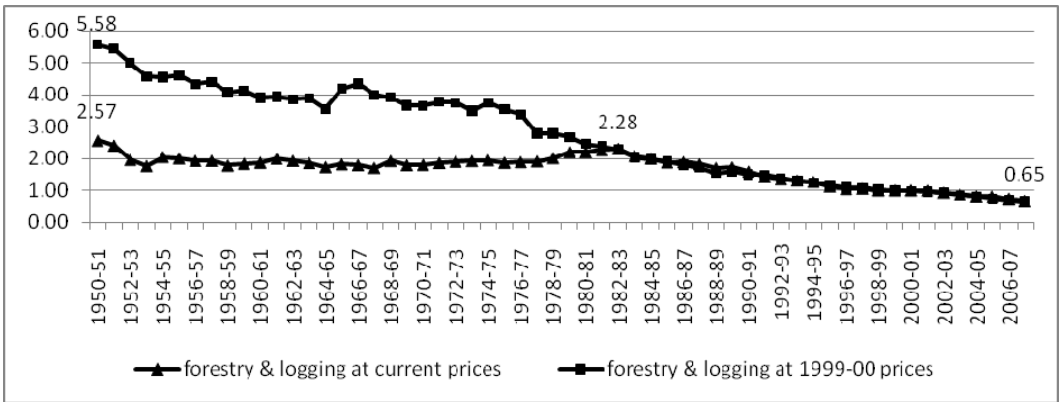


Figure-IV.3
Share in GDP of Fishing

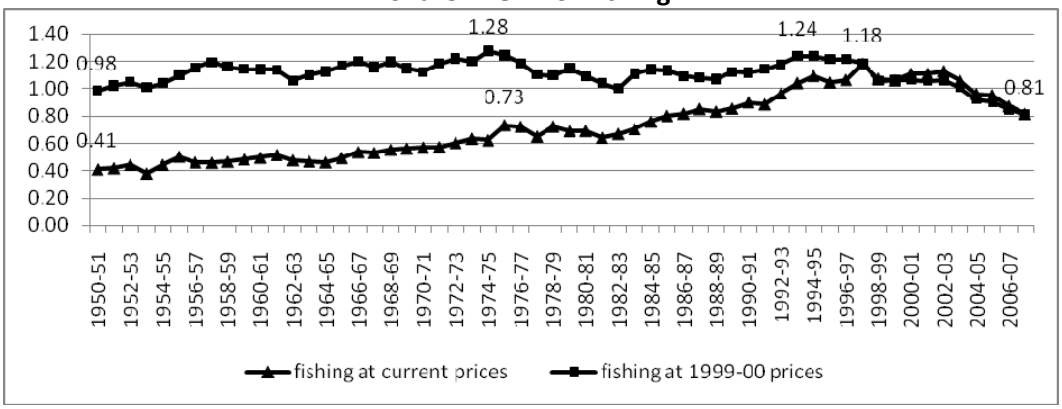


Figure-IV.4
Distribution of GDP of Agriculture, Forestry and Fishing at Current Prices

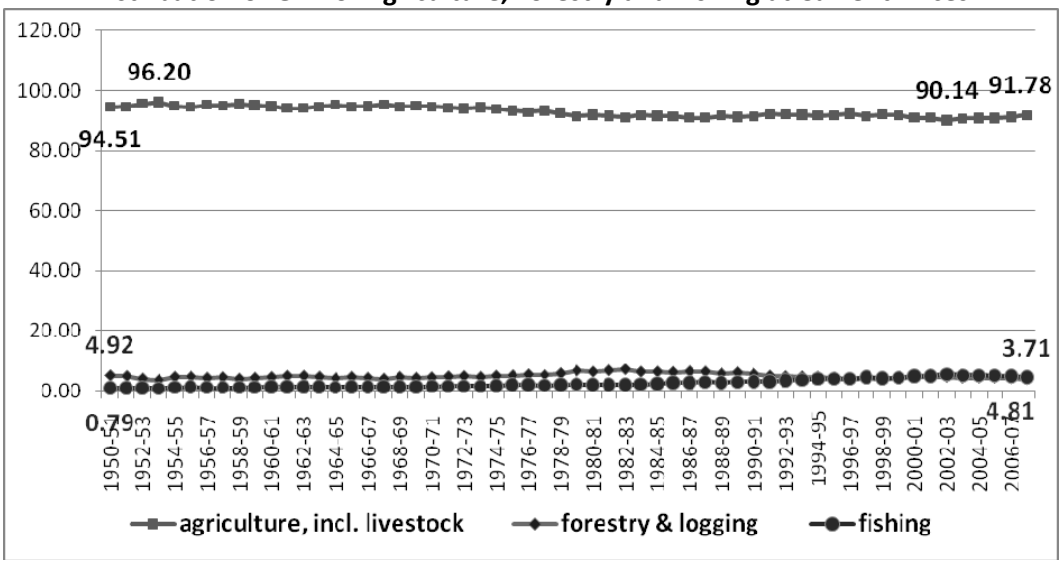
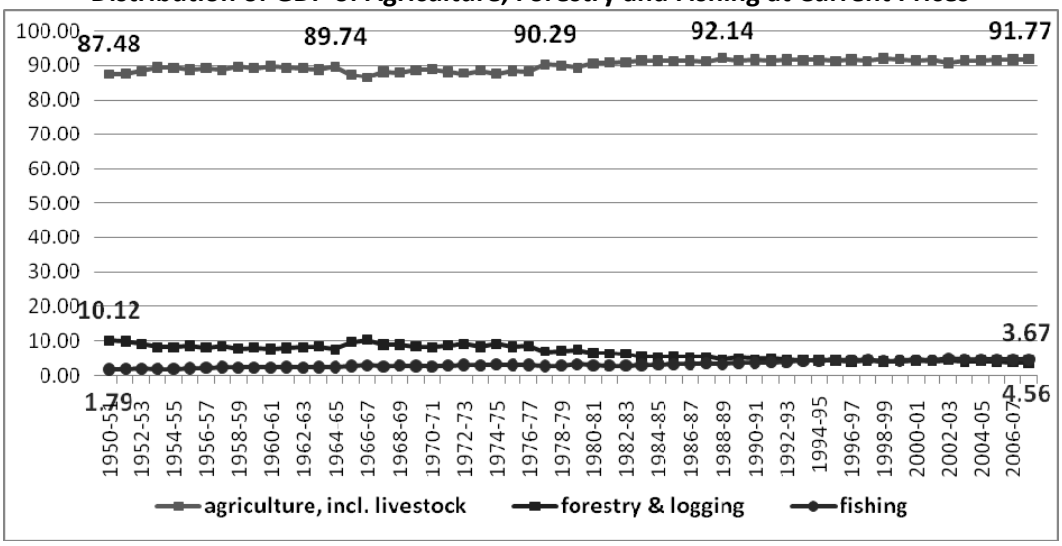


Figure-IV.5
Distribution of GDP of Agriculture, Forestry and Fishing at Current Prices



Within the major sector of agriculture, the relative positions of agriculture proper and livestock also did not remain stable. If a comparison is made of the value of output of the two sectors, two different trends are discernible before and after 1970 (Figure-IV.6). In the earlier period, crop production seemed to have been growing faster than livestock production whose value of output at current prices was reduced to 15 per cent of that of agriculture proper from just over 20 per cent in 1950–51. This trend was decisively reversed after that and by 2007–08, the value of livestock output was over 37 per cent of the value of output of agriculture proper. Indeed, there was clearly a significant increase in the pace of growth of livestock output so that its GDP growth rate even exceeded the rate of growth of

aggregate GDP for more than a decade after 1980. Thus, despite the fact that India's aggregate growth rate itself went up after 1980, the share of livestock in GDP increased from just under 5 per cent at current and at 1980–81 prices in 1980–81 to nearly 7 per cent and 6 per cent respectively by the early 1990s when these trends were reversed (Figure-IV.7).

Figure-IV.6
Ratio of Value of Output of Agriculture Proper to Value of Output of Livestock

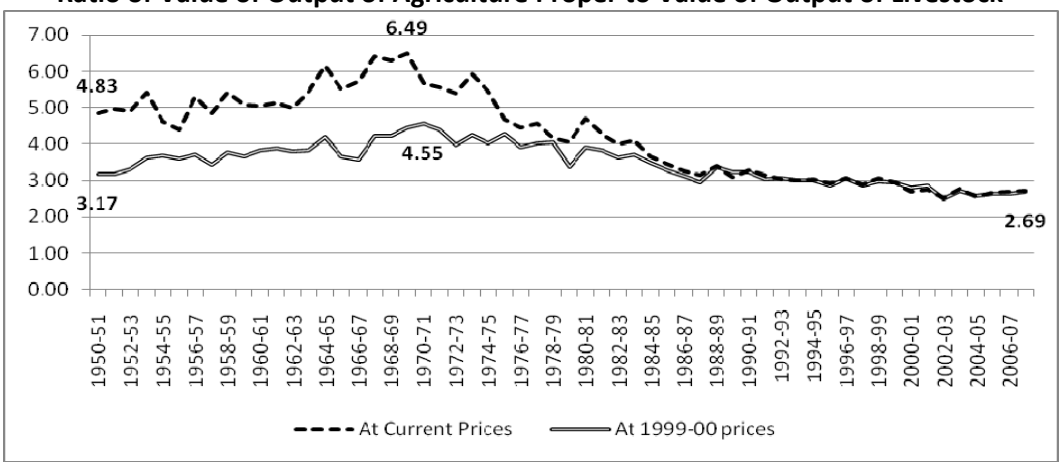
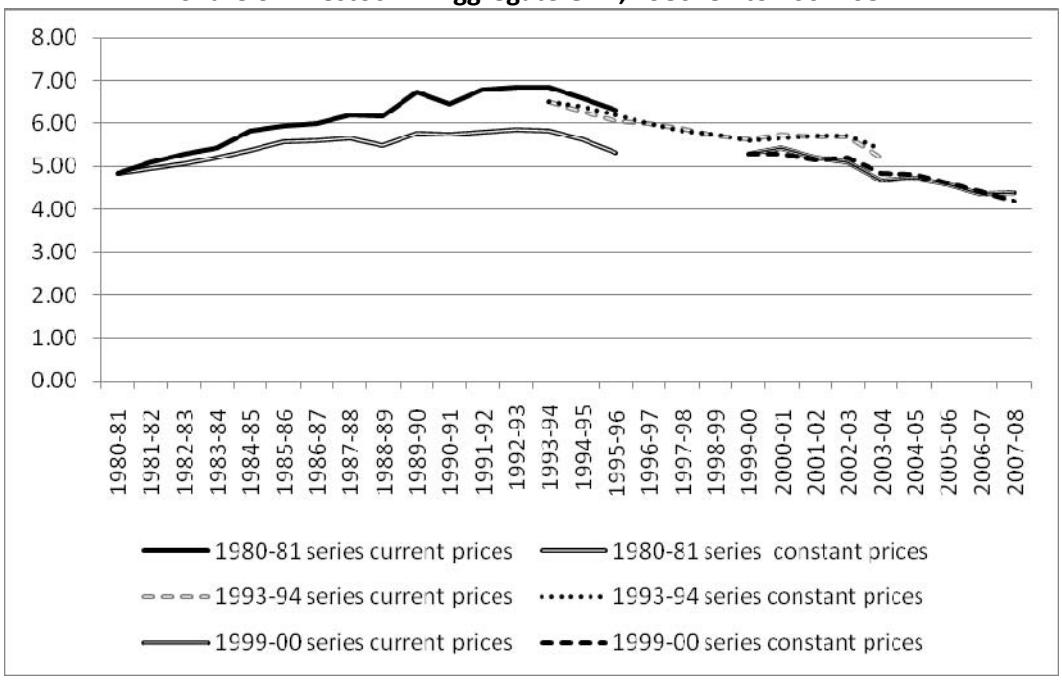


Figure-IV.7
Share of Livestock in Aggregate GDP, 1980–81 to 2007–08



To sum up this part then, while the share of agriculture in GDP has declined consistently since independence, the generalization of this trend to every segment of agriculture—agriculture proper, livestock, forestry and fishing—has been a relatively recent development. It is only since the mid-1990s that this has become a feature of

the Indian economy. Till then, one or more of three segments of the sector other than agriculture proper managed to buck the trend either because of favourable relative price movements or because of their real output growth being high enough. In other words after the mid-1990s all the segments of agriculture made for the declining trend in its share in GDP but before that it was only agriculture proper which was the consistent contributor. Or put differently, since the mid-1990s every segment of agriculture has been growing slower than the national economy as a whole.

Changes in the Composition of Agricultural Output

The unevenness in the trends in the share in GDP of different segments of agriculture indicates only very broadly the pattern of structural changes in agricultural output. To get a clearer picture of these changes, it is necessary to look at a more disaggregated picture of the distribution of agricultural output. This is possible only if we use the data on values of output since GDP figures are not available at a higher level of disaggregation. Appendix Table-1 shows the distribution of the value of agriculture's output between 1950–51 and 2007–08. From an examination of this distribution and the changes in it over time, the following can be identified as the key features of the process of the structural change in agricultural output since independence:

1. The trends in the shifts in the distribution of value of output of agriculture between the four major segments—agriculture proper, livestock, forestry and logging, and fishing -before and after 1970 were slightly different. Specifically, the decline of agriculture proper in agricultural output, relative to both livestock production as well as fishing, has been a post-1970 phenomenon. Till the mid-1970s, agriculture proper contributed around 80 per cent of the value of output of agriculture at current prices. By the 2007–08 however this share had dipped to below 68 per cent. The share of livestock came down from over 15 per cent to under 13 per cent over the 1960s, but then increased to nearly 25 per cent by 2007–08. The share of fishing was around or just over 1 per cent till the end of the 1960s. In 2007–08 however, it was 4.35 per cent.

At constant 1999–00 prices too the trends were similar. The share of agriculture proper in value of agricultural output increased from close to 68 per cent to over 73 per cent by the end of the 1960s but then returned to its original level by 2007–08. The share of livestock declined from over 21 per cent to just around 16 per cent and then rose to over 25 per cent over the same periods respectively. Fishing improved its share in both periods but relatively marginally before 1970 in comparison to the increase after which was from about 2.5 per cent to 4.23 per cent by 2007–08.

2. The relative decline of agriculture proper after 1970 chiefly reflects the trends in the share of foodgrains (cereals and pulses) and other crops and by-products in agricultural value of output. Three quarters to 80 per cent of the gross area under cultivation in India has always been devoted to the production of foodgrains. The share of foodgrains in the value of agricultural output and of even crop production has been lower, at best around half the value of the latter. This share however was squeezed further after 1970 due to both relative price movements as well as the relative trend in the physical output growth of the sector. At current prices, the share of foodgrains in the value of agricultural output stood at over 43 per cent in the late 1960s, up from about 38 per cent at the beginning of the decade. By 2007–08 it was little over 23 per cent. At constant 1999–00 prices, it rose from under 28 per cent in 1950–51 to over 32 per cent in the late 1950s, stayed in the range of that level for the next three decades without surpassing it, and then declined sharply to just over 24 per cent by 2007–08.

3. As indicated earlier, livestock production trends were somewhat opposite to that of foodgrains. At current prices its share in agriculture's value of output came down by over three percentage points over the 1960s, starting from 15.75 per cent in 1960–61. After that it increased and by the end of the 20th century caught up with the share of foodgrains in agriculture's values of output, which was then about a quarter. At constant 1999–00 prices too the share of livestock in agriculture's value of output was similar—from 21.34 per cent in 1950–51 it dropped to just over 16 per cent by the end of the 1960s, and crossed 25 per cent by 2007–08. These rises in the livestock sector's

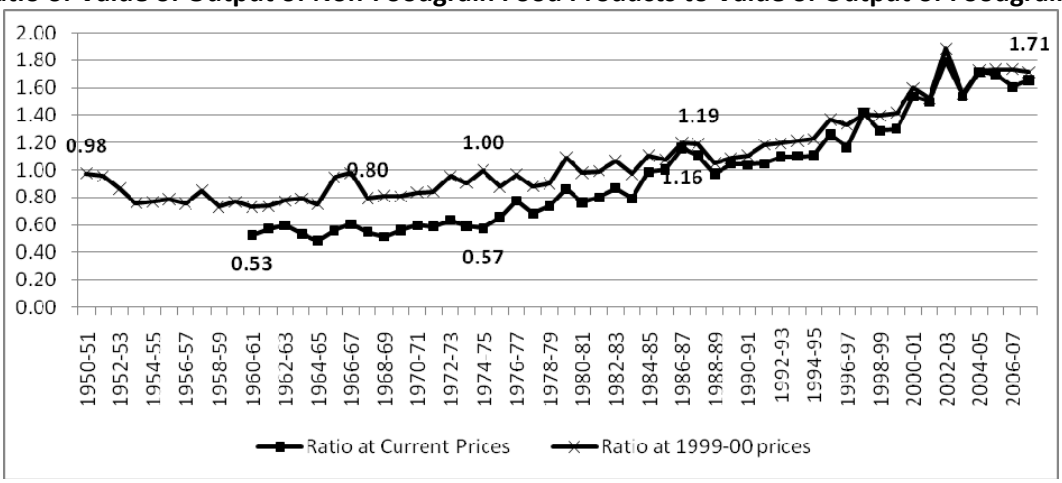
share in agricultural output was driven chiefly by the relative growth of the milk group. This group's share in agriculture's value of output rose from just over 8.5 per cent at current prices and 9 per cent at 1999–00 prices at the end of the 1960s to nearly 17 per cent in both cases by 2007–08. It appears therefore that relatively speaking, the 'White Revolution' ushered in by Operation Flood had a greater output impact than the 'Green Revolution'.

4. In both agriculture proper as well as the livestock sector, however, there were important groups of products whose shares in agricultural output moved in a different direction than that of the segment as a whole. In contrast to the declining share of foodgrains after 1970, the value of output of fruits and vegetables exhibited more or less consistent growth before and after that year, more sharply from the late 1980s. At current prices, its share in agriculture's value of output increased from 8.3 per cent in 1950–51 to over 17 per cent by 2007–08. At constant 1999–00 prices, the same share increased from 10.04 per cent to 16.39 per cent, with the increase being after the mid-1960s. Similarly, the aggregate share in agriculture's value of output of the group made up of the classical cash crops—oilseeds, sugars, fibres, drugs and narcotics, and condiments and spices—did not decline. At current prices it showed long-term stability, being 18.35 per cent in 1950–51 and 18.74 per cent in 2007–08. At constant 1999–00 prices it stayed at around 14 per cent throughout till the late 1980s but then drifted upwards to be at 18.13 per cent in 2007–08. On the other hand, within livestock, dung, used as manure as well as fuel, was a major component at the beginning of the period but its share in the output of agriculture declined in quantity terms, at constant 1999–00 prices from over 5 per cent in 1950–51 to less than 2 per cent by 2007–08. At current prices though the decline in dung's share was much less. In quantity terms, the share of the meat group also dipped slightly between the mid-1960s and 1980 and then increased till the mid-1980s. Over the entire period from 1950–51 to 2007–08 its share did not therefore show any significant increase, staying at a little over 4 per cent of the value of agricultural output. It however increased in current prices because of a rise in the average relative price—from 1.64 per cent in 1960–61 to 3.53 per cent in 2007–08.

5. The above trends point towards another clear long-term trend, of change in the of food production composition of Indian agriculture. A comparison of the relative movement of foodgrain value of output and of other foods directly consumable—fruits and vegetables, milk group, meat and meat products, eggs, and fish—is shown in Figure-IV.8. It reveals that at independence and for nearly two decades thereafter, foodgrains dominated the food production basket in India. The value of foodgrain output was more than that of these other food products and at current prices twice their level. Thereafter, that is after the Green Revolution, the non-foodgrain food component increased greatly in importance and relegated foodgrain production to a secondary status. By the 21st century, the value of foodgrain production at constant 1999–00 as well as current prices was less than 60 per cent of the abovementioned food products.

Figure-IV.8

Ratio of Value of Output of Non-Foodgrain Food Products to Value of Output of Foodgrains



6. Within the foodgrains group too, divergent trends can be observed. The share of pulses in foodgrain output (physical) exhibited a declining trend till the beginning of the 1990s and stabilized thereafter. In the process their share in the value of output of foodgrains at constant 1999–00 prices fell from over 27 per cent in 195–51 to the 12–13 per cent range. This was however somewhat compensated by increases in relative prices so that the share of pulses at current prices remained relatively steady in the 12–14 per cent range. The cereal share in foodgrain output after the green revolution was upheld mainly by wheat, whose importance increased considerably at the expense of both

paddy as well as other grains (Figures -IV.9 & -IV.10). In 1950–51, wheat accounted for less than 10 per cent of the value of foodgrains output at constant 1999–00 prices and a little over 13 per cent at current prices. In 2007–08 these stood at nearly 28 per cent and 32 per cent respectively.

Figure-IV.9
Share of Cereals in Foodgrain Value of Output at Current prices

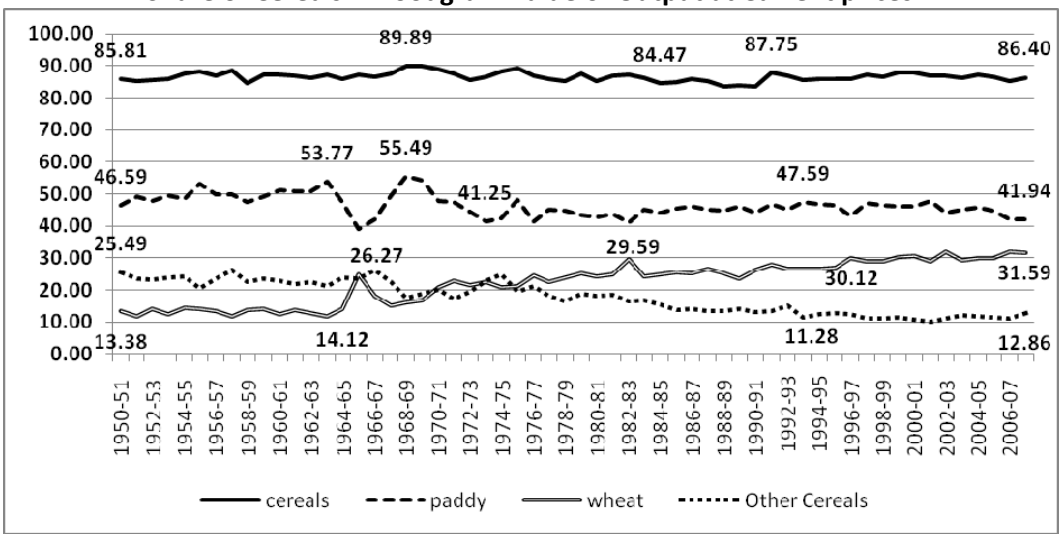
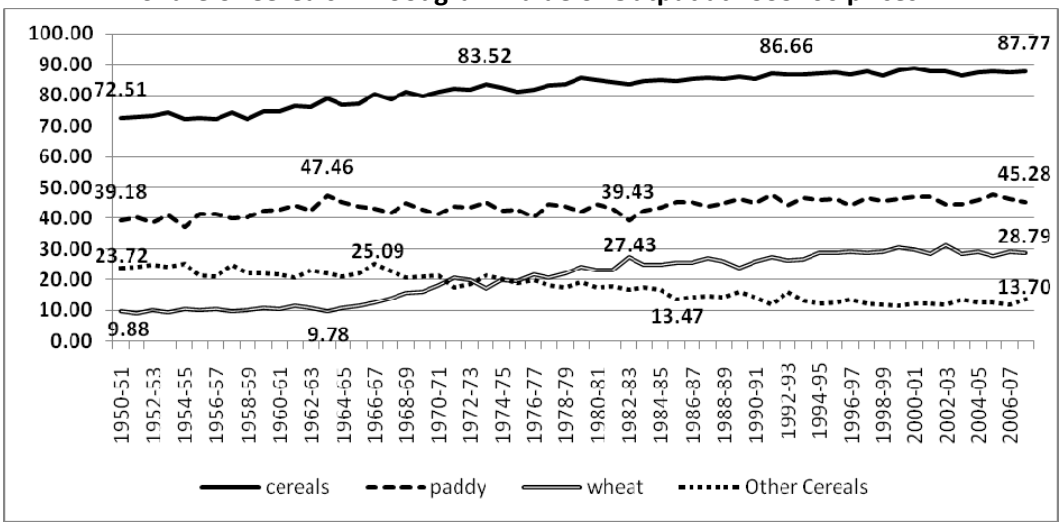


Figure-IV.10
Share of Cereals in Foodgrain Value of Output at 1999–00 prices



7. Amongst cash crops, apart from some relative decline in tea production compared to coffee, the major change has been within oilseeds. Groundnut was by far the dominant oilseed at independence, accounting for over half of oilseed value of output in 1950–51 at both current as well as 1999–00 prices. This position of groundnut was eroded somewhat by the growth of soyabean, whose production started really only in the 1970s, and also some increase in

the share of rapeseed and mustard in the 1980s. By 2007–08 groundnut accounted for less than a third of oilseed output and soyabean around 23 per cent at 1999–00 prices and over 27 per cent at current prices.

The Paradoxical Combination of Changes in the Output and Input Composition in Indian Agriculture

Along with the changes in the composition of output, the input composition of Indian agriculture including livestock has altered quite considerably since independence. Some of the key changes highlighted by Figures -IV.11 to -IV.16 are the following:

1. At constant 1999–00 prices, the share of chemical fertilizers in the total value of inputs increased steadily over time, from less than 1 per cent in 1950–51 to 18.5 per cent in 2007–08. At the same time, the share of organic manures declined from over 16 per cent to just over 5 per cent. At current prices however the share of chemical fertilizers, after rising to nearly 25 per cent in the late 1980s when the share at 1999–00 prices was under 14 per cent, declined to around 17 per cent by 2007–08. In other words, while the physical quantity of chemical fertilizers used has grown faster than the average for all inputs since the late 1980s, their prices have grown at a below average pace.
2. The shares of a group of other inputs like diesel oil, market charges, and financial intermediation services which were relatively small in 1950–51 have also increased substantially over time. Together these inputs accounted for just 3.86 per cent of the value of inputs at 1999–00 prices in 1950–51 and about 5 per cent at current prices in 1960–61. By 2007–08 the 1999–00 price share was nearly 22 per cent and the current price one over 28 per cent.
3. Apart from organic manure, the shares of two other inputs in the total value of inputs showed a long-term decline. These two were seeds and the feed of livestock. The share of seeds at 1999–00 prices came down from 15.74 per cent to 7.03 per cent between 1950–51 and 2007–08, and at current prices from 15.47 per cent in 1960–61 to 7.84 per cent in 2007–08. The most significant decline however was in the share of what was the most important input at independence, namely feed of livestock. At current prices, the share of livestock

feed in the value of inputs came down from nearly 61 per cent in 1960–61 to under 38 per cent in 2007–08. At constant 1999–00 prices, this share stood at 76.61 per cent in 1950–51 but in 2007–08 it was considerably lower at 46.43 per cent.

Figure-IV.11
Shares in Value of Inputs at 1999–00 prices: Agriculture, including Livestock

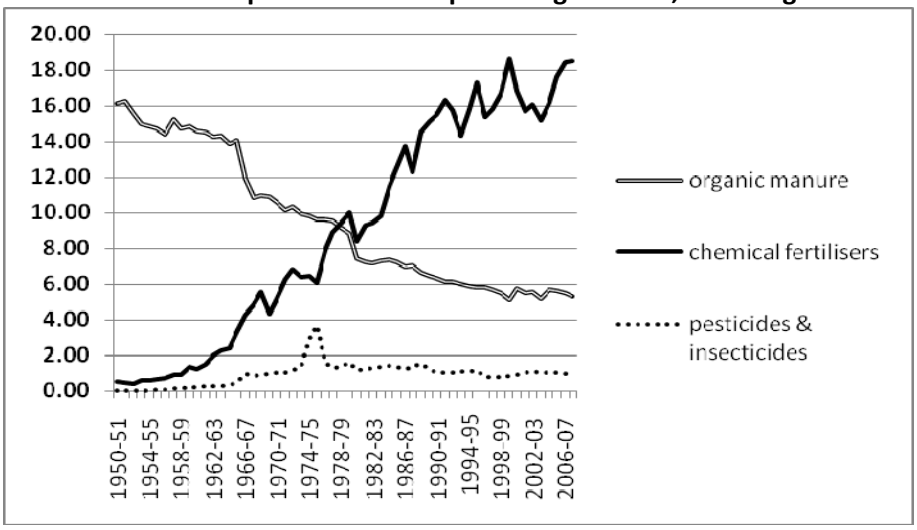


Figure-IV.12
Shares in Value of Inputs at 1999–00 prices: Agriculture, including Livestock

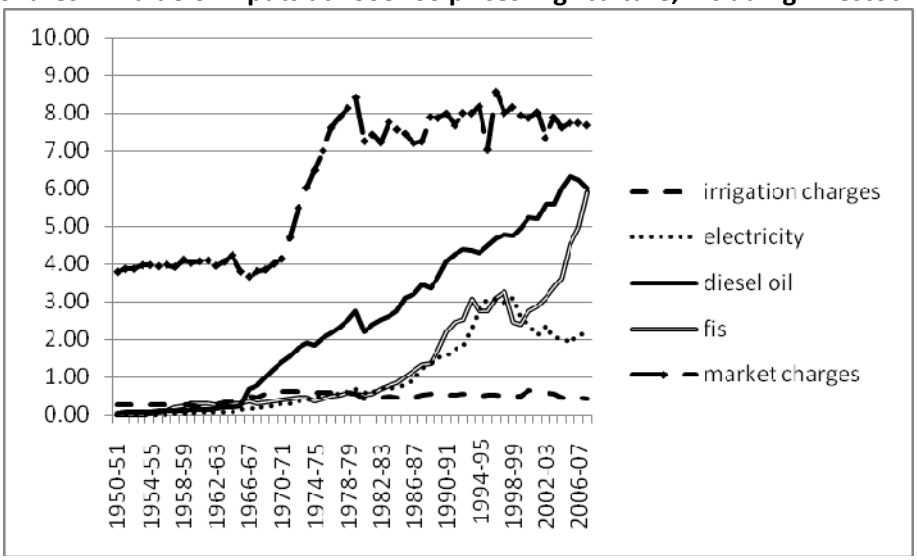


Figure-IV.13
Shares in Value of Inputs at 1999–00 prices: Agriculture, including Livestock

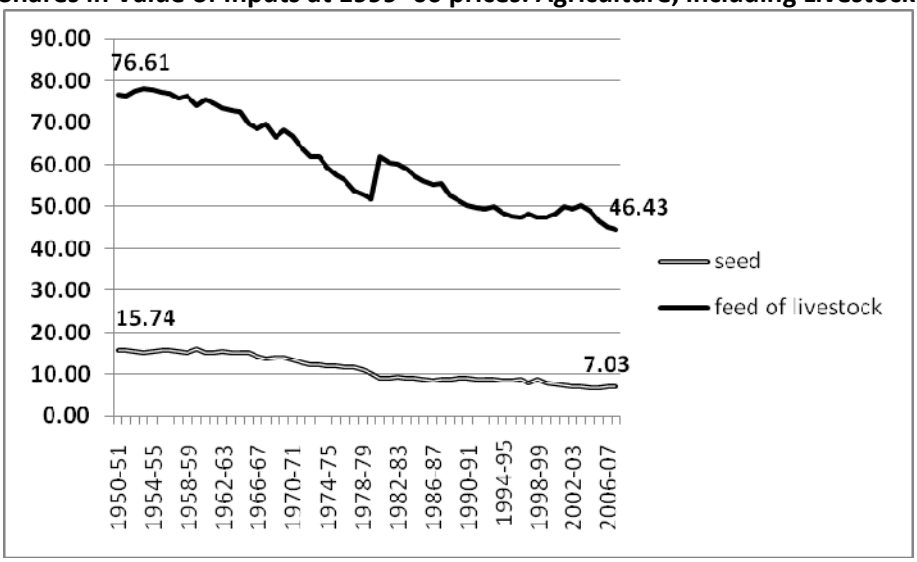


Figure-IV.14
Shares in Value of Inputs at current prices: Agriculture, including Livestock

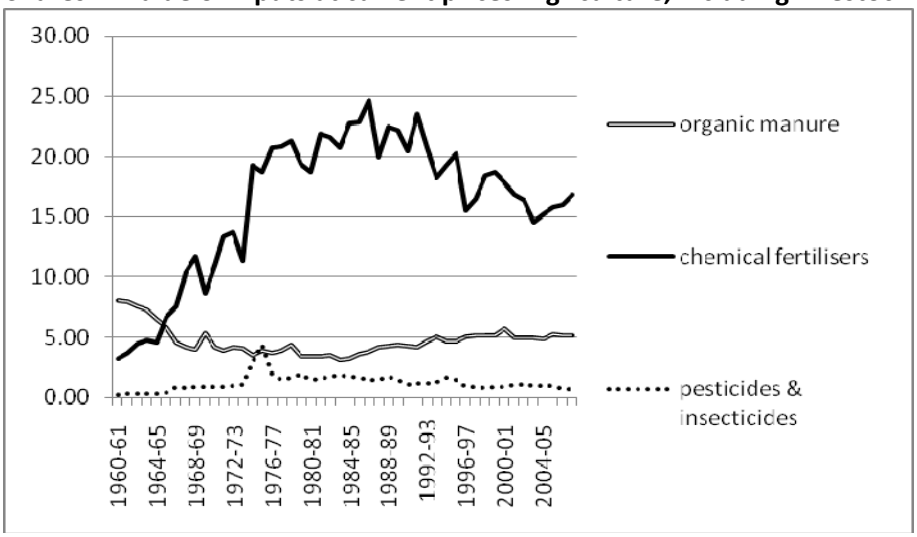


Figure-IV.15
Shares in Value of Inputs at current prices: Agriculture, including Livestock

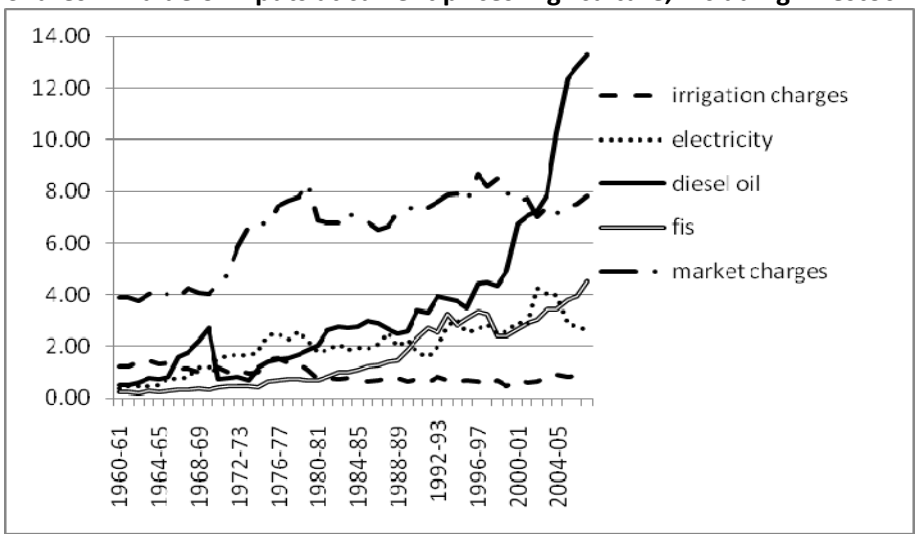
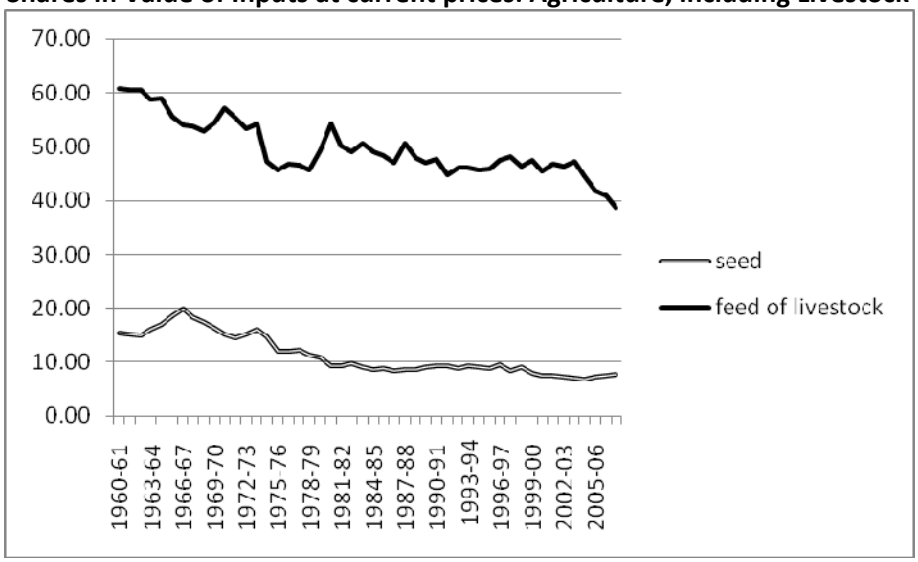


Figure-IV.16
Shares in Value of Inputs at current prices: Agriculture, including Livestock



Some of the changes in input composition highlighted above, such as the increasing shares of chemical fertilizers, market charges, diesel oil, etc. are along expected lines. Even the declining trend in the share of seed could be attributed to the combined effect of the falling share of foodgrains and the spread in the use of more productive HYV seeds[20]. Paradoxical however at first sight is the decline in the share of livestock feed in total input consumption, particularly because this continued even after the share of livestock in agricultural output started increasing. Since 1980 or so, the value of livestock output and of livestock feed to total value of output of

[20] The ratio of output of agriculture proper to the seed input at 1999-00 prices increased considerably from under 23 in 1950-51 t0 nearly 47 by 2007-08.

agriculture including livestock have moved very sharply in opposite directions (Figures –IV.17 & -IV.18). In 1980–81, the values of livestock output and livestock

Figure-IV.17
Percentage to Value of Output of Agriculture including Livestock at Current Prices

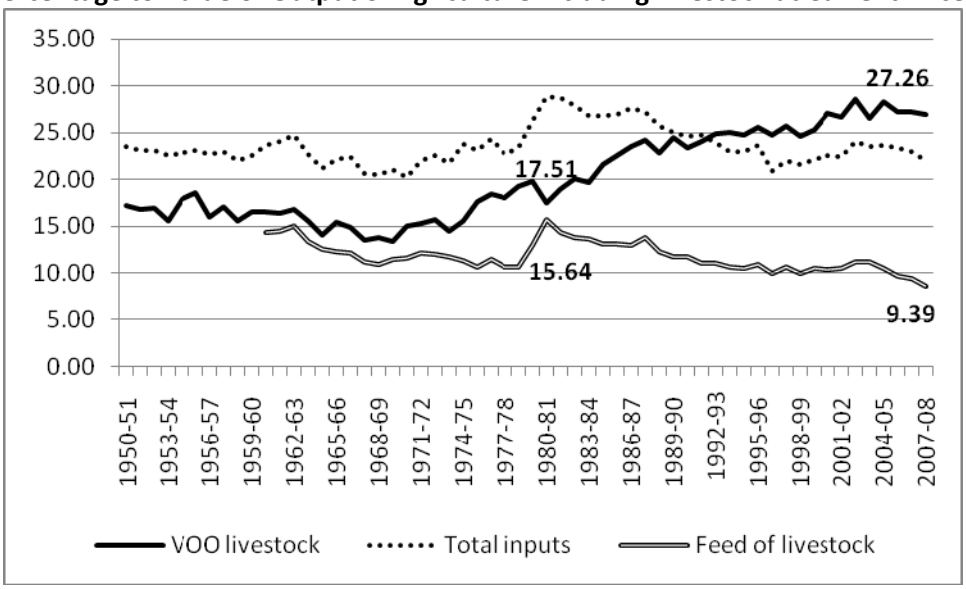
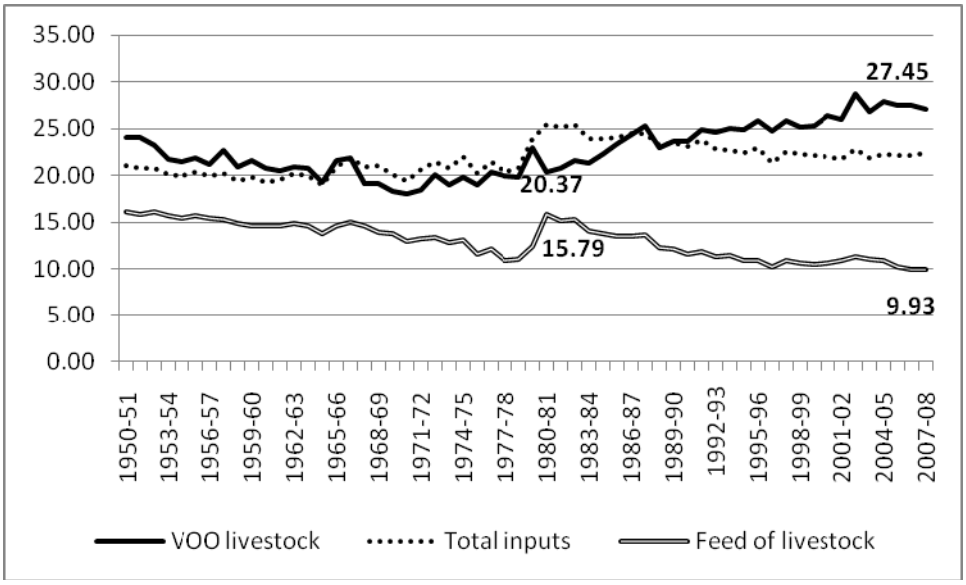


Figure-IV.18
Percentage to Value of Output of Agriculture including Livestock at 1999–00 Prices



feed as percentages of the value of output f agriculture including livestock were at 17.51 and 15.64 respectively. By 2007–08, the former increased to 26.9 per cent while the latter came down to below 9 per cent. This contrasting movement in the two cannot be attributed to divergent trends in output and input prices because the trends at constant prices were similar. The value of livestock output at 199–00

prices was 20.37 per cent of the value of output of agriculture including livestock in 1980–81 and increased to 27.09 per cent by 2007–08. Over the same period the value of livestock feed as a percentage of the value of output came down from 15.79 per cent to below 10 per cent.

Alongside the relative decline in the price of chemical fertilizers, the decline in the share of livestock feed to agricultural output has played a major role in holding down the cost of inputs relative to output value in agriculture. In livestock production itself, the value added share in value of output increased after 1980, most sharply in the first decade of the period (Figures –IV.19 & -IV.20). In the case of agriculture proper however, the rising trend was reversed in the second half of the 1990s and ultimately cancelled out (Figure-IV.21).

Figure-IV.19
GDP as Percentage of Value of Output of Livestock Sector at Current prices

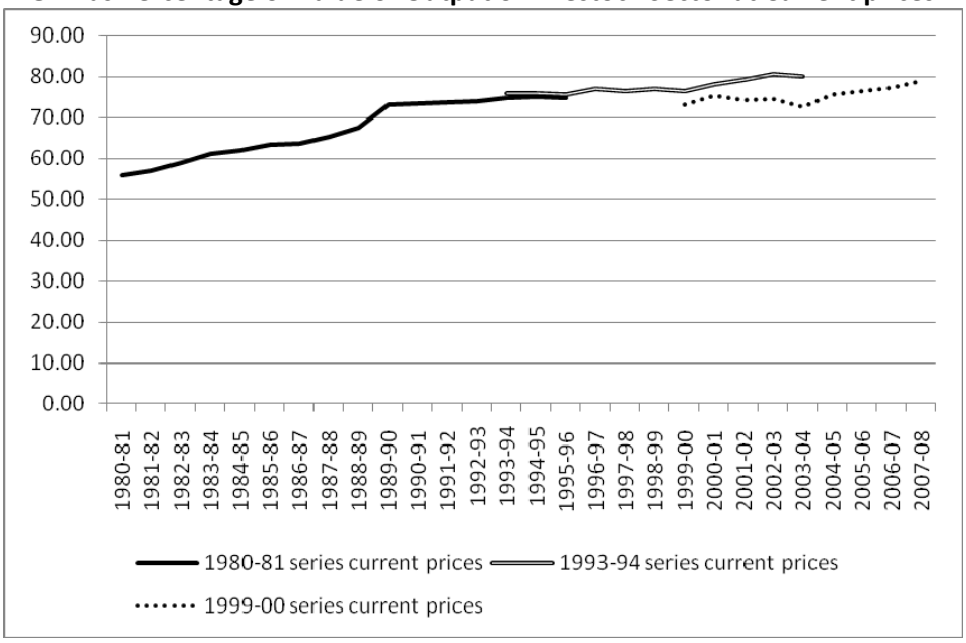


Figure-IV.20
GDP as Percentage of Value of Output of Livestock Sector at Constant prices

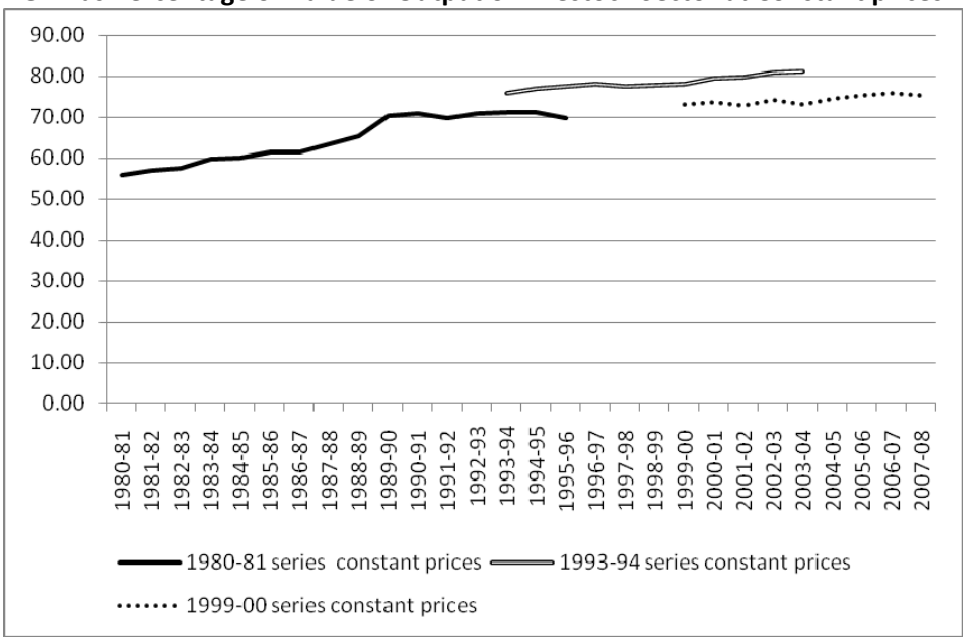
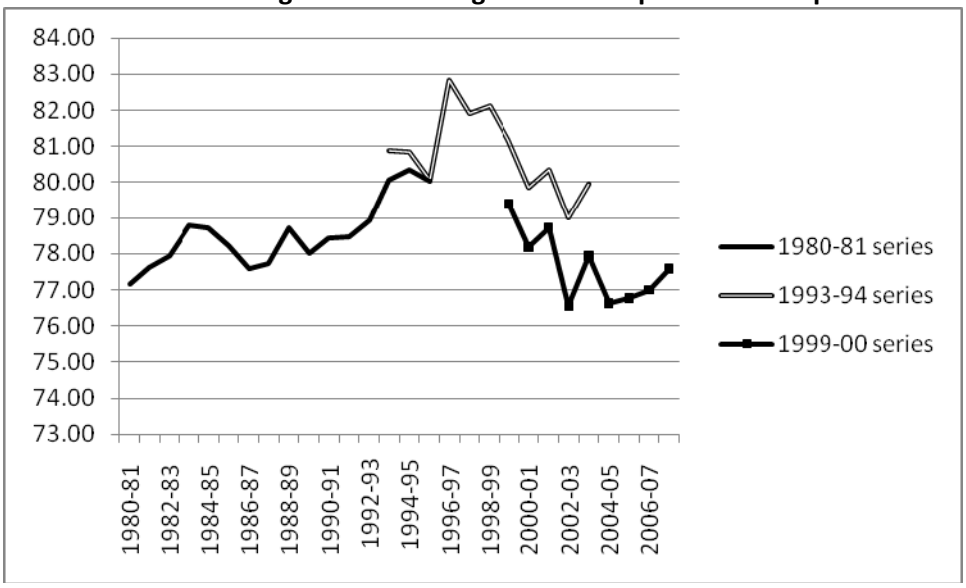


Figure-IV.21
GDP as Percentage of Value of Agriculture Proper at current prices



The contrasting trends in livestock feed and livestock output shares in value of agricultural output must be considered one proximate reason why India has not so far confronted in a major way the food versus feed tradeoff[21]. The rising share of livestock in output has not had a proportionate impact on livestock feed consumption, and to that extent the effects of a declining share of grain production on the availability of grain for direct human consumption has been tempered. In

[21] Patnaik (2009) has highlighted the issue of such a tradeoff.

India's case of course, the use of cereals as livestock feed is relatively limited (Bhalla, Hazel and Kerr 1999). This however is also considered one reason for the low productivity, by international standards, of India's livestock sector. Moreover, the sustenance of low levels of use of cereals as feed in the face of growing livestock output would also have been possible only because of the declining share of livestock feed. The question still therefore remains—why did this decline happen? A limited examination of the literature indicates that the changing composition of livestock output and of the livestock population rather than technological factors may explain the paradox. These are related to certain peculiarities of the Indian livestock sector—the extraordinarily large share of dairy products (milk group) in livestock output, the high importance of chicken and eggs relative to non-poultry meat, and the exceptional contribution of buffaloes to milk production.

As indicated earlier, the share of the milk group in quantity terms has tended to increase alongside the rising share of livestock in agricultural output. Additionally, while poultry meat and eggs have grown faster and increased their combined share in livestock output, the share of other meats has remained stable (Figures -IV.22 & -IV.23). The significance of this lies in the fact that the feed requirement per unit of milk production is significantly lower than for an equivalent quantity of meat and eggs, and greatly less in the case of poultry compared to non-poultry meats (Sarma and Gandhi 1990; Bhalla, Hazel and Kerr 1999)[22]. Thus, the rise in the share of the milk group and of poultry in Indian livestock production can be considered one factor behind the growth of livestock feed not keeping pace with that of livestock output. A related factor, insofar as it underlies the changing composition of output, has been the changes in the composition of livestock population accompanying the changing use of livestock (Tisdell and Gali 1999, Sharma 2004, and Chand and Raju 2008). With the declining importance of non-food uses of livestock, the share of work animals has declined while that of productive animals has increased. In the bovine population, the in-milk bovine proportion has increased, and within it the buffalo population has grown faster. The fastest growth of livestock population has

[22] Equivalent quantities of different livestock products of course have different values, but it appears unlikely that relative unit prices have been in the same ratio as relative feed requirements. For instance, feed requirements for milk are only about a tenth of that for an equivalent amount of chicken so that the feed requirement per rupee of milk output would be less than that for a rupee of chicken as long as the unit price of chicken happened to be less than ten times that of milk.

taken place in poultry. The rising share of livestock giving rise to livestock output would of course tend to raise the livestock output to livestock feed ratio. The rising proportion of buffaloes to cattle may have reinforced this effect because buffaloes can consume feed that cattle cannot.

Figure-IV.22
Shares in Value of Livestock Output at 1999–00 prices

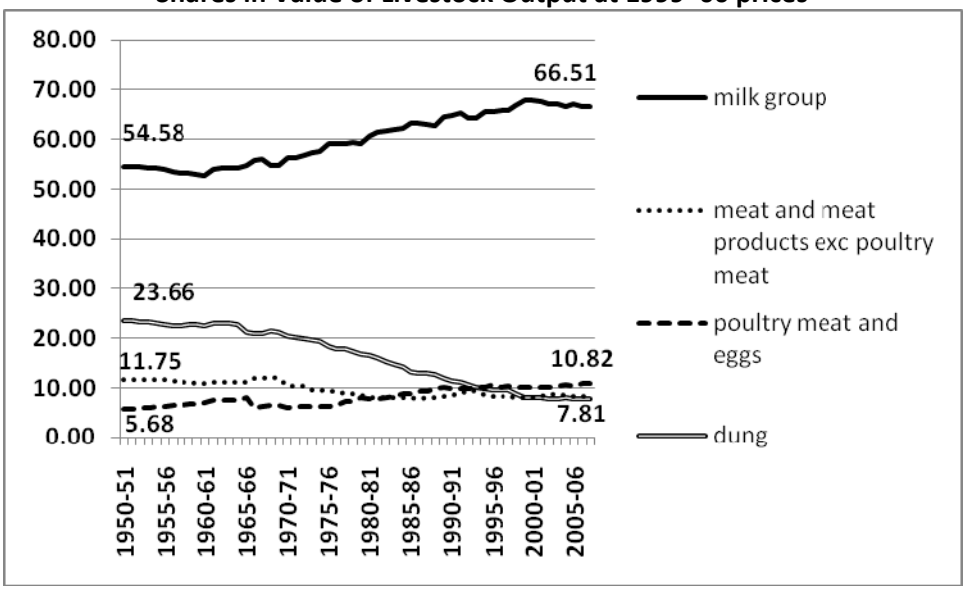
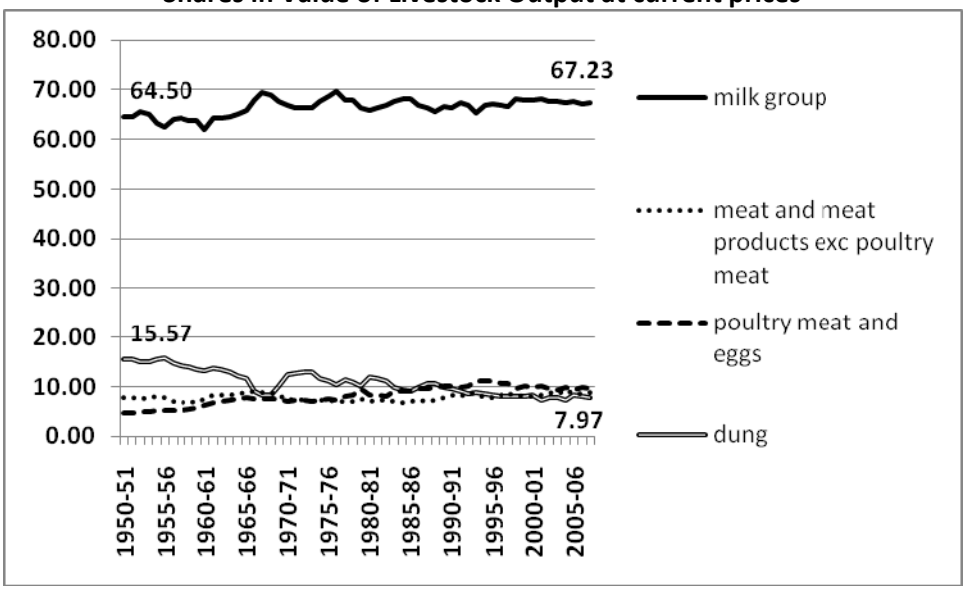


Figure-IV.23
Shares in Value of Livestock Output at current prices



Agriculture in the Indian Story of Structural Change

What has been shown in this section is that in the story of the process of growth and structural change in India since independence, the agricultural sector should not be seen as having a peripheral part of being merely the sector declining in

importance. Important changes have taken place in the structure of agricultural output and in its input structure. These changes cannot be assumed to be entirely independent and unrelated to the larger process of growth and structural change of the Indian economy. On the contrary, the shifts in the trends in agriculture often coincide with turning points in that larger story. Specifically, the early phase of industrialization driven growth and structural change was also the period in which foodgrains were the main drivers of agricultural growth and contributed the major part of food basket produced in India. Alongside the winding down of that process and the transition to a services dominated growth pattern, India's agricultural production also underwent a change, marked chiefly by the growing importance of non-foodgrain output like fruits and vegetables, livestock products like milk and poultry products, and fishing. At the same time, within foodgrains wheat came to acquire a significant prominence. For a period of time, the growth of some sector's which were rising in importance within agriculture partially compensated for the declining share in GDP of other sectors. But after the mid-1990s, the period of private organized sector driven services dominated growth, the relative shares of all the four sub-segments of Indian agriculture declined.

The input composition of Indian agriculture including livestock also changed over time but on a more or less consistent pattern. More than the changes in the composition of output, it is changes in agricultural technology and the economic environment that seem to have been responsible. The increasing shares of inputs like chemical fertilizers, diesel oil, market charges, financial intermediation services, etc. for instance would have to be so explained rather than be related to changing output composition. Indeed, if anything the direction of change in input composition was to an extent out of sync with the change in output composition—reflected in the opposite trends in the shares of livestock in output and livestock feed in inputs. The pattern of changes in livestock output and livestock activity explains this apparently paradoxical phenomenon. This and the declining relative price of chemical fertilizers have contributed to shoring up the value added component of the value of agricultural output. Even the latter however has not been able to prevent this share from declining in agriculture proper since the mid-1990s.

Summary and Conclusion

This study report has presented a description of the Indian process of growth and structural change that unfolded over the period 1950–51 to 2007–08, covering therefore for all practical purposes the entire period since independence up to the present. Each of the four parts of the report preceding this concluding one has added in its own way to the story of Indian economic change after independence, which had been described in the introduction as a uniquely Indian one.

Summary of Findings

Based on the combination of aggregate growth trends and their accompanying patterns of structural change, the first part of the study suggested that three turning points separate the entire period after independence into four sequential phases of growth and structural change. These turning points are located respectively in the mid-1960s, 1980, and the mid-1990s. The period before 1980 was characterized by a relatively slower pace of aggregate growth than the one after, but at the same time was the period in which the industrial sector was more prominent in driving the process of growth and structural change in output. This was however a more pronounced feature of the phase from independence to the mid-1960s, after which the tendency lost steam. The period of accelerated growth after 1980 was accompanied by the replacement of industry by services as the sector playing the most prominent role. Initially however, it was the expansion of the public sector which chiefly underlay this increased importance of services in the process of growth and structural change. From the mid-1990s the services oriented trajectory was reinforced with the private organized sector decisively replacing the public sector as the driving force behind it.

The second part of the study focused on the industrial sector, and brought out the fact that the different phases of growth and structural change identified above can also be clearly distinguished from each other in terms of their respective patterns of change in the composition of industrial output. In the first phase till mid-1960s industrial output was shifting in favour of organized manufacturing and Electricity Gas and Water Supply (EGWS), while unorganized manufacturing was the

sector clearly declining in importance. This was also the phase in which the structure of organized manufacturing output underwent significant change with the share of the initially dominant traditional light manufacturing industries rapidly declining in importance. Unorganized manufacturing did not experience a similar change, but retained its position *vis-à-vis* the organized sector within the traditional industries which were experiencing a relative decline. After the mid-1960s and till 1980, EGWS was the only segment of which continued to increase its share in industrial output. Construction became the segment clearly receding in importance. The declining trend in the share of unorganized manufacturing was however somewhat arrested, and its structure too started changing. In the third phase from 1980 till the mid-1990s, organized manufacturing once again joined EGWS in the category of the segments of the industrial sector increasing their relative share. In real terms, mining which had till then been in decline also enhanced its share. Construction continued to decline in importance and was now accompanied in this by unorganized manufacturing. This decline in the share of unorganized manufacturing in industrial GDP even as its own structure was changing however now reflected the declining share of the unorganized sector in the traditional industries in which it had earlier dominated. The two main distinguishing features of the final phase after the mid-1990s are the reversal in the trend of decline in construction's share in industrial output and the decline in the share of every other segment.

Our analysis of the industrial sector also highlighted the long-term trend of increasing consumption of both intermediate inputs and fixed capital per unit of net value added in organized Indian manufacturing. This was however not a consistent trend, which implies that the trend of declining input productivity cannot be said to be entirely a result of industrialization and structural changes in manufacturing output. Much of the structural change in registered manufacturing happened before, while the increase in input consumption was much steeper after the mid-1960s than in the decade and a half before. This trend then ceased with the revival of industrial growth in the 1980s only to reappear in the mid-1990s. The two phases belonging to the period of services-dominated growth were therefore also different in terms of this feature pertaining to the industrial sector.

The third part of the report, on services, showed that while there was acceleration in services growth after 1980, the broad patterns of change in the composition of services output before and after the transition to the services dominated growth pattern were similar. Initially dominant services like real estate and ownership of dwellings, personal services, and railways exhibited a long-term trend of declining importance while trade, transport by other means, communication, banking and insurance, business services and community services showed the opposite trend. Of the latter group, the growth of business services and community services after 1980 more than compensated for the declining trend of other services included with them in the same broad services sectors—namely, real estate, ownership of dwellings, and business services and other services. This produced an element of reversal in the declining trend in the share in *aggregate* GDP that these two more aggregated services sectors had shown till 1980. Additionally, business services and communication, services which had grown steadily even before but had remained relatively small contributors to services output, played an exceptional role in driving services sector growth after 1980. This even more prominent after the mid-1990s, by which time the long-standing trend of rise in the share of public administration and defence in GDP had also reversed. The shift from a public sector led to a private organized sector led growth pattern therefore was accompanied by more significant changes in the kinds of services driving growth than the transition after 1980. Changes in the composition of services output however were not the only factor responsible for the rising share of the private organized sector in services after the mid-1990s. Increasing privatization of many services where the public sector had been dominant till then also contributed in an important way.

The fourth part of the study dealing with agriculture serves to emphasize that its declining relative importance notwithstanding, the agricultural sector was not peripheral to the story of growth and structural change in India since independence. It itself under went important changes in the structure of its output—for instance the distribution between agriculture proper, livestock, forestry and logging and fishing—as well as in its input structure. These changes may not be independent and unrelated to the larger process of growth and structural change of the Indian economy. The early phase of industrialization driven growth and structural change in

the economy was also the period in which foodgrains were the main drivers of agricultural growth and contributed the major part of food basket produced in India. Alongside the winding down of that process and the transition to a services dominated growth pattern, India's agricultural production also underwent a change, marked chiefly by the growing importance of non-foodgrain output like fruits and vegetables, livestock products like milk and poultry products, and fishing. At the same time, within foodgrains wheat came to acquire a significant prominence. For a period of time, the growth of some sector's which were rising in importance within agriculture, partially compensated for the declining share in GDP of other sectors. But after the mid-1990s, the period of private organized sector driven services dominated growth, the relative shares of all the four sub-segments of Indian agriculture declined.

An aspect that our analysis of agricultural growth highlights is the important changes in the input composition of Indian agriculture and allied activities (that is agriculture proper and livestock). The broad trends in these have been the increasing shares of inputs like chemical fertilizers, diesel oil, market charges, financial intermediation services, etc. and decline in the shares of feed of livestock, seeds and organic manures. More than the changes in the composition of output, it is changes in agricultural technology and the economic environment that seem to have been responsible for these shifts. One element of change in input composition—the declining share of feed of livestock in fact appears paradoxical given that the livestock share in output increased. It is suggested that the pattern of changes in livestock output and livestock activity may explain this odd combination. This and the declining relative price of chemical fertilizers have contributed to shoring up the value added component of the value of agricultural output. Even the latter however has not been able to prevent this share from declining in crop production since the mid-1990s.

The Indian Story of Growth and Structural Change: Some Issues and Questions

Its description summarized above points towards some distinctive features of India's growth and structural change process after independence. The six-decade long movement of the Indian economy from where it was at independence to where it stands now has not been a linear kind where the trends of change have been

generally consistent. In different slices of time the moving picture appears different from that in others. The shifts in the trajectory of the Indian economy from phase to phase have also been multi-faceted with the changes in many individual trends tending to converge around the turning points separating the different phases. The coincidence of the acceleration in aggregate growth after 1980 and the transition to a services dominated growth pattern is one prominent instance of such convergence but by no means the only one. After the mid-1960s there were shifts in the patterns of *both* industrial and agricultural growth. Even after 1980 there was not merely a transition to services dominated growth, but also a whole set of changes in industrial sector trends. The exceptional turnaround in construction and the accelerated growth of business services and communication were initiated in the mid-1990s. Around the same time also occurred the u-turn in the trends in input productivity in manufacturing, and the reversal experienced by sectors like electricity in industry, and fishing and livestock in agriculture.

More important than the lack of consistency in trends in the structure of output is their nature. In many instances, the shifts in trends have no simple link with economic growth. For instance why did the share of construction in GDP decline for a prolonged period of time and then suddenly start growing extremely rapidly? Similarly, why did the trend in input-productivity in manufacturing exhibit a somewhat zigzag pattern of movement? In addition, even where reversals in trends apparently followed some typical pattern associated with economic growth, their 'prematureness' in the Indian case was atypical. India's industrialization process was by no means complete when the shift towards services dominated-growth happened. The emergence of a declining trend in electricity's share in GDP was by no means preceded by attainment of very high levels of per capita electricity consumption. Foodgrain production and consumption levels in India relative to her population size were also quite low when the food production basket started changing. The special feature associated with that change, the contrary trends in the relative shares of livestock output and livestock feed, only serves to reemphasize the oddness of structural change in India.

Why has India followed such a distinctive trajectory of economic change? Why does its story in many ways run contrary to the stylized facts about growth and

structural change derived from worldwide experience? These are questions about Indian economic history that still await a full investigation. They require going beyond the issue of India's aggregate growth trends, which is so often the exclusive focus in discussions about India's post-independence economic performance. The periodization of India's post-independence economic history presented in this study also questions the adequacy of the approaches relating the dynamics of the Indian economy mainly to economic policy—the degree to which the prevalent economic policy regime was interventionist or liberal in different periods.

The history of an industrial sector driven process of growth acceleration and structural change was a very short one in India, limited to the decade and a half right at the beginning of our reference period. The policy regime at that time was interventionist, and it remained so even as the momentum of industrialization ebbed. Industrialization however continued to remain held back despite subsequent liberalization in policy and even the transition from an agriculture dominated to services dominated economy. That is what makes the mid-1960s turning point one of the most significant ones in the history of Indian industrialization. Clearly India's limited industrialization is a long-term story related to constraints embedded in her economic structure which neither the actual interventions nor liberalization have been able to eliminate. It is these constraints that need to be investigated if we are to move towards properly understanding the peculiarity of Indian economic change.

The acceleration in trend growth after 1980 only re-emphasizes this peculiarity. It was associated with another break with the pattern of the previous three decades in the form of a shift towards the increasing service orientation of non-agricultural growth. In other words, it was in services growth rather than industrial growth that a long-term transition occurred. How and why did such a transition occur? Why did the constraints that continued to impede industrialization not prevent this transition in the case of services? Equally, why did the rapid growth of services not itself spur a more rapid industrialization process? These are some of the important questions posed by the post-1980 experience of growth and structural change.

Explaining accelerated growth after 1980 as a consequence of liberalization of economic policy has always confronted one major problem. This is the absence of any significant upward shift in the trend growth rate of the Indian economy to the decidedly more major liberalization of the 1990s. The fact that this acceleration was not rooted in industrialization but rather a shift towards services only adds to the difficulties of policy shift based explanations, at least of the usual kind. This is especially because the initial service orientation of growth related to an expanding public sector, which negates even the story of the 1980s being the result of an increasing 'pro-business' orientation as a prelude to the 'pro-market' orientation after 1991. Even the trends in agriculture in the 1980s had clear relationship with state policy intervention. In fact, it is hard to separate the pre-and post-1991 growth phases on a pro-business versus pro-market basis. The most important breaks between the first to the second are actually the shift from public sector to private sector driven growth of services, and the decisive shift of the private organized sector towards services. Thus the private sector role in growth becomes prominent from the mid-1990s, but it only reinforced an already existing tendency towards services-dominated growth. Moreover, given the direct and indirect role of the public sector in the development of many of the areas of rapid service growth, there may exist other deeper continuities between the 1980s and later. Further, the roots of such a public sector role may even lie in the interventions of even the pre-1980 period.

All these of course do not suggest that state economic policy was unimportant or irrelevant to the Indian story of economic change. They do however remind us that economic contexts with which are associated definite tendencies, cannot be defined or distinguished merely or primarily by whether the prevailing policy regime has an interventionist or a liberal essence. Neither kind of policy succeeded in ensuring India's full-fledged industrialization, but both appear to have played a role in fuelling or facilitating the exceptional expansion of services. Insofar as this somewhat paradoxical combination of tendencies has been the hallmark of the Indian story of output growth and structural change after independence, a simple policy-regime centered explanation of that story is clearly inadequate.

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.

Banga, Rashmi (2005), "Critical issues in India's Service-Led Growth", *Working Paper* No. 171, Indian Council for Research in International Economic Relations (ICRIER), New Delhi.

Baumol, W. J. (1967) 'Macroeconomics of Unbalanced Growth: the Anatomy of Urban Crisis", *American Economic Review*, Vol. 57, No. 3.

Bhalla, G.S., Peter Hazell and John Kerr (1999), 'Prospects for India's Cereal Supply and Demand to 2020', *Food, Agriculture and the Environment Discussion Paper* No. 29, International Food Policy Research Institute.

Bhattacharya, B. B. and Arup Mitra (1990), "Excess Growth of Tertiary Sector in Indian Economy: Issues and Implications", *Economic and Political Weekly*, Vol. 25, No. 44, November 3.

Chand, Ramesh and S.S. Raju (2008), 'Livestock sector Composition and Factors Affecting its Growth', *Indian Journal of Agricultural Economics*, Vol. 63 No. 2, April-June.

Chenery, Hollis and Moises Syrquin (1975), *Patterns of Development 1950–1970*, World Bank and Oxford University Press, Oxford.

Clark, C. (1940, revised and reprinted in 1951) *The Conditions of Economic Progress,* MacMillan & Co. Ltd., London.

Clark, Colin (1949), "Theory of Economic Growth", *Econometrica*, Vol. 17, Supplement: Report of the Washington Meeting, July.

Dasgupta, Sukti and Ajit Singh (2005), "Will Services be the New Engine of Economic Growth in India?", *Working Paper* No. 310, Centre for Business Research, University of Cambridge.

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 University Press, Princeton, New Jersey.

Fisher, A.G.B. (1935) *The Clash of Progress and Security,* MacMillan & Co. Ltd., London

Fisher, Allan G. B (1952), "A Note on Tertiary Production", *The Economic Journal*, Vol. 62, No. 248.

Fuchs, V.R. (1968), *The Service Economy,* National Bureau of Economic Research and Colombia University Press, New York and London.

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.

Joshi, Seema (2004), "Tertiary Sector-Driven Growth in India", *Economic and Political Weekly*, Vol. 39, No. 37, September 11.

Kaldor, Nicholas (1967), *Strategic Factors in Economic Development*, Cornell University, Ithaca.

Kaur, Paramjeet (2007), "Growth Acceleration in India", *Economic and Political Weekly,* Vol. 42, No. 15, April 14.

Kenessey, Zoltan (1987), "The Primary, Secondary, Tertiary and Quaternary Sectors of the Economy", *Review of Income and Wealth*, Vol. 33 No. 4.

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.

Kuznets, Simon (1972): *Modern Economic Growth: Rate, Structure, and Spread*, Indian Edition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi

Mitra, Ashok, (1988), "Disproportionality and the Services Sector: A Note", *Social Scientist*, April.

Mohan, Rakesh (2008), "Growth Record of the Indian Economy, 1950–2008: A Story of Sustained Savings and Investment", *Economic and Political Weekly*, Vol. 43, No. 19, May 10.

Nagaraj, R. (1991), "Excess Growth of Tertiary Sector?", *Economic and Political Weekly*, Vol. 26, No. 5, February 2.

Nagaraj, R. (2003), "Industrial Policy and Performance since 1980: Which Way Now?", *Economic and Political Weekly*, Vol. 38, No. 35, August 30.

Nagaraj, R. (2009), "Is Services Sector Output Overestimated? An Inquiry", *Economic and Political Weekly*, Vol. 44, No. 5, January 31.

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.

Papola, T.S. (2006): "Emerging Structure of the Indian Economy: Implications of Growing Inter-Sectoral Imbalances, Indian Economic Journal, Vol. 54, No. 1, April-June.

Patnaik, Utsa (2009), 'Origins of the Food Crisis in India and Developing Countries', *Monthly Review*, Vol. 61 No. 2, July-August.

Petit, Pascal (1986), *Slow Growth and the Service Economy,* Frances Pinter, London.

Rakshit, M (2007), "Services-led Growth: The Indian Experience ", *Money & Finance*, February.

Regan, William J. (1963), "Economic Growth and Services", *The Journal of Business*, Vol. 36, No. 2, April.

Riddle, Dorothy I. (1986), *Service-Led Growth: The Role of the Service Sector in World Development*, Praeger, New York.

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.

Rowthorn, R. and Ramaswamy, R. (1999), "Growth, Trade and Deindustrialization", *IMF Staff Papers*, Vol. 46, No. 1.

Sarma, J.S. and Vasant P. Gandhi (1990), 'Production and Consumption of Foodgrains in India: Implications of Accelerated Economic Growth and Poverty Alleviation', *Research Report* 81, International Food Policy Research Institute.

Schettkat, Ronald and Lara Yocarini (2003), "The Shift to Services: A Review of the Literature", *Discussion Paper* No. 964, December, Institute for the Study of Labour (IZA), Bonn.

Sharma, Vijay Paul (2004), 'Livestock Economy of India: Current Status, Emerging Issues and Long-Term Prospects', *Indian Journal of Agricultural Economics*, Vol. 59 No. 3, July-September.

Shetty, S.L. (2007), "Status Paper on Database Issues of the Services Sector", *Economic and Political Weekly*, Vol. 42, No. 37, September 15.

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.

Soubbotina, Tatyana P. with Katherine A. Sheram (2000): *Beyond Economic Growth, Meeting the Challenges of Global Development*, The World Bank, Washington D.C.

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.

Tisdell, Clem and Jyothi Gali (1990), 'Trends and Developments In India's Livestock Industry', *Economics, Ecology and the Environment Working Paper* No. 31, University of Queensland.

UNCTAD (2003), *Trade and Development Report 2003*, United Nations, New York and Geneva.

United Nations (2006), *World Economic and Social Survey 2006*.

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), New Delhi.

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), New Delhi.

Wallack, Jessica Seddon (2003), "Structural Breaks in Indian Macroeconomic Data", *Economic and Political Weekly*, Vol. 38, No. 41, October 11.

World Bank (2004), *Sustaining India's Services Revolution*, World Bank Group, South Asia Region: India.

Appendix Tables