

III

THE REAL ECONOMY

Introduction

3.1 During the first three decades after Independence, the Indian economy stagnated around a trend growth of 3.5 per cent. The scenario changed during the 1980s. The acceleration of growth during the 1980s to 5.6 per cent put the Indian economy on a higher growth path. However, the growth process of the 1980s turned increasingly unsustainable as manifested in the growing macroeconomic imbalances over the decade in the form of high fiscal deficit, high levels of current account deficit, and increasing levels of external debt, besides a repressive and weakening financial system. Continuing macroeconomic imbalance and delay in taking corrective action accentuated the impact of global economic shock of 1990. A large and growing fiscal deficit with a sizeable component of monetised deficit, resulted in pressures on money supply and inflation. These imbalances, in turn, spilled over to the external sector in the form of a large and unsustainable current account deficit - giving rise to sizeable public debt, both domestic and external. All these culminated in an unprecedented external payments crisis in 1991. Economic growth fell to such a low level in 1991-92 that real per capita income declined for the first time since 1979-80. The improved growth performance of the 1980s was, thus, short-lived. To an extent, this underscored the importance of the inter-temporal budget constraint in ensuring macroeconomic stability.

3.2 In response to the macroeconomic crisis; a programme of stabilisation and structural adjustment was initiated in July 1991, with wide ranging reform measures encompassing the areas of trade, exchange rate management, industry, public finance and the financial sector. Fiscal correction, exchange rate adjustment, monetary targets and inflation controls constituted the immediate measures for macroeconomic stability. These measures were supported by structural reforms in the form of industrial deregulation, liberalisation of foreign direct investment, trade liberalisation, overhauling of public enterprises and financial sector reforms. Apart from aiming at restoring the economic stability on both domestic and external fronts, the economic reform programme strived towards achieving a higher growth trajectory

through increased levels of investment, and improvements in productivity, efficiency and competitiveness.

3.3 The reform measures had sectoral dimensions as well. Beginning with the industrial policy of 1991, reforms in the industrial sector were undertaken with a view to remove distortions in the resource allocation and improve competitiveness of Indian industry. The reform measures included removal of industrial licensing, reduction in the number of industries reserved for the public sector, abolition of restrictions on investment and expansion under the Monopolies and Restrictive Trade Practices (MRTP) Act, 1969, automatic approval of foreign investment, elimination of quantitative import restrictions on intermediate and capital goods and steady reduction in protective custom tariffs. These measures created a favourable environment for industry to upgrade its technology and build-up capacity in order to cater to growing domestic and external demand. Despite widespread perception regarding the relative isolation of the agricultural sector from the direct impact of the reform process, a series of policy initiatives were undertaken in this sector as well. These included, *inter alia*, replacement of quantitative controls by tariff, partial decontrol of fertiliser prices, removal of bottlenecks in agricultural marketing, relaxation of restrictions of the Essential Commodities Act, 1955, replacement of the Revamped Public Distribution System (RPDS) with Targeted Public Distribution System (TPDS), and establishment of Rural Infrastructure Development Fund (RIDF). Moreover, price reforms improved terms of trade for agriculture. Also, exchange rate and international trade reforms improved the incentive structure facing agriculture.

3.4 The present Chapter does not seek to chronicle the above-mentioned reform measures, which are well documented elsewhere; instead, against the backdrop of these reform measures, it seeks to address the following set of questions: (i) How did the economic reform of the 1990s influence the growth process? (ii) Was the impact of economic reform on growth short-lived? (iii) How does the Indian economy fare *vis-à-vis* other emerging market economies? (iv) What was the prime mover for the post-reform growth experience? (v) Was it entirely

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services-driven, with sectors like 'public administration and defence' giving a short-lived fillip to growth? (vi) Has the agricultural sector been somewhat isolated from economic reform? (vii) What explains the unprecedented stockpile of foodgrains in the recent years and what are their macroeconomic implications? (viii) Has the industrial sector entered a phase of prolonged slowdown? (ix) Has there not been any productivity improvement under economic reform? Some of these issues have received attention in the available literature. Given the divergent assessment on each of these issues and recognising the importance of a comprehensive analysis of each sector to explain the overall growth dynamics, this Chapter aims at documenting major developments during reforms, explaining the factors underlying them and identifying the policy challenges therein.

3.5 The Chapter is organised as follows. Section I begins with an analysis of the impact of reforms on economic growth and its variability at the aggregate level, besides analysing issues relating to saving and investment. Section II is devoted to the performance of agriculture sector, which has exhibited a deceleration in output growth during the reform period. Apart from exploring issues like decelerating public investment, credit availability and near stagnating yields, attention is also focused on a phenomenon of topical interest, *viz.*, burgeoning food stocks, with an emphasis on their fiscal and monetary implications. The issue of manufacturing sector slowdown, along with the underlying short and long-run constraints for the industrial sector is examined in Section III. The issue of falling productivity growth impinging on industrial competitiveness is also dealt with in this section. Section IV analyses sustainability of the services sector in view of its increasing significance in the overall growth process. Finally, Section V presents the concluding observations.

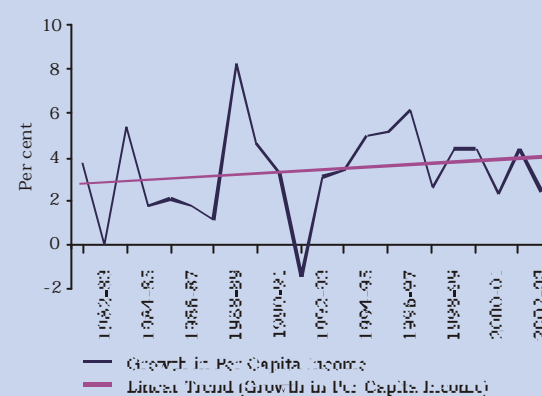
I. GROWTH, SAVING AND INVESTMENT

3.6 As mentioned earlier, the programme of macroeconomic stabilisation and the structural reforms introduced since 1991 encompassed the areas of industry, trade, foreign direct investment, public enterprises and the financial sector. This brought about an improved growth performance during the first phase of reform period, *i.e.*, 1992-93 to 1996-97. The overall growth in this period was

led by a marked acceleration in the industrial growth. The growth momentum, however, slackened in the latter phase of reforms, *i.e.*, 1997-98 to 2002-03, with the slowdown exacerbated by the global recessionary conditions.¹ This pulled down the trend growth for the period of reforms (*i.e.*, 1992-93 to 2002-03) to 6.1 per cent, which was moderately higher than the trend growth of 5.6 per cent recorded during the pre-reform decade (*i.e.*, 1981-82 to 1990-91). Although the services sector provided some resilience to the overall growth process, the pronounced deceleration in manufacturing activities during the second phase of the reform period posed a major challenge for sustaining the growth momentum. Against this backdrop, the present section examines three crucial macro-economic aggregates, *viz.*, growth, saving and investment.

3.7 With improvement in the overall growth rate, the real per capita income exhibited an increasing trend (Chart III.1). The per capita income grew at a higher average rate of 3.9 per cent during the reform period compared with 3.2 per cent during the pre-reform decade. This was aided by a distinct deceleration in the compound growth rate of population from 2.14 per cent during the decade ending 1991 to 1.96 per cent during the decade ending 2001. The positive outcome of the growth process during the reform period also seems to have been reflected in reduction in the poverty ratio to 26.1 per cent in 1999-2000 from 36.0 per cent in 1993-94 and 38.9 per cent in 1987-88 (Government of India, 2003).

Chart III.1: Rate of Growth of Real Per Capita Income



Source: Based on the data from the Central Statistical Organisation.

1. Henceforth, the first phase of reforms refers to the period 1992-93 to 1996-97 and the second phase of reforms refers to the period 1997-98 to 2002-03.

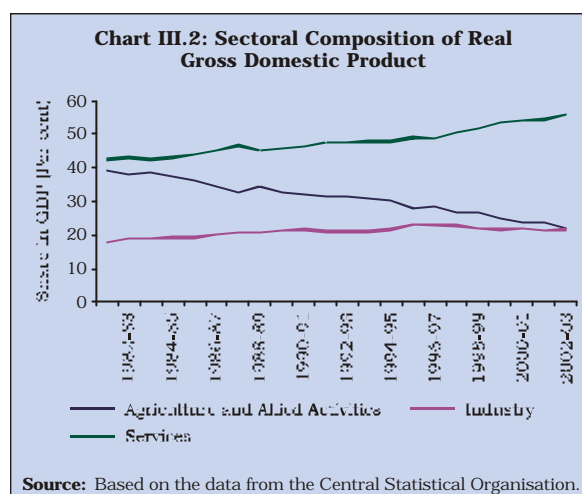
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3.8 The real sector is presently confronted with a number of challenges. First, the recent deceleration in economic growth, particularly the sharp deceleration in the rate of industrial growth is worrisome. Second, there has been a distinct downturn in domestic investment during the second half of the decade of reforms, involving both the public sector and the private corporate sector. Third, public sector saving have fallen drastically and have become negative for the first time from 1998-99 onwards.

Growth Performance

3.9 As mentioned before, the economic performance during the reform period reflected an improvement in real Gross Domestic Product (GDP) growth (Table 3.1). The growth process responded favourably to the initial productivity gains arising from deregulation of trade, industry and finance. The overall growth during the reform period was marked by higher services sector growth (8.0 per cent as compared with 6.7 per cent during the 1980s), while agriculture and industry witnessed some deceleration.

3.10 This change in the growth process resulted in shifts in the production structure (Chart III.2). The services sector (including construction) with high growth rate emerged as the 'lead' sector contributing over 50 per cent of GDP in the period of reforms as compared with 44.4 per cent in the pre-reform



decade. The deceleration in agricultural growth led to a decline in its share to 27.0 per cent in the reform period from 35.7 per cent during the pre-reform decade. The shifting output structure reflects the impact of relative sectoral productivity growth on the one hand, and changing demand pattern on the other.

3.11 The growth performance of the Indian economy during the reform period provides encouraging evidence when compared with the growth performance

Table 3.1 : Sectoral Trend Growth Rates of Real Gross Domestic Product

(Per cent)

Sector	Decade Preceding Reforms (1981-82 to 1990-91)		Crisis Year (1991-92)	Period of Reforms (1992-93 to 2002-03)	
	Growth	CV (%)	Growth	Growth	CV (%)
	1	2	3	4	5
1. Agriculture and Allied Activities	3.1	150.7	-1.5	2.5	130.2
2. Industry	7.6	24.1	-1.2	6.2	53.5
Mining and Quarrying	7.5	59.3	3.7	4.2	84.7
Manufacturing	7.4	28.9	-3.6	6.6	62.0
Electricity, Gas and Water Supply	9.4	21.2	10.4	6.0	46.4
3. Services	6.7	18.0	4.5	8.0	22.7
Construction	4.8	102.5	2.1	6.0	51.0
Trade, Hotels and Communication	5.9	18.9	2.5	8.6	22.0
Financing, Insurance, Real Estate and Business Services	10.1	16.3	12.0	7.8	40.2
Community, Social and Personal Services	6.6	30.9	2.6	8.0	44.7
4. GDP at Factor Cost	5.6	39.1	1.3	6.1	23.0

Notes : 1) Trend growth rates have been calculated using semi-logarithmic regression.
2) CV refers to Coefficient of Variation of growth.

Source : Computed on the basis of data from the Central Statistical Organisation.

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of some other emerging market economies during the same period. Among select emerging market economies, India ranked high during the 1990s in terms of average real GDP growth (Table 3.2). Similar trends were evident at the sectoral level as well. However, unlike India, the growth momentum in most other emerging market economies was led by the industrial sector rather than the services sector.

3.12 Besides acceleration in growth, another important aspect that characterised the growth process in India during the 1990s was the reduced variability in annual growth rates. Among the three sectors of economy, the variability in growth has traditionally been the highest for the agricultural sector, owing to its dependence on the monsoon. Its variability, as measured by the coefficient of variation, however, showed a decline to 130.2 per cent during the period of reforms from 150.7 per cent in the preceding decade, reflecting a favourable impact of the successive normal monsoons. This contributed to a reduction in variability of overall GDP growth to 23.0 per cent from 39.1 per cent during the same period.

3.13 The decadal analysis presented above masks some important aspects of the growth process within the decade. For a meaningful comparison, the period of reforms can be sub-divided into two phases *viz.*, Phase I (1992-93 to 1996-97) and Phase II (1997-98 to 2002-03). The entire period of Phase I can be further divided into two sub-periods based on the growth performance of the economy. The first sub-period (1992-93 to 1993-94) was the period of recovery from the crisis while the second sub-period (1994-95 to 1996-97) was marked by high growth of the economy. During the crisis year of 1991-92, the rate of growth of real GDP had dipped to 1.3 per cent, engendered to a

large extent by sharp credit containment and fiscal as well as import contraction. Both, agriculture and industrial sectors recorded negative rates of growth, the former primarily emanating from the occurrence of drought. However, the speed of recovery of the economy during the first sub-period of Phase I was quite impressive with the real GDP growth improving to an average of 5.5 per cent per annum spread over all the sectors (Table 3.3).

3.14 With the economic recovery gathering momentum in the first sub-period of Phase I, the economy was placed on a higher growth trajectory in the subsequent period. During the second sub-period of the first phase, the growth rate of GDP averaged as much as 7.5 per cent per annum. This was the only period in India's economic history during which real GDP growth exceeded 7.0 per cent consecutively over a period of three years. The sharp acceleration in the rate of growth of overall GDP was largely the result of the phenomenal growth of 10.8 per cent per annum in the industrial sector. The upswing in industrial growth during this sub-period can be regarded as an outcome of removal of various constraints in the form of licensing and other restrictions as a part of the liberalisation initiatives. The growth of GDP, however, moderated in 1997-98, which marks the beginning of phase II.

The Growth Deceleration

3.15 The phase from 1997-98 to 2002-03 was marked by a deceleration in growth with the average rate of growth during this period turning out to be 5.3 per cent, which was much lower than the average growth of 7.5 per cent per annum recorded during the period of high growth from 1994-95 to 1996-97.

Table 3.2 : Growth Performance in Select Emerging Market Economies

(Annual average growth rate in percent)

Country	GDP		Agriculture		Industry		Services	
	1980-1990	1990-2000	1980-1990	1990-2000	1980-1990	1990-2000	1980-1990	1990-2000
	1	2	3	4	5	6	7	8
Argentina	-0.7	4.3	0.7	3.4	-1.3	3.8	0.0	4.5
Brazil	2.7	2.9	2.8	3.2	2.0	2.6	3.3	3.0
China	10.1	10.3	5.9	4.1	11.1	13.7	13.5	9.0
India	5.8	6.0	3.1	3.0	6.9	6.4	7.0	8.0
Indonesia	6.1	4.2	3.6	2.1	7.3	5.2	6.5	4.0
Malaysia	5.3	7.0	3.4	0.3	6.8	8.6	4.9	7.2
Mexico	1.1	3.1	0.8	1.8	1.1	3.8	1.4	2.9
Thailand	7.6	4.2	3.9	2.1	9.8	5.3	7.3	3.7

Source : World Development Indicators 2002, World Bank.

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Table 3.3 : Sectoral Growth Rates of Real Gross Domestic Product: Reform Period

(Per cent)

Sector	Phase I		Phase II
	Sub-period I: 1992-93 to 1993-94	Sub-period II: 1994-95 to 1996-97	1997-98 to 2002-03
	1	2	3
1. Agriculture and Allied Activities	5.0	4.6	1.0
Agriculture	5.2	4.7	*
2. Industry	5.3	10.8	4.3
Mining and Quarrying	1.3	5.2	4.0
Manufacturing	6.3	12.2	4.2
Electricity, Gas and Water Supply	3.1	7.2	5.7
3. Services	6.0	7.9	7.9
Construction	2.0	4.6	7.0
Trade, Hotels and Communication	6.3	10.5	7.9
Financing, Insurance, Real Estate and Business Services	9.6	6.9	7.3
Community, Social and Personal Services	4.0	5.8	8.6
4. GDP at Factor Cost	5.5	7.5	5.3

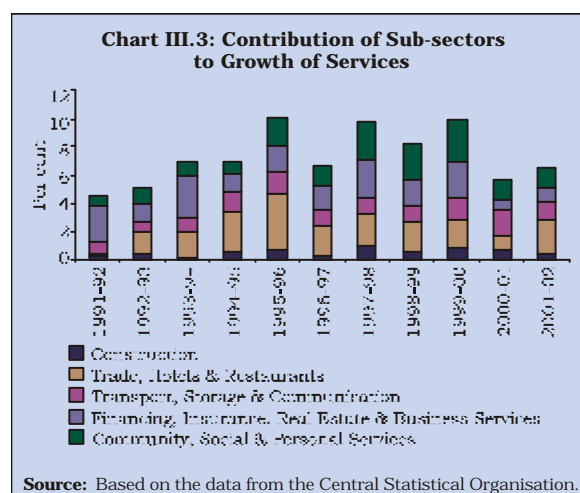
* Not available separately

Source : Computed on the basis of data from the Central Statistical Organisation.

The most disturbing feature of this phase was the steep decline in industrial growth, led by a severe slowdown in the manufacturing sector. The average rate of growth of manufacturing decelerated by as much as eight percentage points during this phase as compared with the second sub-period of the first phase.

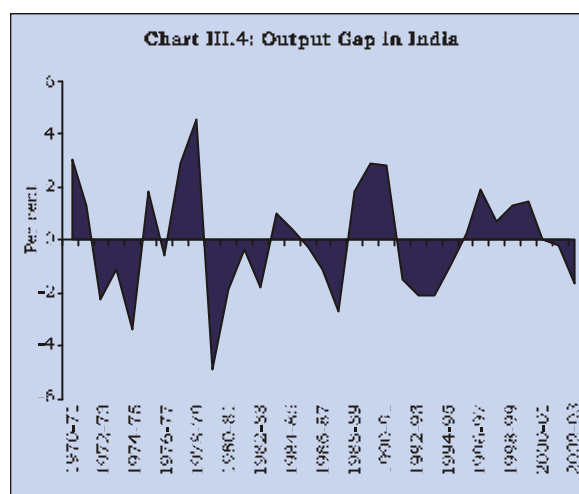
3.16 Within the second phase, real GDP growth, after dipping to 4.8 per cent in 1997-98, recovered during the years 1998-99 and 1999-2000 to over 6.0 per cent. One of the factors contributing to this recovery was the high growth emanating from services sector, and within the services sector, the growth of 'community, social and personal services', particularly 'public administration and defence'. The Fifth Pay Commission Award led to an increase in GDP originating from the sub-sector of 'public administration and defence' in 1997-98, with its lagged effect persisting till 1999-2000. These years witnessed a striking increase in the weighted contribution of 'community, social and personal services' to the growth of GDP originating from the services sector (Chart III.3) [This issue is discussed in greater details in Section IV]. The period from 1997-98 to 1999-2000 also witnessed steady growth in other components of the services sector. In the more recent period, growth of overall GDP dipped to 4.4 per cent

in 2000-01. This was a result of poor performance of agriculture, coupled with a significant deceleration in the growth rate of GDP from the services sector, particularly 'financing, insurance, real estate and business services'. The same rate of growth of 4.4 per cent has also been registered in 2002-03, as per the latest Advance Estimates, which has been an outcome of a sharp fall in agricultural growth to a negative of 3.1 per cent owing to the drought conditions.



Potential Output and Output Gap

3.17 A combination of structural and cyclical factors can be identified for explaining the deceleration in growth during the second phase. Structural factors include, among others, the lack of appropriate reforms in the agricultural sector, infrastructure gaps, labour market rigidities, weak bankruptcy and exit procedures, while the cyclical factors primarily include decline in aggregate demand. The cyclical fluctuations in real economic activity are captured by the measure of output-gap; the impact of structural factors on the growth process can be gauged from the underlying potential output. The potential output indicates the capacity output of the economy as represented by the steady state level that is associated with long-run supply curve under full utilisation of capacity.



3.18 Although the growth process of the economy during the reform period seems to have been influenced, to some extent, by cyclical factors, their impact as reflected in differences between potential and actual output growth was found to have diminished in magnitude in the post-1991 period as compared with the previous four decades (Donde and Sagar, 1999). An updated empirical estimate of the output-gap for India covering the most recent period also reveals that the output gap has come down significantly in the decade of reforms *vis-à-vis* the preceding decade. Furthermore, within the 1990s, there has been a significant narrowing down of the output gap during the latter half. In other words, the cyclical factors seem to have had a diminished impact on the growth process in the recent years. This may have been the result of fortuitous monsoon, more stable growth in services sector and more effective counter-cyclical policies. A combination of these factors may have had a stabilising influence on output fluctuations (Chart III.4).² Contemporaneously, the potential growth rate exhibited somewhat decelerating trend during the latter phase of the 1990s as against the first phase (Chart III.5 and Table 3.4). This corroborates the persistence of structural constraints and may have implications for medium term growth outcome. Despite the declining role of domestic cyclical sources of growth variability, progressive globalisation has enhanced the importance of global cyclical factors. In fact, during the current phase of global slowdown, such factors have weakened India's growth prospects despite its moderate degree of globalisation.

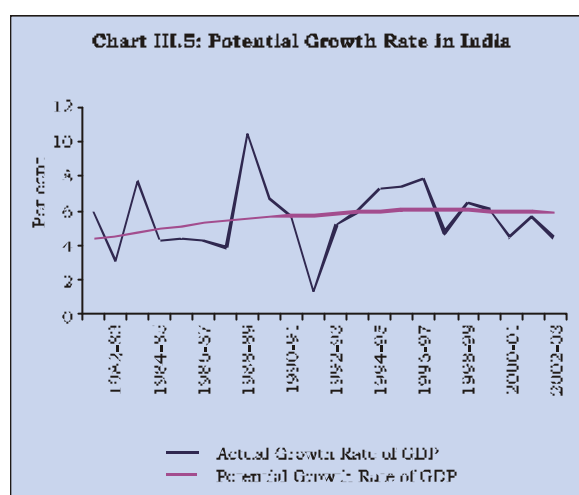


Table 3.4 : Actual and Potential Growth Rates of Real GDP

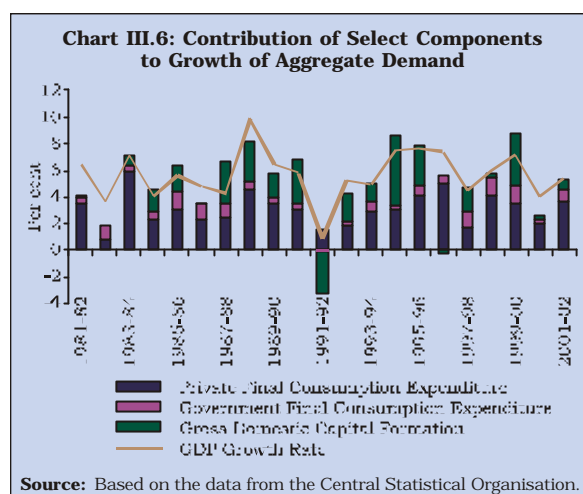
Period	(Per cent)	
	Actual Growth Rate	Potential Growth Rate
	1	2
1981-82 to 1990-91	5.64	5.12
1992-93 to 1996-97	6.69	5.96
1997-98	4.76	6.02
1998-99	6.57	5.97
1999-00	6.04	5.91
2000-01	4.37	5.86
2001-02	5.57	5.82
2002-03	4.37	5.81

2. The output gap represents the difference between the actual output and the potential output worked out on the basis of the filtered series using the Hodrick-Prescott (HP) Filter. Technically, the HP filter is a two-sided linear filter. The time series are decomposed into trend and cyclical components. The smoothed series are obtained by minimising the variance of series around its trend components. The smoothing parameter is taken as 100 for smoothing the annual series.

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Aggregate Demand

3.19 Sectoral analysis of the growth process can be supplemented by an assessment of aggregate demand. The growth process during the 1990s can be analysed in terms of autonomous, exogenous and policy-induced components of aggregate demand, which broadly relate to private, net external and government demand, respectively. Several stylised facts emerge from the analysis of sources of aggregate demand during the reform period (Table 3.5 and Chart III.6). During the first phase of reforms, particularly in its second sub-period, improvement in growth emanated mainly from investment demand, with private consumption demand providing a strong support. Second, during the second phase of reforms, the positive demand-pull stemmed from a high growth in the Government consumption expenditure. This increase reflected the rise in GDP originating from 'public administration and defence', owing to the effect of the Fifth Pay Commission. Third, the slowdown in the economic activity during the second phase seems to have been a result of a rapid deceleration in investment demand coupled with a relatively lower growth in private consumption demand. These two components showed contraction in terms of annual growth during the second phase. During this phase, a decline can also be noted in the case of the contributions of these two components to growth in overall aggregate demand, as shown in Chart III.6. In view of these developments, there is a need to revive the aggregate demand especially by accelerating investment in order to stimulate the overall growth performance of the economy.



Saving Behaviour

3.20 The process of economic growth hinges critically on the generation of greater saving and its channelisation into productive investment. The overall improvement in GDP growth during the reform period seems to have been facilitated by the improvement in the rate of aggregate domestic saving as corroborated by an empirical exercise discussed subsequently. During the period of reforms as a whole, the rate of Gross Domestic Saving (GDS) increased to 23.1 per cent from 19.8 per cent in the preceding decade, with both periods witnessing some variability on a year-to-year basis (Chart III.7).

Table 3.5 : Growth Rates and Relative Contributions of Select Components of Aggregate Demand (At 1993-94 prices)

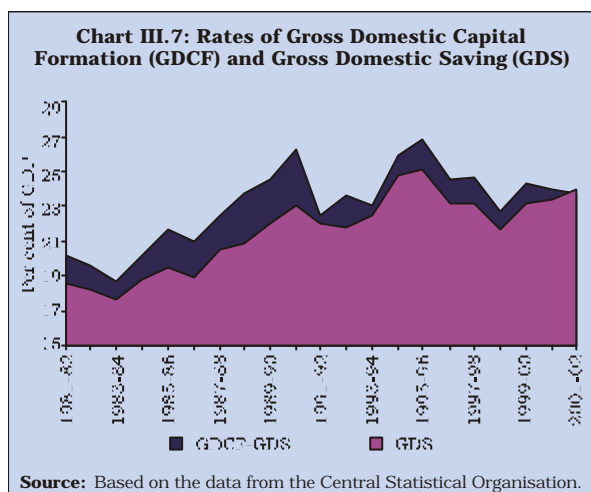
(Per cent)

Item	Growth Rate			Relative Contribution		
	Phase I		Phase II	Phase I		Phase II
	Sub-period I: 1992-93 to 1993-94	Sub-period II: 1994-95 to 1996-97	1997-98 to 2001-02	Sub-period I: 1992-93 to 1993-94	Sub-period II: 1994-95 to 1996-97	1997-98 to 2001-02
	1	2	3	4	5	6
1 Total Final Consumption Expenditure	3.7	6.0	5.3	2.9	4.6	4.0
1.1 Private Final Consumption Expenditure	3.5	6.2	4.7	2.4	4.1	3.0
1.2 Government Final Consumption Expenditure	4.8	4.6	9.0	0.5	0.5	1.0
2 Gross Domestic Capital Formation	7.6	11.0	5.9	1.7	2.7	1.5
3 GDP at Market Prices	5.1	7.5	5.4	5.1	7.5	5.4

Note : The relative contributions of the components of aggregate demand will not add up to total on account of non-availability of Net Exports in real terms.

Source : Computed on the basis of data from the Central Statistical Organisation.

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3.21 The behaviour of the saving rate and economic growth in India during the reform period seems to suggest that the high growth phase is associated with

higher order of increase in domestic saving (Table 3.6). Within the first phase, the second sub-period, which was also a period of high GDP growth, witnessed an increase of 2.2 percentage points in the domestic saving rate over the first sub-period. During the second phase of reforms, which was marked by a distinct deceleration of growth, the saving rate declined by 1.3 percentage points to reach 23.1 per cent. Empirical relationship between the changes in GDP and incremental saving provides the evidence of a bi-directional causality - highlighting the role of the feedback effects emanating from saving to economic growth and *vice versa*.³

Sources of Domestic Saving

3.22 A salient feature of the 1990s was the rising trend in the household sector saving (Chart III.8). Within the household sector saving, the rate of saving held in financial assets steadily increased during this period. Financial liberalisation has an important bearing on financial saving as it involves the creation of newer

Table 3.6 : Rates and Composition of Gross Domestic Saving by Institutional Sources

(Per cent)

Item	Phase I		Phase II
	Sub-period I: 1992-93 to 1993-94	Sub-period II: 1994-95 to 1996-97	1997-98 to 2001-02
	1	2	3
1. Private Sector	21.0	22.6	24.1
	(95.0)	(92.7)	(104.6)
1.1 Household Sector	18.0	18.3	20.2
	(81.1)	(75.0)	(87.5)
1.1.1 Financial Saving	9.9	10.4	10.5
	(54.9)	(56.7)	(52.2)
1.1.2 Physical Saving	8.1	7.9	9.7
	(45.1)	(43.3)	(47.8)
1.2 Private Corporate Sector	3.1	4.3	3.9
	(13.8)	(17.6)	(17.1)
2. Public Sector	1.1	1.8	-1.1
	(5.0)	(7.3)	(-4.6)
3. Gross Domestic Saving	22.2	24.4	23.1
	(100.0)	(100.0)	(100.0)
Memo Item:			
Growth Rate of Real GDP at Factor Cost	5.5	7.5	5.5

Notes : 1) Rates are worked out as a percentage of GDP at current market prices.
 2) Figures in parentheses indicate percentage share in GDS except for items 1.1.1 and 1.1.2, where they indicate the percentage shares in household sector saving.

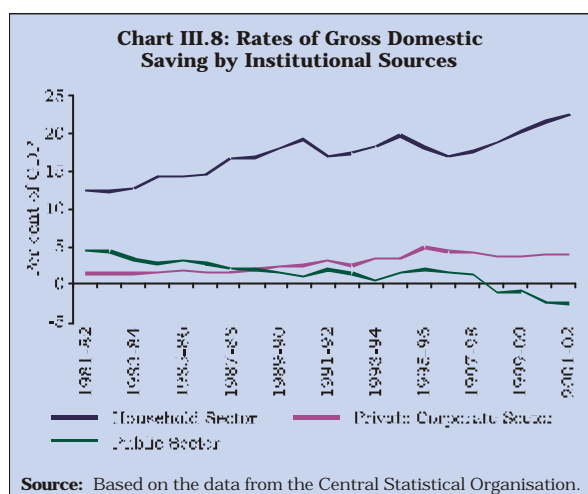
Source : Computed on the basis of data from Central Statistical Organisation.

3. Results of Granger Causality test between nominal saving growth and GDP growth for the sample, 1950-51 to 2000-01, are as follows:

Null Hypothesis	Test Statistic (Chi Square)	Accept / Reject Null Hypothesis
Saving does not Granger cause GDP Growth	9.71*	Reject
GDP Growth does not Granger cause Saving	21.31*	Reject

* Significant at 1 per cent level.

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instruments and avenues of saving, and also reduces intermediation costs (McKinnon, 1973). In India, the phenomenon of improvement in financial saving could be attributed to more efficient financial intermediation, greater opportunities for diversification across financial assets and emergence of market related returns.

3.23 Notwithstanding financial innovations, bank deposits continued to be the most important instrument of financial saving among the households during the period of reforms. The shares of various instruments in household financial saving for the period since 1981-82 are given on the basis of five-year and

ten-year averages in Table 3.7. An empirical exercise conducted to estimate the effect of real interest rate on saving held in bank deposits indicates that interest rate plays an insignificant role.⁴ Personal disposable income, however, is found to be an important determinant of this saving.

3.24 Another important feature of household saving during the reform period has been the increasing importance of saving held in insurance funds, and provident and pension funds (together described as contractual saving) (Chart III.9). The growing share of this saving is a positive development, given that such

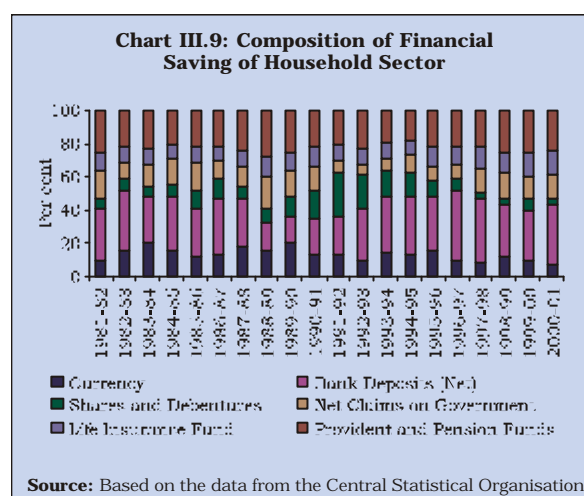


Table 3.7 : Average Shares of various Instruments in Household Financial Saving

Item	(Per cent)					
	1981-82 to 1985-86	1986-87 to 1990-91	1981-82 to 1990-91	1991-92 to 1995-96	1996-97 to 2000-01	1991-92 to 2000-01
	1	2	3	4	5	6
1. Currency	14.9	15.9	15.4	13.2	9.5	11.4
2. Bank Deposits (Net)	31.1	23.3	27.2	31.3	35.6	33.6
3. Shares and Debentures	7.1	11.6	9.4	17.1	5.1	11.1
4. Net Claims on Government	14.8	14.6	14.7	7.7	13.2	10.4
5. Life Insurance Funds	9.2	10.3	9.8	10.5	12.8	11.5
6. Provident and Pension Funds	22.9	24.2	23.5	20.2	23.7	22.0
Household Saving in Financial Assets	100.0	100.0	100.0	100.0	100.0	100.0

Source : Central Statistical Organisation.

4. Functional relationship between bank deposits and interest rates for the sample period: 1981-82 to 2000-01

$$LBD = -4.08 + 0.006RR + 1.07 * LPDI$$

(0.43) (22.29)

R² = 0.97, DW=1.57 ; where, LBD = Log of saving in bank deposits, LPDI= Log of personal disposable income, RR= Real rate of interest on bank deposits (3-5 years), and * Significant at 1 per cent level.

saving is long-term in nature and can be an important instrument for channelising funds towards certain productive sectors of the economy, such as infrastructure, which require lumpy investments and involve long gestation lags (Government of India, 1996). Apart from ensuring assured rates of return with tax exemptions, contractual saving also provides old age security. As disposable income rises and life expectancy continues to increase, concerns regarding old age security can be expected to result in increasing share of financial saving held in contractual instruments.

3.25 'Shares and debentures' is another instrument of financial saving that was expected to get a boost from the reforms. Measures undertaken for developing the capital market were expected to divert saving from the traditional financial instruments to the capital market instruments. Reflecting this, the proportion of household saving in 'shares and debentures' (inclusive of investment in mutual funds) rose steeply to over 20 per cent of total financial saving in the initial years of the 1990s from 9.4 per cent in the 1980s. This was due to a shift away from the relatively safer modes of saving, such as small saving instruments (included under 'claims on Government'). Following the irregularities in stock market in 1992 and the associated price uncertainty that prevailed in the subsequent period, the proportion of household financial saving held in 'shares and debentures', however, witnessed a decline to reach a low of 3.2 per cent by 2000-01. On the whole, the proportion of financial saving in 'shares and debentures' rose by little less than two percentage points between 1981-91 and 1991-2001. The pattern of financial saving that emerges during the decade of reforms, thus, indicates a continued preference of households for relatively safer instruments with assured returns.

3.26 The improved performance of the private corporate sector saving during the second sub-period of Phase I can be attributed to high industrial growth and rising profitability of corporate entities (Table 3.6). On the other hand, the distinct slowdown in corporate sector saving witnessed since 1996-97 can be attributed to declining profitability of these entities engendered by industrial slowdown.

3.27 The public sector witnessed a noticeable decline in its saving during the reform period (Chart III.8). The deteriorating fiscal position during the 1980s had resulted in worsening of contribution of this sector to aggregate saving. During the period of reforms, despite the increased emphasis on fiscal discipline, at least in the initial years, the rising expenditure burden on account

of factors such as higher interest payments and salaries coupled with a fall in the tax-GDP ratio, placed considerable strain on the saving from this sector. During the 1990s, gross tax-GDP ratio for the Central Government fell by about 2.0 percentage points whereas interest payment as a proportion of GDP rose from 3.8 per cent to 4.6 per cent during the same period. Similarly, falling trend in salaries as a proportion of GDP witnessed in the early 1990s also got reversed after the implementation of the award of Fifth Pay Commission in the latter part of the 1990s. This contributed to the public sector saving rate turning negative (-1.1 per cent) during 1997-98 to 2001-02 from 1.8 per cent of GDP during 1994-95 to 1996-97 – a reduction of 2.9 percentage points. The high levels of public sector deficit imply a draft on the private saving in the economy. More worrisome aspect is that predominant part of Government draft on private saving is utilised for consumption purposes and to that extent productive capacity of the economy gets impaired [see Chapter IV for details on the issues related to fiscal policy].

Investment Behaviour

3.28 Reflecting greater investment demand in response to the major structural reforms undertaken in various sectors, the rate of domestic capital formation improved to 25.8 per cent of GDP during the second sub-period of Phase I (Table 3.8). The slowing down of the structural reforms in the second phase along with the cyclical influences transmitted from the global uncertainties weakened the investment demand, resulting in significant slackening in the rate of domestic capital formation to a level of 23.9 per cent of GDP.

3.29 The industrial and trade policy reforms of 1991 resulted in significant acceleration in private sector investment in the early 1990s, and was particularly led by a robust increase in manufacturing investment. The high investment demand in the industrial sector, apart from being aided by policy reforms, was facilitated by an improved domestic saving rate. However, a decelerating trend in the rate of private corporate sector investment was observed during the latter half of the 1990s. Even though investment from the household sector continued to show a rising trend, investment from the private corporate sector could not keep up with the momentum it witnessed in the initial years of the 1990s (Chart III.10). The pace of private investment originating from private corporate sector was, *inter alia*, inhibited by reduced saving from this sector, lack of adequate regulatory reforms in core and infrastructure sectors and lack of public investment in infrastructure. These factors could have inhibited private sector investment by imposing extra costs in a competitive environment.

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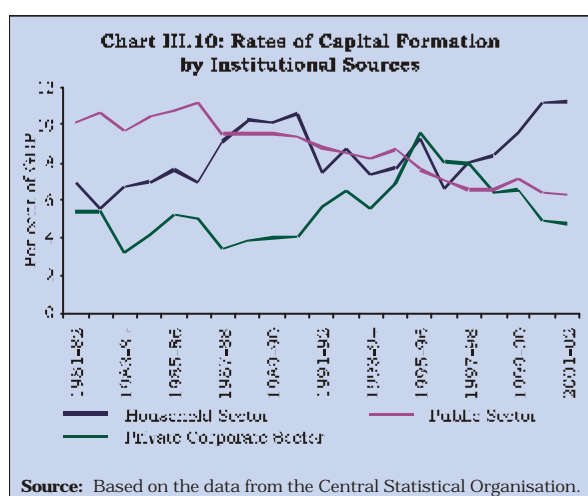
Table 3.8 : Rates and Composition of Gross Capital Formation by Institutional Sources

(Per cent)

Item	Decade Preceding Reforms	Year of Crisis	Phase I		Phase II
	1981-82 to 1990-91	1991-92	Sub-period I: 1992-93 to 1993-94	Sub-period II: 1994-95 to 1996-97	1997-98 to 2001-02
	1	2	3	4	5
1. Private Sector	12.6	13.1	14.1	16.1	15.8
	(55.2)	(59.8)	(62.6)	(67.2)	(70.6)
1.1 Household Sector	8.0	7.4	8.1	7.9	9.7
	(35.7)	(33.9)	(35.9)	(33.0)	(43.2)
1.2 Private Corporate Sector	4.5	5.7	6.0	8.2	6.1
	(19.5)	(25.8)	(26.8)	(34.2)	(27.4)
2. Public Sector	10.0	8.8	8.4	7.8	6.6
	(44.8)	(40.2)	(37.4)	(32.8)	(29.4)
3. Gross Capital Formation	22.5	21.9	22.5	23.9	22.4
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
4. Gross Domestic Capital Formation	21.8	22.6	23.3	25.8	23.9

Notes : 1) Rates are worked out as a percentage of GDP at current market prices.
2) Figures in parentheses indicate percentage share in Gross Capital Formation.

Source : Computed on the basis of data from the Central Statistical Organisation.



Besides these, increased uncertainties in the domestic investment climate created by factors such as poor progress and lack of clarity on the directions of disinvestments and privatisation programme, and the continued slowdown in the global economy, may also have dampened private investment.

3.30 High public investment in the 1980s was particularly aimed at boosting investment in infrastructure. However, public sector investment rate exhibited a steep fall during the 1990s which was caused by deterioration in public sector saving rate.

The rising interest payments and rigidity in subsidies and wages pre-empted a larger part of the revenues and borrowed funds of the Government, leaving reduced resources for investment. Besides this, the declining tax-GDP ratio and low user charges on public infrastructure services reduced the ability of the Government to undertake investment in basic infrastructure. Further, the process of fiscal adjustment led to direct cutbacks on the capital expenditure of both Central and State Governments.

3.31 Among the three sectors, a steady downturn in investment rates was experienced by the agricultural sector during the decade of reforms (Chart III.11). The decline in agricultural investment as a ratio of GDP came about from a decline in public investment rate on account of *inter alia*, rising subsidies, and also from the decline in private investment rate primarily owing to inadequate provision of infrastructure. The rate of investment in industry, accounting for the largest proportion of aggregate investment, exhibited a rise in the initial years of the reform decade responding to the major real sector reforms and associated anticipation of rising potential demand. This period of high investment was associated with high growth rate of GDP originating from the industrial sector. In the subsequent years, however, the rate of investment underwent a steep decline, as was the case with the rate of growth of output from this sector.

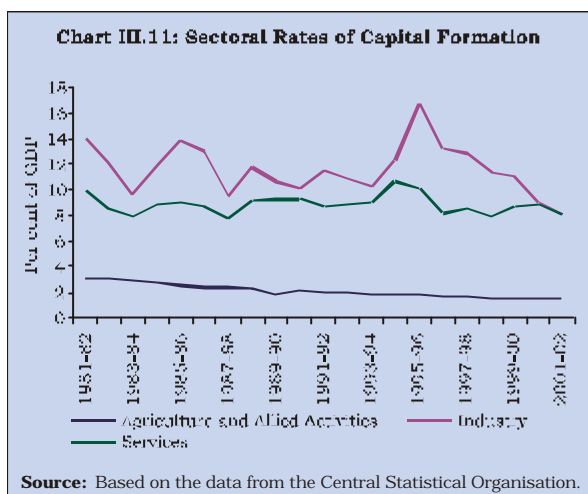


Table 3.9 : Incremental Capital Output Ratio

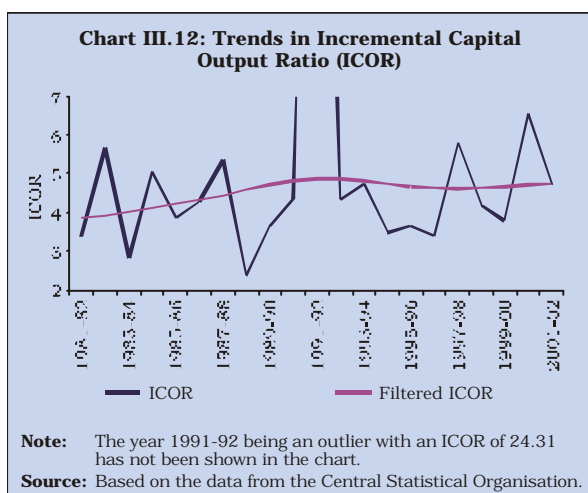
Period	Actual ICOR	Filtered ICOR
1981-82 to 1985-86	4.15	4.02
1986-87 to 1990-91	4.00	4.56
1992-93 to 1996-97	3.91	4.74
1997-1998	5.81	4.62
1998-1999	4.14	4.63
1999-2000	3.77	4.66
2000-01	6.54	4.70
2001-02	4.70	4.74

External Demand

3.33 The growth process during the reform period also seems to have been influenced by the behaviour of external demand. Traditionally, external demand has not been an important factor in influencing the behaviour of aggregate demand in India due to low degree of openness. However, during the 1990s, under a more liberalised trade and exchange regime, the degree of openness of the Indian economy rose considerably as reflected in higher ratio of foreign trade to GDP. Consequently, the pattern of exports has been exhibiting some degree of co-movement with global business cycles. The Granger causality between cyclical imports of industrial countries and India's exports is significant and strongly bi-directional. Further, the cyclical output of industrial countries has unidirectional causal effect on output in India (RBI, 2002).

Trends in Incremental Capital-Output Ratio

3.32 An improvement in the rate of investment needs to be supplemented by improvement in productivity in order to accelerate the rate of economic growth. The productivity of capital use, as measured by the Incremental Capital Output Ratio (ICOR), improved during the first half of the 1990s as exhibited by a steady decline in the filtered series of ICOR till 1997-98 (Chart III.12).⁵ As against this, an upward movement in the ICOR was observed during the subsequent period, reflecting the deceleration in productivity growth (Table 3.9). Given the existing level of investment in the economy, the downward trend in productivity does not augur well for achieving and sustaining high growth rate.



3.34 The magnitude of the influence of external demand on aggregate demand can be examined broadly in terms of export growth for the Indian economy. The average growth in exports rose from 8.3 per cent in the 1980s to 11.9 per cent during the first sub-period of Phase I (i.e., 1992-93 to 1993-94) and further to 14.8 per cent during the second sub-period (i.e., 1994-95 to 1996-97). This seems to have provided significant impetus to the aggregate demand in the economy during the phase of high growth. In the subsequent period, under the influence of weakening global demand and lower growth in world trade volume, export growth experienced wide fluctuations and the overall export growth decelerated to 5.9 per cent during the second phase from 1997-98 to 2001-02. The world trade in goods and services exhibited a deceleration in growth from an average of 8.8 per cent during the period 1994-97 to 5.6 per cent during 1998-2001 (IMF, 2002). This, reinforced

5. The ICOR can be susceptible to transitory fluctuations, and is thus smoothed using the HP filter.

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by the trade cycles, seem to have also contributed to the slowdown in the aggregate demand in the economy during the second phase of reform period.

Summing Up

3.35 The economy witnessed distinct improvement in growth during the first phase of reforms responding favourably to the initial productivity gains arising from reforms in the spheres of trade, industry and finance. This high growth was essentially led by a remarkable performance of the industrial sector. However, there was evidence of deceleration in the growth momentum in the second phase, mainly engendered by industrial sector, which has become a major policy concern. During the 1990s as a whole, the growth process was marked by robust growth in the services sector. The positive aspects of the growth process were an increase in the average growth of per capita income coupled with decline in the poverty ratio.

3.36 The slowdown in the domestic saving rate in the second half of the 1990s, mainly caused by public sector dis-saving, has constrained investment levels in the economy. The saving behaviour of the household sector shows that despite financial innovations, there is continued preference for relatively risk-free assets like bank deposits and contractual saving. The rising share of contractual saving reflects the rising disposable income and concerns for old age security. During the first half of the 1990s, the increased domestic saving enabled a rise in the investment rate in the economy. The slowing down of the structural reforms along with declining domestic saving rate and cyclical influences transmitted through global business cycles weakened the investment demand during the second phase of reforms. Declining public sector investment was reflective of the spill-over effects of rising revenue deficits on capital budgets of the Governments of both Centre and States. Besides a slowdown in investment, indications of declining productivity growth as reflected in rising ICOR during this phase, continue to pose challenges for the growth process.

3.37 Against this backdrop, the Tenth Five Year Plan (2002-03 to 2006-07) has set the target of an average rate of growth of GDP at 8 per cent, which is much higher than 5.5 per cent achieved during the Ninth Plan (Government of India, 2002a). This requires stepping up the average rate of investment by more than 4 percentage points to 28.4 per cent from 24.2 per cent in the previous plan. This order of increase in investment is expected to emanate from both private and public sectors. The Plan underlines the need to step up public sector investment in infrastructure to

promote private sector investment. The higher investment level is to be met mainly by domestic saving, which is expected to rise by more than 3 percentage points to 26.8 per cent during the Plan from 23.3 per cent during the previous plan. A larger improvement in the saving to the extent of 3.8 per cent is required to come from the public sector. To achieve the growth target, the Plan suggests the formation of policies that would lead to an increase in productivity of existing resources as well as efficiency of new investment. This would imply a reduction in the ICOR to a level of 3.6 during the Plan period as against 4.5 in the previous plan.

II. AGRICULTURE

3.38 Agriculture witnessed an improved growth of 3.2 per cent during the 1980s, after a span of relative stagnation during the previous two decades. The growth performance was somewhat subdued in the 1990s with real GDP originating from agriculture growing at a modest 2.9 per cent resulting from near stagnation in crop yields and falling rate of public sector capital formation in this sector, despite consecutive good monsoons. Within the agricultural sector, a sharper deceleration was observed in the non-food grain production. While there was deceleration in output growth, the variability of the growth process has significantly declined during the 1990s as compared with the 1980s.

3.39 The reasons for slowdown in agricultural growth were many. The pre-occupation with food security led to restrictive trade policies regulating trade in agricultural commodities. Alongwith this, high protection to industry resulted in unfavourable terms of trade for agriculture until the early 1990s. The negative consequences of such policies were to be offset by the provision of high subsidies on inputs such as irrigation and fertilisers. However, such input subsidies assumed large proportions over time and reduced the capacity of the Government to invest in agricultural infrastructure. Further, the distortionary pricing system of agricultural commodities with Minimum Support Prices (MSP) favouring production of rice and wheat, provided adverse incentives for crop diversification. The falling world prices of agricultural commodities during the latter half of 1990s further reduced the competitiveness of the agricultural exports. The relatively higher MSPs on the one hand, and the increasing production of rice and wheat on the other, all led to increased procurement of foodgrains, and in the face of lower off-take, resulted in piling up of foodgrain stocks. Thus, the slowing down of agriculture growth in the 1990s, despite a generally favourable

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macroeconomic environment, could be attributed to limited reforms in this sector. Limited progress has been made in removal of restrictions on domestic trade and processing, rationalisation of price interventions and reforms in rural infrastructure.

3.40 It is apparent that Indian agriculture is characterised by deceleration in its performance in the 1990s coupled with a large stock of foodgrains. While plateauing of yield gains (*i.e.*, productivity) in foodgrains could, in part, explain the observed deceleration in production performance, there is no denying of the fact that higher growth in agriculture will, clearly, need diversification. Notwithstanding the limited reforms directly affecting agriculture, some policy measures were undertaken to provide incentive framework for agriculture to make it more competitive. The reform measures taken during the 1990s included, (i) restructuring of Public Distribution System (PDS), initially through the Revamped Public Distribution System (RPDS) and subsequently by replacing RPDS with the Targeted Public Distributions System (TPDS); (ii) replacement of the quantitative controls by tariff restrictions; (iii) introduction of forward trading in important commercial crops; and (iv) relaxation of restrictions under the Essential Commodities Act, 1955. It may be noted that most of these reforms in agricultural sector were introduced only towards the end of the 1990s and are still in the process of being operationalised.

3.41 These reform measures have brought in some changes in the agricultural sector. Deregulation of industrial sector improved the terms of trade for agriculture (Vyas and Reddy, 2002; Mohan, 2002). The gradual reliance on the market seems to have brought some changes in the cropping pattern, causing diversion towards non-foodgrains from foodgrains. However, within the foodgrains, there has been area diversion towards input intensive cultivation of rice and wheat from coarse cereals and pulses, reflecting the impact of subsidies on inputs such as fertiliser and fuel for irrigation.

3.42 Against this backdrop, this Section seeks to analyse two distinct issues. First, the deceleration in agricultural growth during the 1990s and its product-specific profile are analysed. Second, the phenomenon of burgeoning buffer stocks of foodgrains including their fiscal and monetary implications is discussed in some detail.

Foodgrains

3.43 The deceleration in the growth of foodgrains production to 2.0 per cent in the 1990s from 2.9 per

cent in the preceding decade was caused predominantly by declining yield growth, reflecting a diminishing growth in productivity. Among foodgrains, growth in rice production decelerated due to a decline in yield growth, despite a marginal increase in the growth of area under cultivation. On the other hand, production of wheat in the 1990s witnessed an identical rate of growth to that of the 1980s, due to substantial increase in acreage, even as yield growth decelerated. The increased area growth in wheat and rice during the 1990s led to a decline in area under coarse cereals and pulses. Despite a decline in acreage, production of coarse cereals was maintained almost at the levels attained in the preceding decade on account of increased yield growth. Growth in pulses production decelerated in the 1990s due to a deceleration in yield growth coupled with a decline in acreage (Table 3.10). Following the changes in acreage under foodgrains during the 1990s, the shares of rice and wheat increased and those of coarse cereals and pulses declined, which had implications for input usage and procurement of foodgrains.

Non-Foodgrains

3.44 The decelerating growth in the index of non-foodgrains production to 2.6 per cent in the 1990s from 3.8 per cent in the earlier decade was also marked by a slowdown in the yield growth. Within non-foodgrains, oilseeds production growth witnessed a sharp deceleration from 5.5 per cent in the previous decade to 2.3 per cent in the 1990s due to a decline in yield growth and stagnation in area coverage. Stagnation in area under these crops seems to have been induced by the freeing of imports of major edible oils in 1994 that had considerably weakened the protectionist atmosphere in respect of the oilseeds sector. The growth in sugarcane production during the 1990s was identical to that in the 1980s, due to some acceleration in area growth, while yield growth decelerated marginally. In the case of cotton, the substantial yield growth attained in the 1980s appears to have influenced the farmers' preference to cultivate cotton in the 1990s with acreage increasing substantially by 2.7 per cent per annum. This increase in acreage led to an increase in output of cotton by 2.3 per cent even as yield growth turned negative to 0.4 per cent (Table 3.10).

3.45 The deceleration in yield growth, spread across both foodgrains and non-foodgrains, led to a perceptible slackening in the growth of agricultural production to 2.3 per cent in the 1990s from 3.2 per cent in the earlier decade. Moreover, increased variability in agricultural production during the latter

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Table 3.10 : Trend Growth Rates of Area, Production and Yield of Agricultural Crops

(Per cent)

	1980-81 to 1989-90			1990-91 to 1999-2000		
	Area	Production	Yield	Area	Production	Yield
	1	2	3	4	5	6
Index of Foodgrains Production	-0.2	2.9	2.7	-0.1	2.0	1.5
Index of Non-Foodgrains Production	1.1	3.8	2.3	1.2	2.6	1.1
Index of All Crops Production	1.0	3.2	2.6	0.3	2.3	1.3
Foodgrains						
Rice	0.4	3.6	3.2	0.7	2.0	1.3
Wheat	0.5	3.6	3.1	1.7	3.6	1.8
Coarse Cereals	-1.3	0.4	1.7	-2.1	0.0	2.2
Pulses	-0.1	1.5	1.6	-0.6	0.7	1.3
Non-Foodgrains						
Oilseeds	2.4	5.5	3.0	0.2	2.3	2.1
Sugarcane	1.5	2.7	1.2	1.7	2.7	1.1
Cotton	-1.3	2.8	4.1	2.7	2.3	-0.4

Note : Trend growth rates are computed on the basis of semi-logarithmic equations.

Source : Computed on the basis of data from the Ministry of Agriculture, Government of India.

part of the 1990s, primarily emanating from the fluctuations in acreage in case of foodgrains, and from fluctuating yields in case of non-foodgrains is also a matter of concern (Chart III.13).

3.46 Apart from these traditional foodgrains and non-foodgrains, India produces a large number of horticultural crops such as fruits, flowers, vegetables, potato, tropical tuber crops, spices, and plantation crops like coconut, cashewnut and cocoa as also livestock products. Given the diverse agro-climatic conditions in India, horticultural crops have the

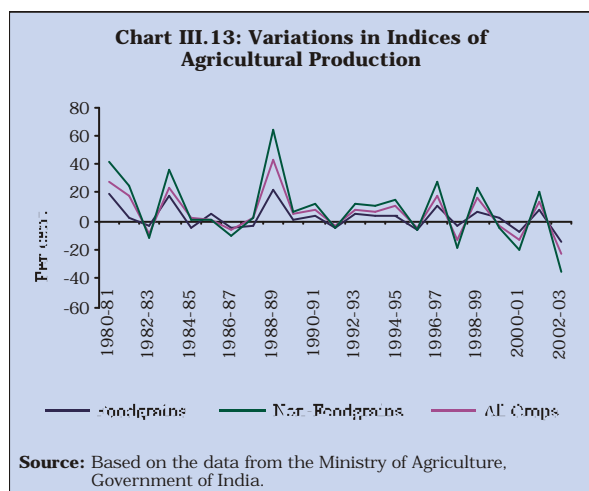
potential to turn agriculture more profitable as also create employment in rural areas. India has emerged as the largest producer of coconut, arecanut, cashewnut, ginger, turmeric, black pepper and the second largest producer of fruits and vegetables in the world. It needs to be recognised that these allied products of agriculture have high value added with a higher potential for exports. The sustainability of growth in the agriculture would, however, require much faster diversification away from traditional items to these non-traditional agro-products.

Deceleration in Agricultural Growth in the 1990s

3.47 As illustrated above, barring wheat and sugarcane, there has been a perceptible slackening of growth in agriculture in the 1990s. The main factors for the deceleration in agricultural growth include, i) inadequate irrigation cover; ii) improper adoption of technology; iii) unbalanced use of inputs; iv) decline in public investment; and v) weakness in credit delivery system.

i) Inadequate Irrigation Cover

3.48 Inadequate irrigation cover for most of the crops continues to be the main constraining factor for speedy adoption of improved technology. For instance, only 39.2 per cent of the gross cropped area in the country was under irrigation in 1998-99. The share of public expenditure on irrigation and flood control to total



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public expenditure had declined over the years. The share, which was 10 per cent during the Sixth Plan period (1980-85), came down to 7.6 per cent during the Seventh Plan period (1985-1990) and further to 6.5 per cent during the Eighth Plan (1992-97) period. During the Ninth Plan period (1997-2002), the share is estimated to remain at around 6.5 per cent.

3.49 Furthermore, irrigation coverage across various States and crops is quite skewed. Among the major agricultural States, while 92.2 per cent of gross cropped area in Punjab was irrigated in 1998-99, in Maharashtra only 15.4 per cent of cultivated area was irrigated. States like West Bengal, Karnataka, Madhya Pradesh and Orissa had less than 30 per cent of the cultivated area under irrigation in 1998-99. Distribution of irrigation facilities across crops is also equally skewed. For example, only 12.1 per cent of the area under pulses was irrigated in 1998-99 as compared with 85.8 per cent for wheat and 52.3 per cent for rice at the national level (Table 3.11). Similarly, the coverage of irrigation under the non-foodgrains crops had also been quite lopsided. Among the non-foodgrains, irrigation cover in respect of oilseeds was as low as 23.2 per cent, while the same for sugarcane stood at 91.7 per cent in 1998-99. The low irrigation cover for various crops has led to severe rainfall dependency. It was found that the correlation between production and rainfall was particularly high for pulses and oilseeds.⁶ This rainfall dependence of Indian agriculture has imparted variability to production in the

latter part of the 1990s when the spatio-temporal distribution of rainfall remained largely skewed.

ii) *Inadequate Adoption of Technology*

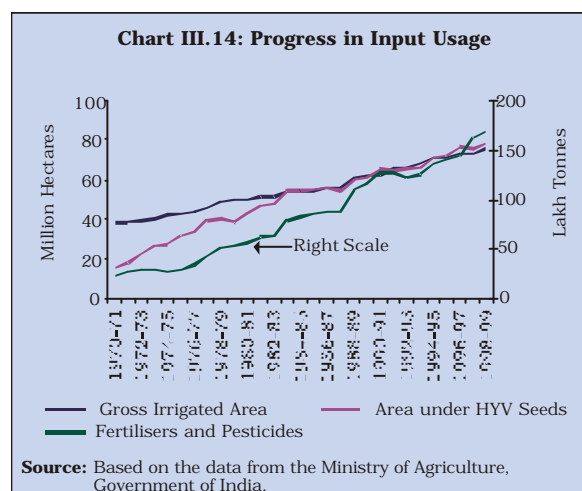
3.50 One of the main reasons for the low levels of yields in Indian agriculture has been the unsatisfactory spread of new technological practices, including the adoption of High Yielding Varieties of seeds (HYV) and usage of fertilisers and pesticides, inadequate spread of farm management techniques and other practices such as soil conservation and crop rotation (RBI, 2002). The adoption of new technology, mainly the HYV seeds requires intensive use of fertilisers and pesticides under adequate and assured water supply. The use of HYV seeds entails a higher yield risk as compared with the traditional seed varieties, mainly due to lack of proper irrigation facilities (Ganesh Kumar, 1999; Saha, 2001). This increased risk is one of the elements obstructing the speedy adoption of HYV seed cultivation across regions and crops. The area under HYV seeds and area under irrigation have been growing in tandem, probably on account of reduction in yield risk facilitated by availability of irrigation facilities (Chart III.14). The area under HYV seeds, which recorded a trend growth rate of 8.1 per cent per annum in the 1980s, decelerated to 4.4 per cent per annum in the 1990s. Availability of quality seeds is inadequate and usage of high yielding hybrid seeds is very low and occurs only in the case of a few crops. Similarly, there has been a decline in growth rate of consumption of fertilisers to 4.3 per cent in the 1990s from 7.8 per cent in the 1980s, with wide variations across States.

Table 3.11 : Irrigation Coverage for Various Crops

(Per cent to gross cropped area under the crop)

	1980-81	1990-91	1998-99
	1	2	3
Rice	40.7	45.5	52.3
Wheat	77.0	81.1	85.8
Coarse Cereals	9.2	9.0	12.0
Gram	20.6	20.5	21.0
Arhar	2.6	5.5	4.2
Total Pulses	9.0	10.5	12.1
Total Foodgrains	29.7	35.1	42.4
Groundnut	13.3	18.6	19.4
Rapeseed & Mustard	43.7	59.8	58.3
Soyabean	—	—	2.5
Oilseeds	14.5	22.9	23.2
Sugarcane	81.2	86.9	91.7
Cotton	27.3	32.9	34.9

Source : Ministry of Agriculture, Government of India.



6. The correlation co-efficient between rainfall and production for major crops are: rice (0.26), wheat (0.27), coarse cereals (0.37), pulses (0.61), oilseeds (0.34), sugarcane (0.21) and cotton (0.16).

iii) Unbalanced Use of Inputs

3.51 Various subsidies on inputs have resulted in skewed and unsustainable usage of inputs. To illustrate, subsidies on urea have resulted in unbalanced use of Nitrogen (urea), Phosphorus (phosphate), Potassium (potash) fertilisers (which was in the ratio of 8.5: 3.1: 1 in 1998-99 as against the desirable ratio of 4:2:1) and aggravated deficiency in use of micro-nutrients (Government of India, 2000). Subsidies on other inputs such as provision of electricity at nominal rates for irrigation pumps continue in various States. Subsidised electricity for irrigation purposes has resulted in proliferation of ground water drawing machinery such as pump sets and tubewells, which have implications for groundwater sustainability (Vaidyanathan, 1996). This also has adverse implications for equity since such machinery is capital intensive, and hence, the actual benefits derived by small farmers are debatable. Furthermore, subsidies on electricity and diesel have led to the cultivation of water intensive crops such as rice and wheat, with skewed consumption of nitrogenous fertilisers leading to an unsustainable cropping pattern. Moreover, private sector capital formation in irrigation typically favours digging of wells, as this practice has the advantage of excludability, as opposed to the non-excludable nature of canal irrigation. However, it needs to be recognised that such implements draw water from ground water table, which covers larger area beyond a farm size. This means that farmers with larger capacity pumps can actually draw water away from the water table adjoining their farms, and at a faster rate than those with smaller pumps (Dhawan, 1996). This tendency clearly has adverse impact on the level of water table and the ability of small and marginal farmers to irrigate their farms. Ground water being a common public resource, there is a necessity to rationalise the access and utilisation of the same. Appropriate user charges on electricity and diesel, could have a favourable impact on rational utilisation of water resource. Alternative arrangements of common property resource management, such as user cooperatives may result in better management and conservation of this public good.

iv) Decline in Public Investment

3.52 The subdued performance of Indian agriculture in the 1990s is often attributed to a secular decline in the rate of public investment in agriculture. It is argued that decelerating public sector capital formation in agriculture, which goes primarily towards major irrigation, has serious implications for the private sector investment in minor irrigation.⁷ The ratio of public

sector capital formation in agriculture to Gross Public Sector Capital Formation has declined from 17.7 per cent in 1980-81 to 7.1 per cent in 1990-91 and further to 4.9 per cent in 2000-01. Capital formation in agriculture as a ratio of GDP originating from agriculture also decreased from 8.5 per cent in 1980-81 to 6.1 per cent in 2000-01. However, private sector capital formation in agriculture has been on the rise during the same period. In this connection, it needs to be noted that about 90 per cent of public sector capital formation in agriculture is invested in major and medium irrigation facilities, while most of the private sector capital formation goes towards minor irrigation facilities like pump sets.

3.53 Although the private sector capital formation in agriculture has been on the rise, fixed capital formation by the household sector has been on the decline (Sawant *et al*, 2002). Furthermore, private sector capital formation was found to be responsive to availability of water (canal intensity) and inputs (electricity) in any given year (Dhawan, 1996). It is worth mentioning in this regard that major and medium irrigation facilities have a long gestation period (10-12 years) and hence, private sector capital formation would respond to a greater degree to the cumulative capital formation in agriculture rather than that in any given year. Thus, the declining capital formation in agriculture seems to be a result of reduced investment in irrigation over a long period covering both the 1980s as well as the 1990s (Gulati and Bathla, 2001).

3.54 It is clear that the inadequacy of new capital formation has slowed the pace and pattern of technological change in agriculture with adverse effects on productivity. In this context, there are apprehensions that the boost in output from subsidy-stimulated use of fertilisers, pesticides and water may partly be at the expense of deterioration in aquifers and soil, and hence is environmentally unsustainable (Government of India, 2000). This, to some extent, explains the rising costs and slackening growth and productivity in agriculture.

v) Credit Delivery System

3.55 Lack of adequate credit for investment is an important impediment to expansion of acreage under HYV seeds and the use of optimum dose of inputs (Sarap and Vashist, 1994). Furthermore, adequate credit plays a crucial role in augmenting private sector capital formation. The annual compound growth rate

7. See among others, Dhawan (1996) for complementarity between public sector investment in major irrigation and private sector investment in minor irrigation.

of direct institutional credit (disbursements) to agriculture and allied activities improved marginally from 12.0 per cent during the 1980s to 12.7 per cent during the 1990s. However, the credit delivery scenario at the disaggregated level in the 1990s is somewhat unsettling as there is a deceleration in the scheduled commercial banks' disbursements of direct finance to small farmers from 15.1 per cent in the 1980s to 11.0 per cent in the 1990s. Similarly, the annual compound growth rate of direct finance (disbursements) to marginal farmers, decelerated to 13.0 per cent from 18.1 per cent during the same period. The annual compound growth rates of medium/long term loans disbursed to agriculture and allied activities (direct advances), which are important for private sector capital formation in agriculture, have shown deceleration to 9.7 per cent in the 1990s from 11.5 per cent in the preceding decade. However, the disbursements of short-term loans have accelerated from 12.2 per cent to 14.5 per cent during the same period. The shift in the composition of the agricultural loans in favour of short-term advances is a matter of some concern, as it is likely to further accentuate the declining private sector capital formation in agriculture (Chart III.15).

formulated. The system, despite various infirmities, worked reasonably well till the late 1970s. Since then, primarily due to the expansion of production possibility frontier under the Green Revolution, domestic production of foodgrains started to keep pace with the requirement of public distribution system. With the emergence of successive "normal" monsoons during the 1990s, the prevalence of a distorted price mechanism resulted in large accumulation of food stocks with the official agencies during the second half of the 1990s. Two major issues that have come to the forefront of public policy debate in this regard are: What are the factors behind the burgeoning food stocks? And, what are its macro-financial implications for the economy? This sub-section takes a look into these two questions.

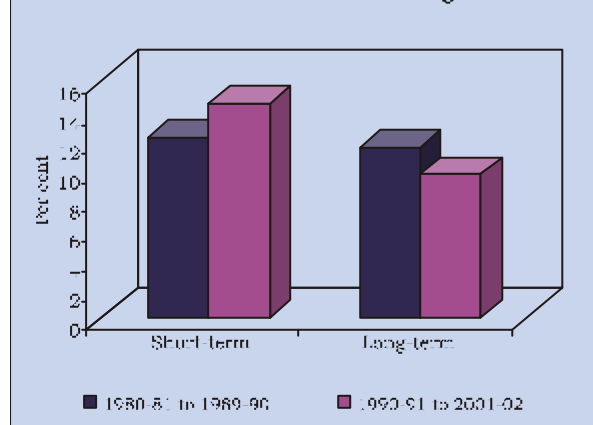
Some factors behind the burgeoning food stocks

3.57 Burgeoning food stocks with the official agencies can be attributed to an increase in procurement, a reduction in off-take or a combination of both. A number of factors like distorted price incentives for agricultural products and shift in consumption pattern have added to this phenomenon.

i) Price Interventions

3.58 Price interventions by the Government by way of Minimum Support Prices (MSP) have resulted in some distortions in cropping pattern. One of the major factors influencing the cropping pattern is the income accruing to the farmer or expected income from cultivating a crop. Generally, low yield rates of pulses and coarse cereals among foodgrains generate lower income for farmers than rice and wheat. Moreover, the price support operations have been skewed in favour of rice and wheat, which have benefited significantly by the elaborate procurement operations in conjunction with the rising MSP. On the other hand, coarse cereals and pulses do not seem to have been procured by the public sector agencies on a comparable scale. Furthermore, in contrast to that of rice and wheat, the cost of production of coarse cereals and pulses has been generally higher than the MSPs during the period 1983-84 to 1997-98 (Table 3.12). This makes the cultivation of rice and wheat more attractive than pulses and coarse cereals. The higher relative yields of wheat and rice further increase the assured income per hectare (in terms of MSP multiplied by the per hectare yield). The increasing MSPs and higher yields in wheat and rice, thus, accentuate the difference in expected income from coarse cereals/pulses *vis-à-vis* wheat and rice. The rising MSPs and higher procurement of rice and wheat coupled with unattractive assured incomes from

Chart III.15: Annual Compound Growth Rates of Disbursements of Direct Finance to Agriculture



Burgeoning Food Stock: Some Macro Implications

3.56 Another issue that has assumed significance in the recent period is the large food stocks and their macro implications. It may be recalled that in order to ensure food security to the vast population of the country, an elaborate system of public procurement and distribution of foodgrains was evolved as a part of a conscious strategy. As per this strategy, the Food Corporation of India (FCI) was established in 1965 and a detailed price support mechanism was

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Table 3.12 : Cost of Production and MSPs of Foodgrain Crops

(Rupees per quintal)

Year	Paddy		Wheat		Coarse Cereals		Gram		Arhar	
	Cost	MSP	Cost	MSP	Cost	MSP	Cost	MSP	Cost	MSP
	1	2	3	4	5	6	7	8	9	10
1983-84	124	132	142	152	117	124	249	240	N.A	245
1985-86	123	142	133	162	143	130	235	260	345	300
1990-91	213	205	206	225	231	180	448	450	604	480
1991-92	253	230	232	275	319	205	482	500	837	545
1992-93	270	270	261	330	293	240	559	600	759	640
1993-94	267	310	N.A	350	N.A	260	N.A	640	N.A	700
1994-95	344	340	324	360	330	280	616	670	764	760
1995-96	341	360	346	380	490	300	704	700	914	800
1996-97	375	380	389	475	463	310	837	740	824	840
1997-98	411	415	418	510	499	360	783	815	1221	900

Source : Compiled on the basis of information from the Ministry of Agriculture, Government of India.

cultivation of pulses and coarse cereals have, thus, induced farmers to cultivate rice and wheat more than other foodgrains crops.

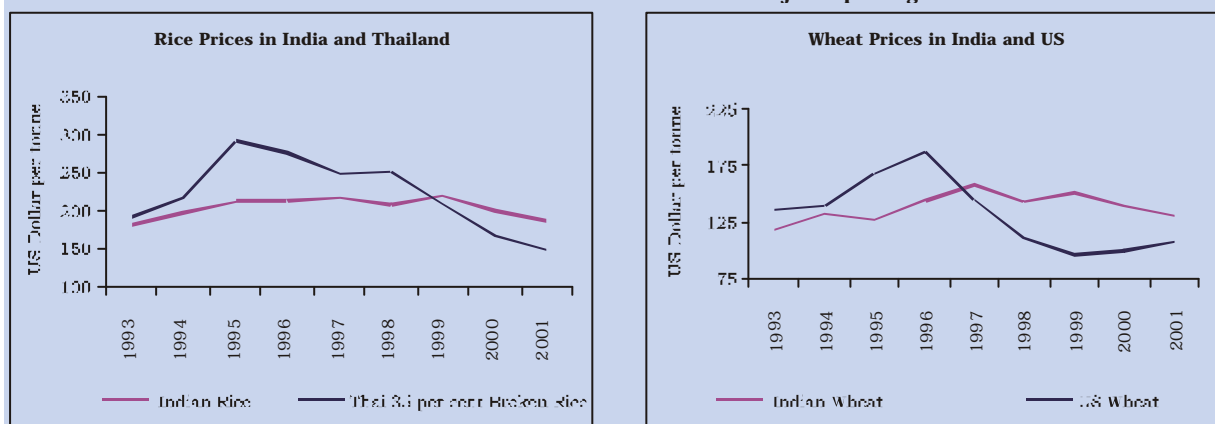
ii) International Price Environment

3.59 Protectionist atmosphere for foodgrains production coupled with various restrictions on imports and exports, generally led to higher domestic prices of rice and wheat. In contrast to the partial rigidity in the Indian prices of rice and wheat in the 1990s, there was a sustained decline in international prices (Table 3.13 and Chart III.16). Increasing domestic prices of rice and wheat in the face of declining prices of the same in the international market have shielded farm incomes from

international price volatility, but adversely impacted on the price competitiveness of Indian exports of foodgrains, and led to increasing dependence of farmers on procurement operations for market clearance.

3.60 The wholesale price of rice in India during 1993 to 2001 was on an average lower than that in Thailand for the same period. The average wholesale price of wheat in India in this period was slightly higher than the US Soft Red Winter (SRW) variety, but lower than those of US Hard Red winter (HRW) and Canadian varieties. If the current downtrend in international prices of rice and wheat is cyclical, they are likely to rise above Indian prices, thus, making Indian rice and

Chart III.16: Rice and Wheat Prices in India vis-à-vis Major Exporting Countries



Note: Indian prices are annual averages of domestic wholesale prices.

Sources: Based on the data from 1. The Ministry of Agriculture, Government of India. 2. Report of the High Level Committee on the Long-term Grain Policy, Ministry of Food, Consumer Affairs and Public Distribution, Government of India, 2002.

Table 3.13 : Trends in World Agricultural Commodity Prices

(US Dollar per Metric Tonne)

Year	Wheat		Rice	
	US*	India	Thailand **	India
	1	2	3	4
1993	134.8	118.1	191.4	181.4
1994	138.6	132.2	218.5	197.0
1995	167.4	126.7	290.2	212.8
1996	187.4	143.6	275.8	213.4
1997	143.7	158.2	246.8	216.9
1998	111.5	141.5	249.7	207.1
1999	96.3	150.5	210.5	220.2
2000	98.9	138.9	167.2	198.4
2001	107.7	131.0	149.1	187.7

* SRW variety.

** Refers to 35 per cent broken rice.

Note : The domestic prices of rice and wheat are annual average wholesale prices. In order to enable comparability to international prices, domestic prices are deflated by the average nominal exchange rate (US dollar).

Sources : 1. Ministry of Agriculture, Government of India.
 2. Report of the High Level Committee on Long-term Grain Policy, Ministry of Food, Consumer Affairs and Public Distribution, Government of India, 2002.

wheat competitive. Even if there is a secular decline in international prices, the Indian prices can still be competitive, provided, the Aggregate Measure of Support (AMS) by the US and European countries is reduced to WTO compatible levels.

iii) Increasing procurement

3.61 The increased cultivation of rice and wheat in the 1990s supported by the consecutive good monsoons, has played an important role in large-scale procurement. However, as mentioned earlier, increase in support prices, mainly due to the change in methodology of including the "statutory minimum wages" instead of "actual wages" paid in computing the cost of cultivation, coupled with lack of international competitiveness and restrictions on international trade of foodgrains seem to be the main causative factors underlying increasing procurement. The system of compulsory levy procurement and the restrictions on movement of foodgrains under the Essential Commodities Act, 1955 also contributed to increasing procurement operations. The ever-increasing MSPs of rice and wheat and the compulsory procurement coupled with the protectionist atmosphere, ensured market clearance for rice and wheat and thereby created a vicious circle of increasing

MSPs - higher procurement - larger cultivation of rice and wheat-increasing production and generation of higher marketable surplus - lack of export competitiveness - increasing procurement further.

iv) Decline in Off-take

3.62 The off-take of foodgrains in the 1990s was generally low. This was partly due to limited open market operations because of higher price for low quality foodgrains that were made available through PDS, which also led to lower off-take by the actual PDS beneficiaries. Altered consumption pattern of the population due to improving income levels and lacklustre export performance also explain the decline in off-take through PDS. Inadequate institutional arrangements for quick and timely delivery in areas of greater need and linking delivery to specific requirements were also contributing factors.

● *Rise in Issue prices and Targeted Public Distribution System*

3.63 Consumer prices reflected in the Central Issue Price (CIP) have witnessed a rise since the inception of TPDS (Chart III.17). The TPDS was introduced in 1997 in order to achieve better targeting of subsidies. Under the TPDS, a dual price mechanism for the APL (Above the Poverty Line) and BPL (Below the Poverty Line) consumers was introduced. The full economic cost of foodgrains was recovered from the APL consumers, while foodgrains were sold at half the economic cost to the BPL consumers. Successive increases in MSPs of rice and wheat and attendant increase in economic cost of foodgrains necessitated an increase in CIP for APL consumers, which resulted in narrowing the gap between open market prices of foodgrains and the CIPs. This led to a drastic reduction in off-take under TPDS (Government of India, 2002b). For instance, the off-take under TPDS declined by 29.5 per cent to 12.0 million tonnes in 2000-01 from 17.1 million tonnes in the previous year.

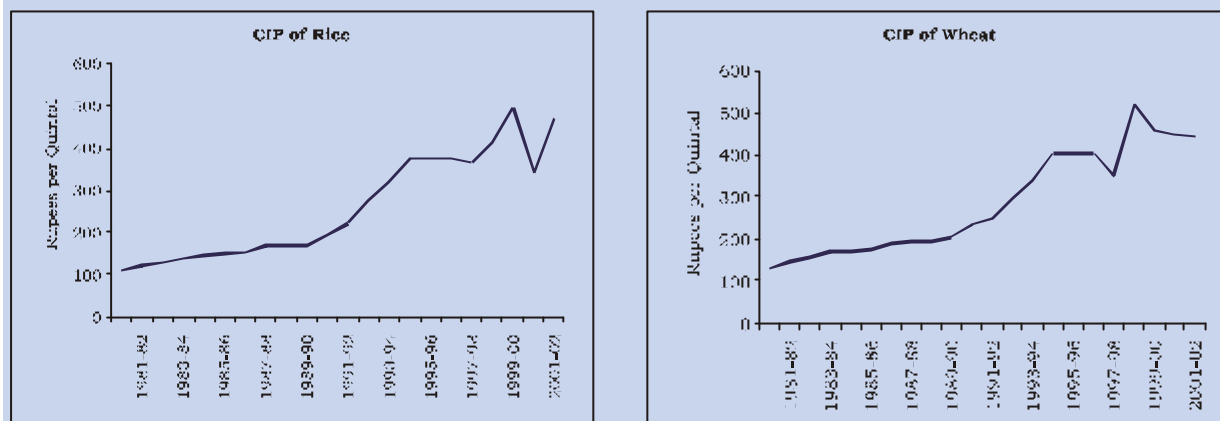
● *Shift in Consumption Pattern*

3.64 Apart from the increasing CIPs, the changes in consumption pattern towards milk, eggs and meat, as against cereals, partly caused the decline in off-take. Recent studies, based on NSS data on consumption expenditure, show that there has been a decline in the share of food in the total expenditure among both the poor and non-poor, despite relatively lower prices of cereals (Bhalla *et al*, 1999; Meenakshi, 2000).

3.65 Thus, domestic off-take has been low *vis-à-vis* the procurement of the foodgrains, resulting in the problem of growing stocks. The implications of the

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Chart III.17: CIP of Rice and Wheat



Source: Based on the data from the Ministry of Food, Consumer Affairs and Public Distribution, Government of India.

mounting food stocks are manifold. Apart from price implications that emanate from MSP, it adds to storage and maintenance costs in presence of limited off-take, thereby imposing high fiscal costs in the form of food subsidy. To the extent the burgeoning food stocks are financed by preferential food credit, they have monetary implications as well.

Monetary Implications of Growing Foodgrain Stocks

3.66 The monetary implications of increasing food stocks emanate essentially from the increasing procurement of foodgrains. The higher demand for food credit can give rise to possible crowding-out effects on other sectors. It can also affect the interest rate and the credit risk profile of the banking system arising out of deteriorating quality of foodgrain stocks, which act as collateral for food credit. As a result of unprecedented rise in foodgrain procurement operations, food credit registered a marked uptrend from Rs.4,506 crore as at end-March 1991 to Rs.53,978 crore as at end-March 2002 (Table 3.14). Consequently, the share of food credit in total commercial bank credit has increased from 3.9 per cent to 9.2 per cent during the same period.

3.67 Given the persistence of significant deficit on the revenue account of the Central Government, any increase in food subsidy (caused by increasing procurement) implies equivalent increase in market borrowing by the Central Government. Furthermore, the higher demand for resources may engender a tighter liquidity position, particularly during conditions of strong economic activity, which in turn could affect the interest rate. If monetary conditions were to remain unaffected, banks would have to raise additional resources through refinance or reallocate

Table 3.14 : Share of Food Credit (Outstanding) in the Commercial Bank Credit

Year	Bank Credit	Food Credit	(Rupees crore)
			Food Credit as a per cent of Bank Credit
	1	2	3
1980-81	25,371	1,759	6.9
1985-86	56,067	5,535	9.9
1990-91	1,16,301	4,506	3.9
1995-96	2,54,015	9,791	3.9
1996-97	2,78,401	7,597	2.7
1997-98	3,24,079	12,485	3.9
1998-99	3,68,837	16,816	4.6
1999-00	4,35,958	25,691	5.9
2000-01	5,11,434	39,991	7.8
2001-02	5,89,723	53,978	9.2

existing assets in order to meet the higher non-food credit demand. Presently, refinance from the Reserve Bank is not allowed against food credit. In the absence of any food credit refinance facilities, banks may reduce their holding of government securities, which could imply higher holding of securities by the Reserve Bank, increasing thereby the monetary base indirectly. This would lead to reserve money expansion and, *ceteris paribus*, would result in an increase in money supply over the medium-term through the money multiplier process with possible inflationary effect. Since food credit is provided out of the lendable resources of banks, any further increase in non-food credit demand would reduce the resources available to banks for lending to other sectors thereby exerting an upward pressure on interest rates (Box III.1).

Box III.1

Monetary Implications of Excess Food stocks

The monetary implications of food credit (*i.e.*, the credit advanced to FCI for carrying out the procurement and distribution operations) emerge from their impact on money supply and on interest rates. Since equiproportionate gains in output may not occur, excess liquidity could add to the inflationary potential in the economy. From the policy perspective, the impact of food credit on money supply, though small, is of some relevance in monetary management and the degree of sensitivity of monetary policy would depend on both the actual quantum of food credit and the observed trend in its movement.

Impact on Interest Rates

The manner in which growing food stocks impact on the evolution of the short-term interest rates in the system is important from the viewpoint of the conduct of the monetary policy. As the food stocks accumulate beyond optimal levels (mainly due to increasing procurement), there is higher demand for the food credit from the banking system. Food credit being mandated in nature, growth in food stocks contemporaneously results in higher food credit. For a given level of money supply, the pressure on the non-food credit increases and depending on the magnitude of pre-emption of funds for food credit, the interest rate could rise.

The interest charge component of carrying cost of buffer stocks has increased steadily at the compound growth rate of above 15 per cent since 1992-93. Since the carrying cost of buffer stock

forms a part of the food subsidy, such hefty increase in interest charges will impart an upward pressure on the quantum of food subsidy. In fact, in the recent years, the carrying cost component of food subsidy far exceeded that of the consumer subsidy.

The interest rate impact of the food credit from the banking system has been analysed in an unrestricted VAR framework. The model consists of food stocks (Lstock), food credit (Lfcr), short-term interest rates (*i.e.*, call rates) (Rcall) and non-food credit (Lnfc). Food credit and non-food credit were taken as ratios to domestic assets of the banking system. The ordering of the variable in the VAR was Lstock, Lfcr, Rcall, Lnfc. A dummy variable was used in the system for the period September 2001 onwards to neutralise the impact of cyclical downturn on interest rates. The order of VAR in the model was two. The impulse response derived from the above unrestricted VAR framework provides evidence of the interest rate impact of large food stocks. Shocks to food stocks cause sharp rise in food credit for three months, but the impact of the shock peters out thereafter (Chart III.18). As the non-food credit demand rises, the short term interest rate moves upwards for about six months and then stabilises (Chart III.19).

In the current milieu of progressive liberalisation of the banking system and a shift by banks towards integrated asset-liability management, there is a need to explore the scope for a gradual scaling down of this large outstanding amount.

Chart III.18: Impulse Response of Food Credit to One Standard Deviation Innovation in Food Stock

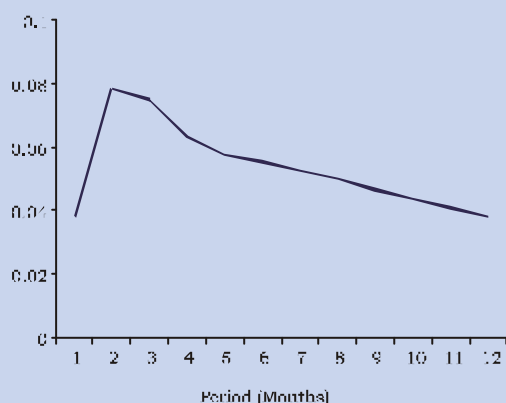
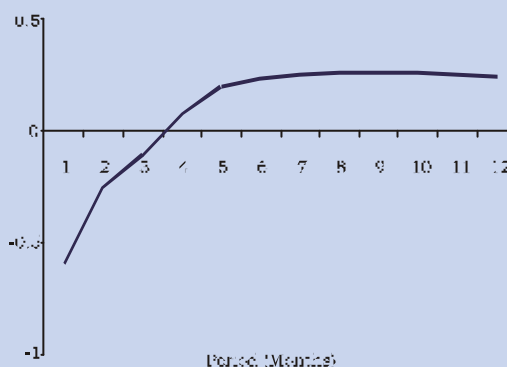


Chart III.19: Impulse Response of Interest Rates (Call Rates) to One Standard Deviation Innovation in Food Stock

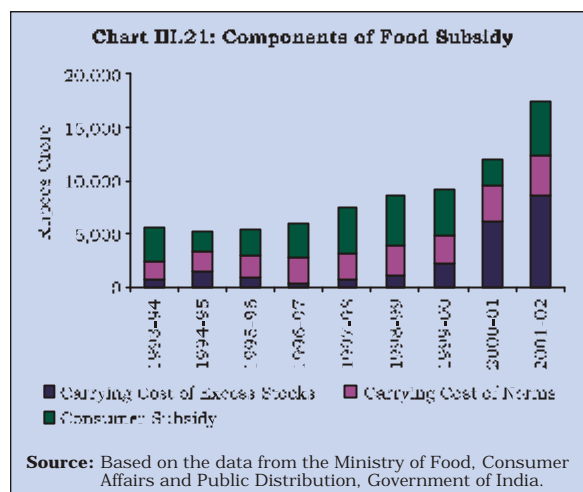
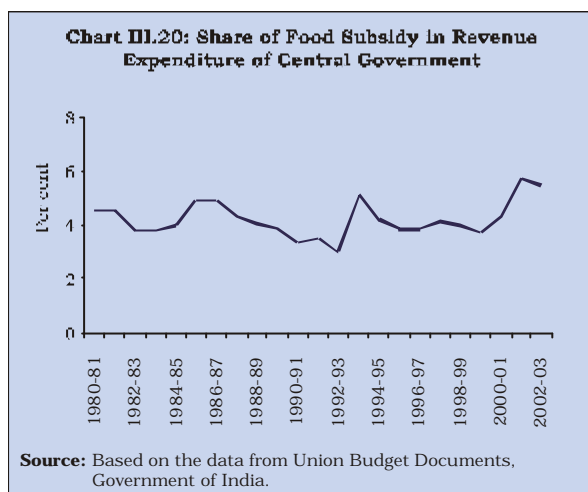


The Fiscal Impact of Food stocks

3.68 Apart from the monetary implications, growing food stocks have fiscal impact, arising from the growing food subsidy and its concomitant impact on the revenue deficit of the Central Government. The food subsidy is the operational deficit in the economic cost of foodgrain operations on one hand and the income accruing to the

FCI through sales under PDS, open market sales including exports, and other welfare schemes at issue prices fixed by the Government on the other. The food subsidy rose moderately from Rs.2,450 crore in 1990-91 to Rs.5,377 crore in 1995-96 and then rapidly to Rs.17,499 crore in 2001-02 and accounted, on an average, 4.1 per cent of Central Government expenditure (Chart III.20).

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3.69 The food subsidy comprises two components: consumers' subsidy and the subsidy pertaining to the carrying cost of buffer stock. The carrying cost is the cost incurred by the FCI for inventory management, while consumer subsidy is food subsidy net of carrying cost. The amount of consumer subsidy depends on the volume of foodgrains distributed through the PDS and the carrying cost is determined by the volume of the inventory with the FCI.⁸ While carrying cost on maintaining the stocks at buffer norm levels is a price for food security, the carrying cost on excess stocks over and above buffer norms may be considered as a kind of implicit producers' subsidy.⁹ In other words, if the stocks were to be maintained at the levels of prescribed norms, given the off-take, procurement would have to be less by the extent of excess stocks and hence, lesser total outgo in terms of carrying cost. In recent years, the share of carrying cost for excess stocks over and above norms (*i.e.*, the implicit producers' subsidy) in total food subsidy far exceeded that of the consumer subsidy (Chart III.21).

3.70 The composition of food subsidy has, over the years, evolved in such a way that implicit producers' subsidy emerged as the largest component (48.9 per cent in 2001-02 from 12.8 per cent in 1993-94) with a corresponding erosion in the share of the consumer

subsidy (29.2 per cent in 2001-02 from 56.5 per cent in 1993-94) and subsidy pertaining to maintaining the stocks at the buffer norm levels (21.9 per cent in 2001-02 from 30.7 per cent in 1993-94). This implies that a larger portion of the subsidy is being spent on carrying costs, rather than on meeting the original aim of subsidising the consumers through the PDS.

3.71 Food procurement operations of the FCI also imply contingent liabilities for the Central Government. The food credit outstanding must always be fully matched by the value of paid stocks of foodgrains, evaluated as per the banking norms. In this connection it raises concern regarding the procedure for evaluating the quality and quantity of stocks (which act as collateral for the extension of food credit by virtue of their marketability), as these will have an impact on the quality of outstanding advances of commercial banks. This becomes crucial in the light of the finding that on an average 10 per cent of the annual production of foodgrains is wasted annually on account of inadequate storage facilities (Radhakrishna *et al*, 1997). As food credit is government guaranteed, deterioration in the quality of food stock, in the final analysis, implies a further loss on the Government account as these guaranteed stocks result in cash outflows (in terms of food

8. As consistent and reliable information on the farm harvest prices (FHPs) is not available for the 1990s, it is difficult to assess the producers' share of the food subsidy accruing on account of higher MSPs *vis-à-vis* the FHPs. However, MSPs form a part of the economic cost which ultimately affect the consumers' subsidy.

9. Similarly, implicit subsidy to the producers measured through carrying cost as also cost for the food security depend on the efficiency in the handling of the stock by the FCI. Higher the efficiency lower will be the carrying cost and *vice-versa*. Incidentally, variables relating to food management generally under control of the FCI such as procurement incidentals and carrying cost have increased in the 1990s at the rate of 12.1 per cent and 10.2 per cent, respectively, as compared to MSPs (8.6 per cent) and distribution cost (3.0 per cent). This indicates that operations of the FCI are not cost effective. To that extent implicit subsidy to the producers and cost of food security have been over-estimated.

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subsidy) in the budget, which is the fiscal impact of growing stocks (Box III.2).

3.72 It may be noted, however, that the stocks have been on the decline since 2001-02 mainly due to persistent efforts made by the Government to increase off-take primarily through exports. The reduction in CIP for APL consumers in July 2001 had also resulted in some improvement in the off-take on the TPDS front. The strategy of increasing exports at the BPL prices can at best be sustained in the short-run only, as the exports depend on various factors other than the prices of the grains. As for the immediate future, the first half of 2002 has seen grain prices rise largely due to adverse weather conditions in the United States, Canada and Australia. The price increase in the near term, however, seems limited due to higher

competition from other producers such as Argentina and Brazil and the restoration of export subsidies by the European Union (IMF, 2002). Further, the US Farm Bill, which aims at increasing price support and expanding support to new crops, may also dampen the prospects of sustained increases in the prices of foodgrains. The world price scenario that may prevail in the long run is not clear. Relying on exports of foodgrains, therefore, could only be a short-term strategy for increasing off-take and lowering stocks. In the long run, there is a need to boost export competitiveness, through both price and non-price factors, to overcome the problem of growing stocks.

Summing Up

3.73 The supply response of Indian agriculture, though predominantly determined by monsoon, has

Box III.2

Fiscal Impact of the Growth in Food stocks

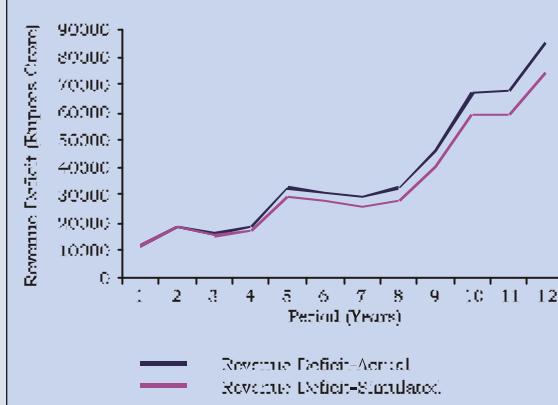
It has generally been recognised that growing food stocks contribute to weakening fiscal position of the Government. The direct impact of the food subsidies on the budget is in the form of rising subsidies to finance the operational deficit of the FCI. Given the mainly exogenous nature of the Government revenues which are largely determined by the output growth in the economy, an increase in subsidy directly leads to a rise in the revenue deficit of the Government. This, in turn, leads to widening of the fiscal deficit or the aggregate borrowing requirements of the Government.

A structural model was formulated to analyse the fiscal impact of food stock comprising 6 behavioural equations and five identities. The model consists of 7 exogenous and 4 lagged endogenous variables.¹⁰ The model covers the sample period 1975-76 to 2001-02, and establishes linkages between the food stock operations and the fiscal accounts. The model is estimated by two stage least square (2SLS) simulation. The model is tested for convergence and meaningful results are obtained in this regard. The estimates of the model reveal that the coefficients have expected signs and are statistically significant. In each of the equations, the coefficient of determination (Adj.R²) is reasonably high and computed Durbin-Watson (DW) statistic indicated absence of serial correlation.

In the model framework, the fiscal impact of the food stocks is analysed in a medium-term time frame.¹¹ The main issue examined here is the impact of distortionary support prices on accumulation of food stocks and the current expenditure of the Government. It is analysed how the reduction in procurement prices of rice and wheat to the level recommended by the Commission on

Agricultural Costs and Prices (CACP) would translate into reduced subsidies for the Government and hence, a lower revenue deficit. It is evident from the Chart III.22 that if MSP of wheat and rice were retained at the level recommended by the CACP, the revenue deficit of the Government would have consistently declined by about 13 per cent in the terminal period of the simulation. This provides evidence of the magnitude of fiscal distortions resulting from the existing food stock operations.

Chart III.22: Fiscal Impact of Retaining MSP at the Level Recommended by CACP



10. The role of international prices of rice and wheat was examined in affecting the off-take of food stocks and food subsidy indirectly, apart from providing stability to the model. However, the impact did not turn out to be significant possibly due to the fact that till recently, trade in foodgrains was highly restricted.

11. The impact of cost of inventories of the FCI is likely to be significant in influencing the subsidies and consequent revenue deficits. However, these could not be directly integrated in the model due to non-availability of a reasonable time series data on the carrying cost.

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also been significantly influenced by structural bottlenecks such as inadequate infrastructure, particularly in irrigation. Furthermore, the successive increases in MSPs of rice and wheat in contrast to declining world prices has led to reduced export competitiveness of Indian rice and wheat. The rising MSPs of rice and wheat also favoured their increased cultivation, leading to higher procurement. As opposed to growing procurement, the off-take has been low due to increasing CIPs on one hand and the changes in consumption pattern away from cereals to non-traditional food items on the other. Thus, the increasing procurement and low off-take resulted in mounting foodgrain stocks, which have had monetary and fiscal implications, particularly in terms of the unprecedented growth in food subsidy. The growth in food subsidy has serious opportunity costs, especially in terms of investment in irrigation and other infrastructure, which in turn would have facilitated higher agricultural growth.

3.74 Irrespective of the fiscal costs that are imposed by the increasing MSPs by way of aiding increased procurement, it is worthwhile to reiterate that it serves the role of price stabilisation. The policy intervention to support agriculture is less in India, than in many OECD countries. If the level of subsidies accorded to these commodities is reduced in USA and European countries, Indian cereal production would retain competitiveness. It can be said that the Indian price policy has provided a modicum of income protection to farmers, *albeit* with fiscal costs.

3.75 It is interesting to note that the recent predicament of mounting foodstocks occurred despite a deceleration in agricultural growth. It is quite possible that the foodgrain stock piling could have been much more, had there been higher growth in rice and wheat production. The increasing production of rice and wheat, in conjunction with the increasing MSPs would have resulted in much higher procurement, mainly due to inadequate market clearance caused by the declining demand for cereals. This would have led to larger levels of stocks and hence, higher economic costs.

3.76 Achievement of higher growth in agricultural production will require much faster crop diversification. The changes in consumption pattern also make crop diversification imperative. There is a growing preference by consumers towards processed foods such as flour, packaged milk, instant foods, meat, poultry, fish, fruits and vegetables. With the share of unprocessed foods falling in the consumption, the future growth in agriculture lies in these value added products and areas like horticulture and floriculture,

which also have higher export potential. In such emerging areas of agriculture, the heterogeneity of products is much greater. There is a multiplicity of varieties that can be produced. However, so far production is often regionally concentrated and the production and marketing conditions differ significantly as also the input requirements. Furthermore, the lack of adequate storage facilities act as a major bottleneck in the development of food processing industry. Another matter of concern regarding processed foods in India is the lack of standardisation of product quality, which is important for meeting the international norms like the Codex Standards.

3.77 Policies and programmes that need to be designed to support higher productivity and production in these areas should be regionally disaggregated and knowledge intensive. The promotion of diversified agriculture will also need a greater concentration of resources in research and extension in the new areas. Further, a greater thrust needs to be provided to the development of rural infrastructure, *viz.*, rural roads, cold storage, transport facilities with greater private sector participation. This would require a decentralised private sector framework with appropriate policies and supportive financing facilities. Furthermore, in view of the relatively high level of food security that has been now achieved, there is a need to focus on the distributional aspects of foodgrains rather than encouraging unsustainable levels of cereal production through the Minimum Support Prices. There is a need to develop markets by way of removing movement restrictions so as to enable markets to take care of the distributional aspects. Next, demand driven agricultural production requires introduction of futures trading so as to enable price discovery. International competitiveness requires more rational usage of inputs, particularly pesticides, so that Indian products can meet the Codex Norms. In this regard, rationalisation of input prices, particularly of fertilisers, electricity and irrigation is required to attain a sustainable agricultural growth. Agricultural marketing needs to be developed, with emphasis on brand building and standardisation of product quality to increase the export competitiveness of Indian processed foods on one hand and to help more effective utilisation of the vast production potential of fruits and vegetables in the country.

III. INDUSTRY

3.78 The adverse impact of the crisis of 1991 was perhaps most pronounced in case of the industrial sector in India, which experienced a negative growth of 0.6 per cent in 1991-92. Following the reform

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measures, there was an initial turn-around in the industrial growth profile. However, it was short-lived, and deceleration has set in the industrial sector since 1996-97.

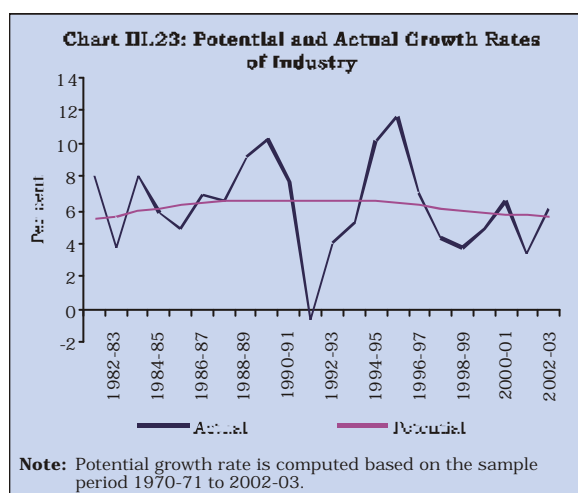
3.79 Structural factors inhibited productivity and cost efficiency and hence, the overall growth of the industrial sector until the 1980s. These included myriads of controls and regulations, lack of technological development and restricted access to foreign technology. This resulted in a situation where the impetus to technological upgradation emanated primarily from the public sector. The controls on industry through licensing, MRTP, thus, inhibited competition. Further, institutional rigidities prevented restructuring in the manufacturing sector. It is against this background that a set of policy measures having a bearing on the industrial sector was introduced. Elements of the new industrial policy sought to increase competition by abolishing restrictions on MRTP companies, terminating the phased manufacturing programmes, freeing foreign direct investment and import of foreign technology and dereservation of sectors hitherto reserved for public sector. The thrust of these measures was to create a competitive environment as a means to improve productivity and efficiency. These measures created a favourable environment for the industry to upgrade its technology and build-up its capacity through imports in order to cater to growing domestic and external demand. The industrial sector responded favourably to the initial phase of structural reforms, but later industrial deceleration set in. The manufacturing sector, which accounts for more than half of the overall industry, was affected the most with its growth decelerating not only to lower than the first phase of reforms but lower than the 1980s as well. Given the contribution of manufacturing to GDP growth and its sectoral linkages, the persisting slowdown has raised several concerns. The poor performance of the manufacturing sector, apart from being influenced by business cycles, is strongly affected by supply side bottlenecks, which are emerging as major constraints to productivity growth and competitiveness of the industrial sector. Such constraints are operating primarily through infrastructure - both in terms of unstable supply as well as higher unit cost, financing constraints, and lack of adequate institutional and structural reforms to facilitate the required degree of industrial re-structuring.

3.80 Against this backdrop, the growth performance of industry, with particular reference to the

manufacturing sector, and its changing production structure is analysed in the present Section. The manufacturing slowdown has been examined both in terms of cyclical factors operating through aggregate demand as well as structural factors, reflecting the supply constraints, with a view to ascertaining their relative roles. In view of the growing importance of structural factors in posing a binding constraint on manufacturing, the provision of infrastructure and finance as also the issue of manufacturing productivity have been examined.

Profile of Industrial Growth

3.81 The actual industrial growth during the latter phase of the reform period fell below the potential growth, indicating a decline in the capacity utilisation over the medium-term.¹³ Besides, there have been distinct signs of the potential growth itself slowing down compared with the first phase of the reform period and the latter half of the preceding decade (Chart III.23). This can be attributed to a deceleration in growth across all sub-sectors, *i.e.*, registered manufacturing, mining and quarrying as well as electricity, gas and water supply. An analysis of industrial slowdown as per the use-based classification reveals that while the consumer goods industries sustained growth momentum to some extent during the latter part of the reform period, substantial decline in growth was witnessed in basic and intermediate goods segments. The demand for these goods in the face of sustained consumption demand in the latter period of the reforms implies that industry may be undertaking inventory adjustment created by the initial



13. Potential growth rate here refers to the underlying growth rate obtained by filtering the original series applying H-P Filter.

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phase of capacity creation and overproduction. Although production of capital goods witnessed an improved average growth during the latter phase of the reform period, a rapid decline was observed from 2000-01 onwards, indicating the impact of weakening investment demand in the economy.

3.82 The 1990s witnessed a shift in the production structure in favour of the registered manufacturing as against the unregistered one. While the share of registered manufacturing in industrial GDP increased from 38.6 per cent in 1990-91 to 41.5 per cent in 2001-02, the share of unregistered manufacturing declined from 22.5 per cent to 21.6 per cent during the same period. Even within registered manufacturing, traditional industries such as textile, jute and other vegetable fibre textiles witnessed a decline in their respective shares in the reform period while the modern segments like metal products and electrical machinery forged ahead. The relatively low growth in productivity, lack of technological improvements and reduced access to credit have, *inter alia*, possibly acted as a more binding constraint in respect of the traditional segment *vis-à-vis* the modern one.

3.83 During the 1980s, although the average growth in value added in the manufacturing sector was relatively high at 7.3 per cent, it was not reflected in the commensurate growth in employment mainly on account of reduction in employment in cotton textiles and jute textiles, which were high employment generating industries. The employment growth in the organised manufacturing sector rose to 2.3 per cent in the first half of the 1990s from 0.8 per cent in the 1980s. This may be attributed to increased employment in small and medium size factories as a result of liberalisation of industrial and trade policies (Goldar, 2000). The deceleration in the manufacturing growth rate in the latter half of the 1990s had, however, adverse implications on employment growth. This was visible in employment growth turning negative (-2.1 per cent) in the latter half of the 1990s.

3.84 While the emerging production structure of industry bodes well for the economy, the stagnant share of manufacturing at around 17 per cent of GDP during the 1990s is a matter of concern. Other emerging market economies have exhibited a rising share of manufacturing and industry at similar levels of developments, with these sectors being the lead growth centres. The contribution of industry to GDP in such developing countries is placed in the range of 28 per cent to 51 per cent in 2000, much higher than 25 per cent in India. As a matter of fact, the fast growing East Asian countries witnessed a rise in the

share of industry in GDP between 1990 and 2000 (Table 3.15). The differences in the nature of industrial policy and their implementation are found to be critical to the industrial success of such countries. Important elements of industrial policy in these countries included flexibility of labour use, build up of large and efficient social infrastructure, favourable attitude towards international technology transfer, substantial investment in public technology institutions and competitive pressures resulting from exports (Box III.3). Given the stagnating share of industry in GDP in India, the issues of manufacturing slowdown, productivity and competitiveness need further examination, which is attempted next.

Table 3.15: Share of Industry in GDP: Cross-Country Comparison

(Per cent)

Country	1990	2000
	1	2
India	24	25
China	42	51
Indonesia	38	47
Korea, Rep.	43	43
Malaysia	42	45
Thailand	37	40
Brazil	39	29
Argentina	36	28
Mexico	28	28

Source : World Development Indicators 2002, World Bank.

The Manufacturing Slowdown

3.85 The loss of momentum in manufacturing growth, which occurred in the latter part of 1996, has since continued during the second phase of the reform period. At the disaggregated two-digit level, the manufacturing sector witnessed substantial deceleration in 11 industry groups with a combined weight of 64 per cent in the manufacturing production (Table 3.16). Six industry groups with a combined weight of 36 per cent withstood the slowdown and posted an accelerated growth during 1996-2002. However, in view of their relatively low weight, the manufacturing sector, as a whole, registered a slowdown.

Factors Causing the Industrial Slowdown: Some Hypotheses

3.86 A number of hypotheses in terms of cyclical and structural factors have been put forward to explain the slowdown in the manufacturing activity

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Table 3.16 : Growth of IIP-Manufacturing at Two-Digit Level

(Per cent)

Industry Group	Weight	1992-93 to 95-96	1996-97 to 01-02
	1	2	3
1. Food products	9.08	4.5	2.7
2. Beverages, tobacco and related products	2.38	10.9	11.6
3. Cotton textiles	5.52	6.1	2.4
4. Wool, silk and man-made fibre textiles	2.26	14.6	9.0
5. Jute and other vegetable fibre textiles (except cotton)	0.59	4.3	-0.2
6. Textile products (including wearing apparel)	2.54	2.3	3.8
7. Wood and wood products, furniture & fixtures	2.70	7.7	-4.3
8. Paper and paper products and printing, publishing and allied industries	2.65	8.7	5.4
9. Leather and leather & fur products	1.14	3.2	8.3
10. Basic chemicals and chemical products (except products of petroleum & coal)	14.00	7.5	8.0
11. Rubber, plastic, petroleum and coal products	5.73	4.5	6.7
12. Non-metallic mineral products	4.40	9.6	9.0
13. Basic metal and alloy industries	7.45	15.6	3.1
14. Metal products and parts (except machinery and equipment)	2.81	-1.0	6.4
15. Machinery and equipment other than transport equipment	9.57	9.4	6.4
16. Transport equipment and parts	3.98	10.1	7.6
17. Other manufacturing industries	2.56	8.4	4.8
Overall Manufacturing	79.36	11.6	5.6

Note : The category of wool, silk and man-made fibre is available since 1993-94 onwards.

Source : Central Statistical Organisation.

Box III.3

Industrial Policy in East Asian Countries

There has been considerable focus on the selective intervention of industrial policies in accelerating economic growth in the East Asian countries. The role of industrial policy in the growth process of these economies was particularly recognised in the 1970s and the 1980s. A number of questions have been raised in the backdrop of the role of industrial policy in the East Asian economies. Whether the selective intervention policies pursued were an important part of their economic success? Whether the changes in international economic environment inhibit developing countries to implement similar industrial policies? The East Asian experience of industrial growth has been, thus, debated for choosing alternative policy options for attaining rapid industrial growth, higher employment and exports as witnessed by these economies (Table 3.17).

Table 3.17: Contribution of Industry to GDP and Exports in Japan and Korea

Item	Japan		Korea	
	1990	2000	1990	2000
	1	2	3	4
Share of Manufacturing in GDP (%)	27	22	29	31
Share of Industry in GDP (%)	39	32	43	43
Share of Manufacturing Exports in Merchandise Exports (%)	96	94	94	91

Source: World Development Indicators 2002, World Bank.

(Contd.)

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(Contd.)

Japan implemented sectoral industrial policy in the post-1950 period through direct subsidies; tax policy and off-budget finance through Fiscal Investment and Loan Programme; subsidised credit, including the channelling of capital to specified sectors; and controls on international trade, investment and technology imports. The focus of these efforts was aimed at rebuilding heavy industries such as steel and transportation equipment. The trade protection provided to Japanese industry, as measured by effective rate of protection, is argued to be associated with lower than the expected performance of exports, contradicting the notion that infant industries were promoted (Noland, 1997). The research and development (R&D) financed by the Government, however, had favourable impact on trade competitiveness during the 1970s and 1980s. The role of direct subsidies in fostering changes in Japan's industrial composition was minimal. Indirect subsidies such as low interest loans were, however, found to be associated with expansion of output and improved trade performance. Industrial policies were effective in the sense that market interventions appeared to have impacted on resource flows and composition of output.

The orientation of industrial policy in Korea had changed drastically in the mid-1960s with an emphasis on exports. There was a drive towards heavy and chemical industry in order to alter the composition of industrial output with more technology and engineering intensive products. It also aimed at upgrading export profile and reducing reliance on imports. The policies for channelling capital through interest subsidy were augmented by extensive tax incentives for priority industries. However, the era of protection to industries came to an end in 1979 when the Government announced a comprehensive stabilisation plan. Policies undertaken during this period are, however, found to be unsuccessful on the ground of creation of excess capacity in favoured sectors while starving non-favoured sectors of resources. It is also observed that during the heavy and chemical industry drive, the establishment of oligopolistic positions by the *Chaebol* retarded technological change. Further, Lee (1996) finds that trade protections were negatively associated with the growth rate of labour and total factor productivity, while tax incentives and subsidised credit were uncorrelated with sectoral productivity growth. The labour productivity growth is found to be slower in protected sectors. Nevertheless, inter-industry externalities of industrial policies emanating from domestic production of intermediate goods, movements of workers from protected sectors to other sectors and direct interaction on equipment design between producers and local buyers would have potentially increased total factor productivity (TFP) growth in other sectors (Pack, 2000).

A critical component of Taiwan's success was that its industrial policies helped to establish new and successful manufacturing sector. The industrial growth was facilitated by low level of trade protection, availability of inputs at international prices, conservative macroeconomic policy, and competitive factor markets. The basic fiscal incentive programme for industry from 1961 to 1990 provided for participating firms to choose tax exemptions or accelerated depreciation on capital equipment. Such fiscal incentives targeted specific industries, though the focus shifted over time from labour intensive exports in the 1960s to capital-intensive sectors in the 1970s to technology intensive sectors in the 1980s. In the 1990s, the Government discontinued such fiscal concessions and replaced them with the system where firms were eligible for tax relief based on expenditure on activities such as R&D expenditure or pollution control. A second industrial policy tool was subsidised credit for export financing and import of raw materials. The third major tool of

industrial policy was trade controls. However, since 1989 the Government undertook far reaching trade liberalisation that brought the level of trade protection down to developed country levels, at least in the manufacturing. Besides these standard tools of selective intervention, there was also another set of policy conducive to the development of manufacturing sector viz., establishment of a large number of institutions that were designed to identify, transfer, defuse and efficiently absorb foreign industrial technologies and then to undertake innovation. These latter policies were largely introduced in the late 1970s and 1980s. These efforts reflected the fact that Taiwan's policies were more neutral than those of Korea and Japan with respect to firm size. Much of its industrial development was in firms with fewer than 100 employees. Pack and Lin (2001) find that industrial policy could have added 1 percentage point to TFP growth in manufacturing.

Much of the early growth in Japan, Korea and Taiwan consisted of simple, labour intensive products such as clothing, toys, sporting goods and simple electronics. Perhaps, the main miracle in these countries was maintenance of a high rate of investment and relatively efficient absorption. After the oil price shocks in the 1970s, Japan, Korea and Taiwan were able to pursue a policy of reducing domestic absorption and altering the real exchange rate between tradables and non-tradables for exports to respond to the new price structure. De Mello (1985), using the standard input-output based demand decomposition, found that rapid expansion of exports than of other components of final demand accounted for about three-quarters of the rise in growth of manufacturing sector. The phenomenal expansion of exports generated rapid employment growth in these sectors.

Despite ambiguity on the role of industrial policy in causing TFP growth, favourable impact of industrial policy was that investment ratio and TFP growth did not fall in the face of phenomenal rates of capital accumulation (Noland and Pack, 2003). An important factor that contributed to the high marginal product of capital especially in Korea and Taiwan was the considerable flexibility of labour and the efforts of firms to improve their productivity. Workers moved without impediment to expanding areas rather than sticking to the sectors under increasing competitive pressure. Measures at enhancing industrial growth in the East Asian countries also focused on building large and efficient social infrastructure, favourable attitude towards international technology transfer and substantial investment in public technology institutions. The difference in performance of these countries is also attributed to more competitive pressure that resulted from reliance on exports as a measure of performance. In addition, a critical difference was the relative openness of these countries to disembodied technology imports obtained through technology licenses where as Latin American countries and India were restrictive.

In the above backdrop, the relevant lesson for contemporary developing countries is that the differences in the nature of policy and its implementation are critical for robust industrial growth. Japan, Korea and Taiwan undertook continuous monitoring of progress of firms where the protection was provided. Subsidised credit and protection in the domestic market in Korea were contingent on export performance of firms. Firms were, thus, forced to improve productivity which led to intensive efforts to import and assimilate foreign technology. Consequently, Korea and Taiwan experienced high TFP growth rate compared with other developing countries, although much of this might have accrued without selective intervention.

during the latter phase of the reform period. The explanations provided, however, fall short of giving a satisfactory answer to what has led to the manufacturing slowdown and its persistence. The onset of slowdown is often attributed to the satiation of the pent-up domestic demand of 'once-for-all' nature for a host of import-intensive goods, which could be domestically assembled or produced following trade liberalisation (Chandrasekhar and Ghosh, 2002). The short-run increase in domestic demand was seemingly facilitated by easy access to credit, including consumer credit in the wake of financial liberalisation. Once that pent-up demand of transitory nature was satisfied, industry entered the phase of slowdown in the absence of demand support - domestic or exports. However, the huge capacity-build up noticed in the first phase of the reform period runs counter to the momentary surge in demand that was not likely to be sustained in the long run.

3.87 Another hypothesis on the onset of slowdown relates to the 'credit crunch' which, it is argued, triggered off the manufacturing slowdown (Sen *et al*, 1997 and Desai, 2001). The unexpected and temporary tightening of liquidity in money markets during 1995-96, resulting from large dollar sales by the Reserve Bank to contain volatility in the forex market, was mistaken to be an expression of deflationary credit policy (Acharya, 2002).

3.88 Yet another factor was the role of the corporate sector. The proportion of corporate funds locked up in inventories and receivables went up steadily, leading to a scarcity of working capital (Sen *et al*, 1997). Further, the proportion of funds invested in financial instruments, which had hovered around 5 per cent during 1985-1993, crossed the level of 10 per cent subsequently. The depressed stock market conditions in 1995-96 inhibited the redemption of financial instruments. The rising interest rates may also have been prohibitive for new projects and investment, particularly, in the informal sector which has limited access to funds (Shetty, 1997a and 2001b). Reinforced by the increased borrowings by the Government, the weighted average lending rate of scheduled commercial banks rose to 17.1 per cent in 1995-96 from 16.1 per cent in 1994-95. In real terms, the rate shot up to 8.5 per cent in 1995-96 from an all-time low (for the 1990s) of 3.9 per cent in the preceding year.

3.89 What follows below is an account of these cyclical and structural factors which have impacted upon industrial growth in recent years.

Cyclical Factors in Industrial Slowdown

3.90 Cyclical factors have generally been recognised as an important source of industrial slowdown. In this context, the significant fall in Government capital investment especially since 1995, has been recognised as the key contributor to the slowdown (Nayyar, 1996). It is, however, important to underscore that while the contraction in Government expenditure does have adverse implications for the manufacturing growth, it declined even during the manufacturing boom (1992-93 to 1995-96). Thus, decline in Government expenditure *per se* does not provide a satisfactory explanation of the slowdown.

3.91 The manufacturing slowdown can also be seen in terms of decline in fixed investment in industry in the context of over-expansion of capacities during the manufacturing boom, slump in the capital market for new issues and rise in real interest rates in 1995-96 (Acharya, 2002). The increase in real fixed investment in manufacturing from 6.8 per cent of GDP in 1990-91 to 13.0 per cent in 1995-96 and the subsequent decline to 7.9 per cent by 2000-01 seems to have mirrored the pattern of manufacturing growth.

3.92 Among the other cyclical sources of demand, the lagged effect of the negative agricultural growth in 1995-96 seems to have worked towards slowing down the growth of rural demand for consumer durables and non-durables subsequently (Government of India, 2000). As the demand for industrial products, particularly the consumer durables, is significantly influenced by the rural demand, fluctuations in the agricultural production seem to have adversely impacted the industrial growth.

3.93 The cyclical downswing was not confined to the domestic sources of demand but was also clearly visible in manufacturing exports. In anticipation of high potential demand in the wake of reforms, the manufacturing sector built up huge capacity through imports of capital goods during 1994-97 (Table 3.18). Such capacity build-up was not sustainable on the basis of normal growth in domestic demand, and the only feasible outlet was the exports market. However, signs of exports slowdown were visible in 1995-96 when manufacturing exports decelerated. Subsequently, with slowdown in the world trade, sluggishness in the global manufacturing prices and variations in the cross-currency exchange rates, manufacturing exports growth declined to a meagre 3.6 per cent by 1996-97. The real appreciation of Rupee between 1993 and 1995 and the Asia-wide slowdown in exports following the loss of market share to China also contributed to the slowdown in exports [See Chapter VII for a discussion].

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Table 3.18 : Production and Imports of Capital Goods and IIP Growth

(Per cent)

Year	IIP (Manufacturing)	Capital Goods Production	Capital Goods Imports
	1	2	3
1990-91	9.0	16	10.1
1991-92	-0.8	-8.5	10.4
1992-93	2.2	-0.1	-27.5
1993-94	6.1	-4.1	7.1
1994-95	9.1	9.2	37.8
1995-96	14.1	5.4	22.4
1996-97	7.3	11.4	35.2
1997-98	6.7	5.8	-4.0
1998-99	4.4	12.6	-1.3
1999-00	7.1	6.9	2.7
2000-01	5.3	1.8	-10.9
2001-02	2.9	-3.4	-0.3

Sources : 1. Central Statistical Organisation.
 2. Directorate General of Commercial Intelligence and Statistics.

3.94 As is evident from the foregoing analysis, the growth momentum in manufacturing slackened towards the end of 1996, largely under the influence of factors outside the realm of public policy in the short-run. The movement in major indicators of aggregate demand, viz., domestic capital formation, Government capital expenditure, capital goods production, import of capital

goods, manufacturing exports and private final consumption expenditure, all witnessed deceleration during the latter phase of the reforms (Chart III.24). Some empirical evidence of the determinants of industrial demand is set out in Box III.4.

Structural Factors

3.95 To the extent the slowdown is prolonged and protracted, it seems to have its origin in structural factors, including, inadequate industrial restructuring undertaken in the face of growing openness of the economy and the associated external competitive pressure. The inadequacy of institutional and structural reforms, which held back the industrial restructuring, has, thus, emerged as a binding constraint on manufacturing growth in the liberalised trade regime.

Infrastructure Constraints in the Industrial Sector

3.96 The industrial performance continues to be hampered by physical infrastructure bottlenecks with the demand-supply imbalances persisting and growing during the reform period. A worrisome feature of infrastructure development has been the declining trend in potential output of a number of basic activities such as steel, coal, cargo handling and freight loading. There are, however, signs of improvement for a few sectors, like power and communication. With the initiation of power sector reforms, the demand-supply gap for power has witnessed a decline to 7.9 per cent during the reform period from 8.9 per cent during the pre-reform period. Notably, the power deficit remained

Box III.4

Determinants of Demand for Manufacturing and Overall Industry

The influence of demand factors on manufacturing is corroborated by the empirical estimates of a manufacturing demand function. The estimated demand function for manufacturing (mfgcy) indicates that agriculture (Lagr) has a dominant positive impact on manufacturing with an elasticity of 0.21. The export elasticity (Lex) of manufacturing demand is positive but relatively low at 0.08. The manufacturing demand is found to be sensitive to manufacturing inflation (Lpm) with elasticity of (-) 0.19. There has been a significant adjustment to the desired level of demand as indicated by the lagged dependent variable. The demand function for the industrial sector (indcy) as a whole also reveals that the maximum positive demand impact emanates from agriculture (elasticity = 0.18), closely followed by exports (elasticity = 0.11). The industrial demand also turns out to be sensitive to industrial inflation with elasticity of (-) 0.21.

Demand Function for the Manufacturing Sector

(Sample: 1970-71 to 2001-02)

$$\begin{aligned} \text{mfgcy} = & -2.490 + 0.211 \text{Lagr} + 0.077 \text{Lex} - 0.189 \text{Lpm} - 0.047 \text{Dum1} \\ & (2.103) \quad (2.234) \quad (-3.025) \quad (-2.533) \\ & + 0.292 \text{mfgcy}(-1) \\ & (2.07) \\ \text{R}^2 = & 0.61, \quad \text{Durbin's } h = 0.50, \quad F = 7.37 \end{aligned}$$

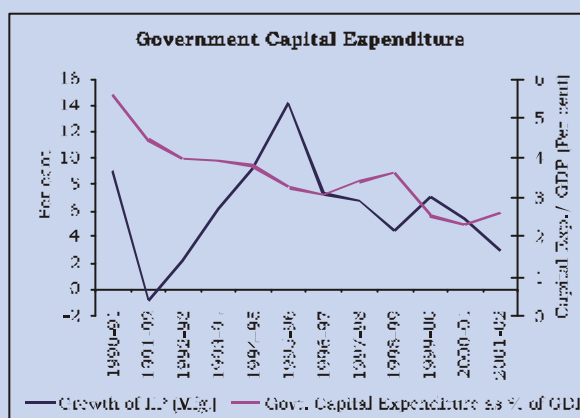
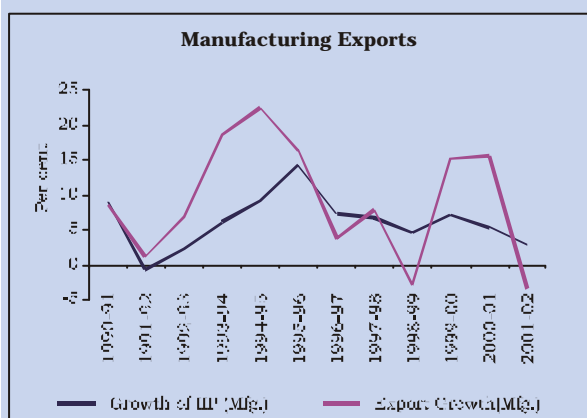
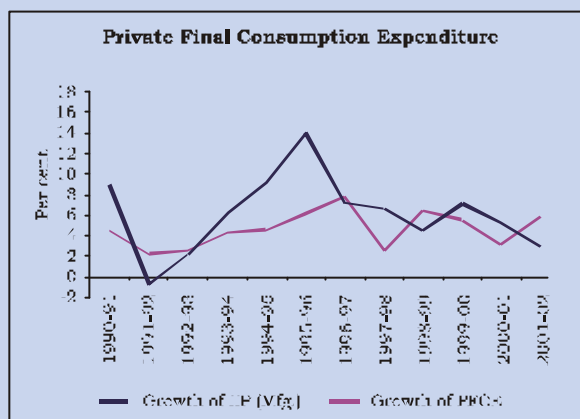
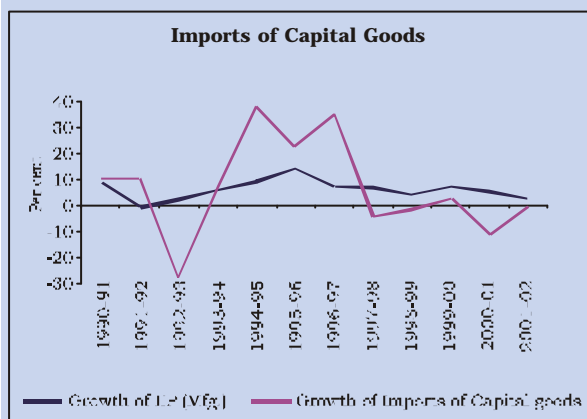
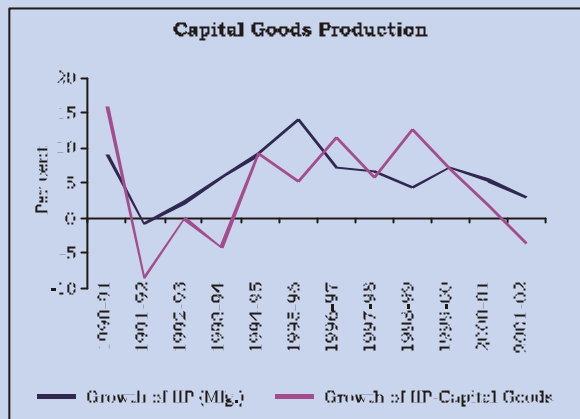
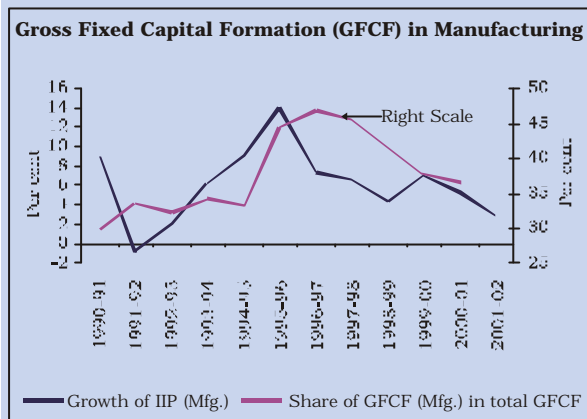
Demand Function for the Overall Industry

$$\begin{aligned} \text{indcy} = & -2.311 + 0.179 \text{Lagr} + 0.111 \text{Lex} - 0.212 \text{Lp} - 0.038 \text{Dum2} \\ & (2.540) \quad (3.023) \quad (-3.874) \quad (-2.887) \\ \text{R}^2 = & 0.67, \quad \text{DW} = 1.91, \quad F = 9.83 \end{aligned}$$

Where, mfgcy = cyclical demand component of manufacturing sector, indcy = cyclical demand component of overall industry, Lagr = log of agriculture output, Lex = log of exports of manufacturing items, Lpm = log of prices of manufacturing products, Lp = Log of WPI, Dum1 and Dum2 represent the impact of irregular shocks.

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Chart III.24: Indicators of Manufacturing Activity



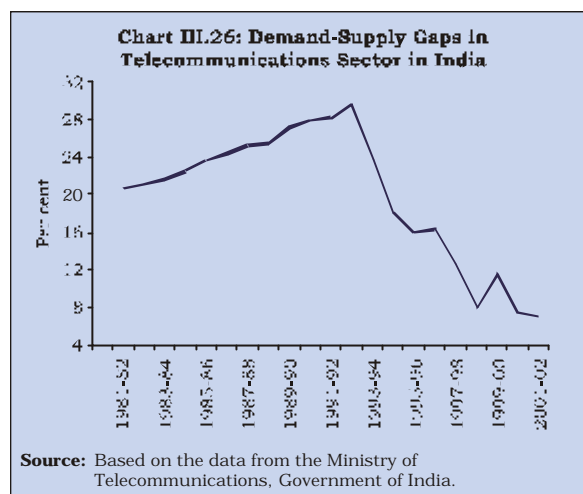
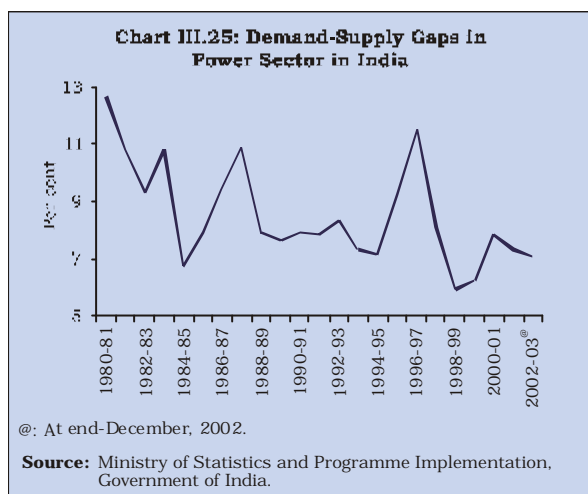
Source: Based on the data from the Central Statistical Organisation, DGCI & S and Union Budget, Government of India.

high at around 9 per cent during the mid-1990s when the industrial sector was growing at a faster rate (Chart III.25). The downtrend in demand-supply gap for telecommunications accompanied by a decline in unit cost reflects the regulatory reforms and increased

competition arising from private sector participation (Chart III.26).

3.97 The deteriorating infrastructure services represent a direct fall out of shrinkage in infrastructure

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investment in the context of grossly inadequate internal resources of public infrastructure entities and dwindling Plan outlay for infrastructure. The real capital formation in electricity, gas and water supply declined to 2.6 per cent of GDP during the 1990s from 2.9 per cent during the preceding decade (Table 3.19). A similar trend was observed for railways. Within the 1990s also, there was a decline in the real gross capital formation in sectors like electricity, gas and water supply, and the railways between the first and the second half. In contrast, communication witnessed an improvement in the reform period following the market based pricing of services and better regulatory framework. The investment in infrastructure sector as a whole has shown clear decline of one percentage point of GDP between the first and the second halves of the 1990s. This decline can be attributed to declining government investment on infrastructure - a fall out of the prevailing fiscal situation - which was a major contributing factor for the economic slowdown in the latter part of the 1990s.

3.98 The pace of public investment in infrastructure slowed down substantially during the reform period on account of rising fiscal imbalances of the Government, both at the Centre and the States. As a result, public investment in major infrastructure sectors declined in real terms during the reform period (Chart III.27). The rates of return from infrastructure services extended by the Government continue to be abysmally low, constraining the ability to generate internal resources for investment. For instance, the rate of return on investment for the State power sector deteriorated from (-)12.7 per cent in 1991-92 to (-)32.8 per cent in 2001-02. These essentially indicate lack of required structural reforms in the power sector in India, notably the near absence of market based pricing.

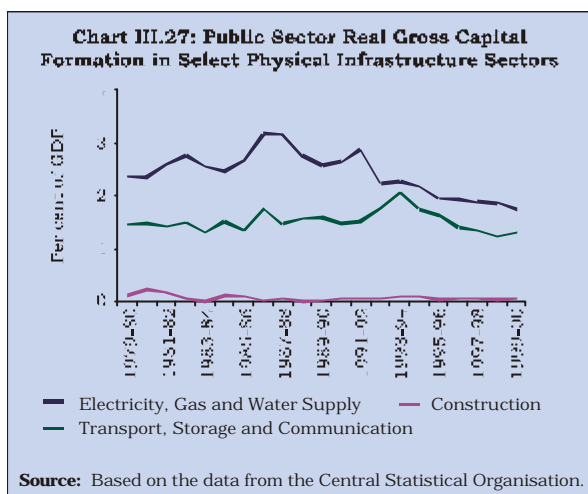
3.99 Contemporaneously, response of the private sector to the reform process has not been adequate to offset the declining public investment on account of inadequate institutional reforms, lack of clarity regarding

Table 3.19 : Real Gross Capital Formation in Infrastructure Sectors

(Per cent of GDP)

Period Averages	Electricity Gas and Water Supply	Construction	Transport, Storage and Communication	Of which: Railways	Communi-cation	Total Infras-structure	Total Gross Capital Formation
	1	2	3	4	5	6	7
1980-81 to 1984-85	2.8	0.5	2.5	0.6	0.4	5.8	25.5
1985-86 to 1989-90	3.1	0.4	2.9	0.7	0.5	6.4	25.4
1990-91 to 1994-95	2.9	0.4	3.0	0.6	0.7	6.3	24.7
1995-96 to 1999-00	2.3	0.4	2.6	0.4	0.7	5.3	25.8
1980-81 to 1989-90	2.9	0.5	2.7	0.7	0.4	6.1	25.4
1990-91 to 1999-00	2.6	0.4	2.8	0.5	0.7	5.8	25.2

Source : National Accounts Statistics, Government of India.



infrastructure development priorities, non-transparency in project outsourcing processes, and numerous time consuming clearances. In the absence of rationalisation of user charges, the infrastructure sectors such as railways, public transport, power continue to suffer from the levy of inadequate user charges, thereby putting off potential private participation. Keeping in view the long gestation period for infrastructure projects, the issue of initial risk sharing by the Government assumes importance, given the inability of the private sector to assess the long-term risks.

3.100 The cost of power and energy is an important element in the total cost of manufacturing in India and a higher cost structure of power for the industrial sector adversely affects its price competitiveness. During the 1990s, electricity tariff charged from industrial/commercial users is significantly higher than the average cost of supply. During the 1990s, the tariff charged from the industrial sector, on an average, remained 26 per cent above the average cost of supply of State Electricity Boards (SEBs) and electricity departments, reflecting on the higher input costs for the industry (Table 3.20). The higher cost of electricity is also borne out by the fact that annual variation in WPI for electricity has been higher than that of WPI for manufacturing for the entire period (Chart III.28). During latter phase of the reforms, the cost of power for the industry has risen at a rate much faster than the rise in the prices of manufacturing products. For instance, during the period 1996-97 to 2001-02 (i.e., the period of industrial slowdown), while the average tariff charged from industry increased on an average by 7.7 per cent, the manufacturing prices rose by 2.9 per cent. Thus, the distinct rise in the cost of power for the industry has impacted on industrial competitiveness.

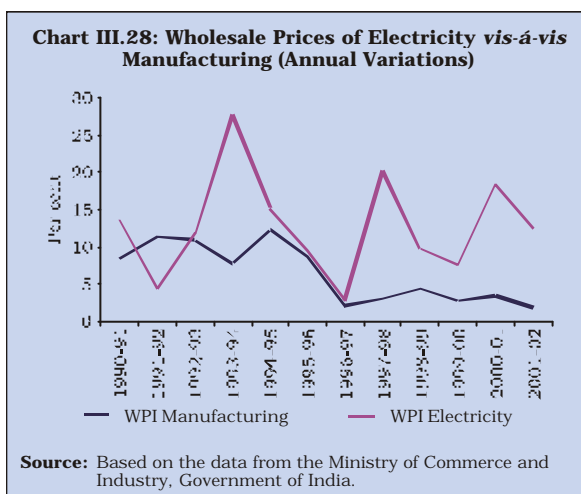
Table 3.20 : Average Electricity Tariff for Industry

(Paise/Kwh)

Year	Average Cost of Supply of Electricity	Average Tariff Charged from Industry	Index for Average Tariff for Industries	WPI for Manufacturing
	1	2	3	4
1992-93	128.2	171.50	86.5	97.8
1993-94	149.1	198.20	100.0	100.0
1994-95	163.4	219.90	110.9	112.2
1995-96	179.6	245.50	123.9	121.9
1996-97	215.6	276.89	139.7	124.4
1997-98	239.7	314.63	158.7	128.0
1998-99	263.1	324.33	163.6	133.6
1999-00 (P)	305.1	343.37	173.2	137.2
2000-01 (RE)	327.3	368.37	185.9	141.7
2001-02 (AP)	349.9	381.14	192.3	144.3

P = Provisional Estimates, RE = Revised Estimates, AP = Advance Estimates.

Source: Planning Commission, Government of India, 2002c.



3.101 In the context of reducing the unit cost of power to the industry as also to ensure stable supply in the event of rising industrial demand, the issues of pricing, cross subsidy, ownership and the regulatory issues have emerged to the forefront. The major challenges to the sustainable growth of power sector in India continue to emanate from poor recovery of SEBs' dues and transmission and distribution losses, subsidies to the agricultural and domestic sectors, and a lack of restructuring. As the financing of power projects poses a daunting task and requires a long-term solution, resource generation within the sector through prompt and efficient

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collection of appropriate user charges across the consumer categories should precede the efforts at attracting private investments. The poor response of the private sector is indicated by the fact that even after a decade of opening up of the power sector, private sector accounts for only 10 per cent of the present generating capacity. More recently, regulatory reforms and reforms in the transmission and distribution sectors have been emphasised to improve the efficiency of the power infrastructure and raise the level of revenue realisation. In the Indian context, as power is in the Concurrent List of the Indian Constitution, measures for reforming this sector have been undertaken by a number of State Governments (Box III.5).

3.102 The above developments reveal that there has been compression in investment on infrastructure leading to inadequate availability and deterioration in the quality. At the same time, cost of infrastructure,

particularly the cost of power for industry, has relatively risen in the late 1990s. Further, there has been a relative increase in the real interest cost for the industrial sector. These factors together, have reduced the competitiveness of the industry and caused the persisting slowdown.

Industrial Performance and Credit Growth

3.103 The provision of credit is considered an essential input to industrial activities. The credit delivery mechanism plays an important role, especially in developing economies with credit market imperfections. A major finding of the literature in this regard is that small firms are largely dependent on bank credit to meet their financing requirements while the big firms have alternative sources of finance (Gertler and Gilchrist, 1993; Olinear and Rudebusch, 1995). Therefore, small firms usually get affected more on occasions of tightening of bank credit. Not only

Box III.5

Power Sector Reforms in Indian States

An early but notable exercise in power reform was carried out by a committee of the National Development Council way back in 1994. Following a series of Chief Ministers Conferences in late 1996, a 'Common Minimum National Action Plan for Power' was agreed upon based on the following points: independent regulatory commission, rationalisation of tariffs and private sector participation in distribution. Accordingly, the regulatory reform started off in 1996 with the establishment of State Electricity Regulatory Commission (SERC) in Orissa, followed by Haryana in 1998 prior to the Central enactment, namely the Electricity Regulatory Commission Act, 1998. The Central Electricity Regulatory Commission (CERC) was set up in 1998 as an independent regulatory body.

Twenty-two States have so far either constituted or notified the constitution of State Electricity Regulatory Commission (SERC), of which 13 have already issued tariff orders. State Electricity Reforms Act has been enacted by nine states e.g., Orissa, Haryana, Andhra Pradesh, Uttranchal, Uttar Pradesh, Karnataka, Rajasthan, Madhya Pradesh and Delhi. Of these, State Electricity Boards have been corporatised for all except Madhya Pradesh. Though separate state-owned generation, transmission and distribution companies were established with an ultimate aim of privatising it, most of them have made progress in that regard only to a limited extent e.g. corporatisation but not privatisation). In fact, though generation has improved in some states, transmission and distribution units have seen further mounting of losses.

States such as Andhra Pradesh, Orissa, Haryana, Karnataka, Rajasthan and UP have completed unbundling of their respective SEBs into separate entities for generation, transmission and distribution. Orissa and Delhi are the only States so far to have privatised their distribution. In Orissa, distribution is

presently carried out by four companies. Besides, 49 per cent disinvestment has taken place in its thermal power company with a similar plan on the agenda for its hydro-power generation company. Financial stress of the Grid Corporation of Orissa, with an estimated liability of Rs.1,160 crore in 2000-01, has been mitigated with concerted efforts. Andhra Pradesh Government plans to privatise its distribution activity by 2002. In Gujarat, the reform programme has emphasised on metering of all categories of consumers with a cap on agricultural subsidy.

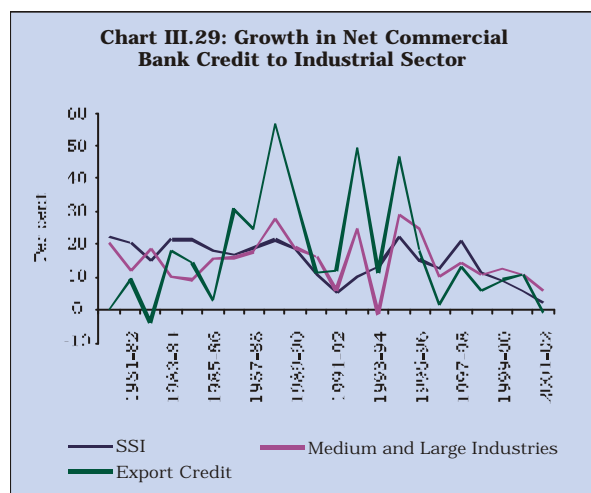
During the reform period, though the demand-supply gap in power supply has narrowed down to some extent, it still persists and the financial position of most of the SEBs has further deteriorated. However, it is noteworthy that major problems such as recovery of receivables, settlement of past dues, metering of all consumers, reduction in subsidies to the agricultural and domestic sectors, reduction in Transmission and Distribution (T&D) losses, improvement in Plant Load Factor (PLF) and restructuring of SEBs have been identified, and remedial measures have been initiated by the Central as well as State Governments to tackle these problems in the medium term.

Against this backdrop, some SERCs have clearly identified governance as the primary issue. The governance issue arises because of the complicated structure, inadequate information flows from the field offices to the management, lack of action by the senior management against the non-performing executives and staff, undefined role of the political executive, absence of guidelines and norms for personnel policies, lack of transparency and finally, outdated work processes that are not in tune with the commercial status of the Electricity Corporations (Government of Uttar Pradesh, 2002). It is, therefore, crucial for the States to have a vision, work out a credible strategy of power development and lay down implementation milestones.

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the credit availability, but also the cost of credit has a significant impact on the production decisions of firms. Contextually, credit delivery system continues to be a major focal point of the on-going financial reforms in India since the early 1990s. The objective is to meet the credit requirements of the productive sectors and, more so, of the weaker bidders in the credit market.

3.104 The credit off-take from scheduled commercial banks to the commercial sector indicated a declining trend during the 1990s, barring an uptrend in the mid-1990s. At the disaggregated level also, there was a slowdown in credit growth for the various segments such as exports, Small Scale Industries (SSIs), medium and large industries, particularly in the second phase of the reform period (Chart III.29). Export credit growth declined substantially to about 6.5 per cent during the second half of the 1990s from 31.3 per cent in the first phase. The deceleration in export credit while reflecting the slowdown in exports, can also be attributed to other forms of financing by exporters, such as, Exchange Earners' Foreign Currency Account and availability of funds at sub-PLR.



3.105 The slowdown in the credit growth was more pronounced for the SSIs *vis-à-vis* the medium and large industries. The credit needs of SSIs were largely met in the 1980s and earlier as part of the promotional policies for the SSIs under the priority sector lending by banks. During the period 1990-91 to 2001-02, the growth in credit to SSIs decelerated to 11.6 per cent from 19.4 per cent in the 1980s (Table 3.21). Moreover, credit to SSIs as a percentage of non-food gross bank credit indicated a decline from 14.4 per cent in 1995-96 to 11.8 per cent in 2001-02. It may be noted that while the concessional element in lending rates for the SSIs stands largely withdrawn during the 1990s,

financial vulnerability of State level institutions in view of poor recovery and other inherent inefficiencies also raises concerns regarding the prospects of credit flows to the SSI sector. This decline in credit flow to the SSI sector has to be seen in the context of falling productivity in the SSI sector as a whole in the 1990s as against the 1980s with the index declining to 34 in 1994-95 from 50 in 1984-85 (SIDBI, 2001). However, within the SSI sector the productivity in the modern segment remained higher than the traditional/tiny segment. Thus, a key issue for the SSI reforms is to enhance the credit assessment capability of the financial institutions so that the small scale as a whole is not equated with high risk for credit disbursement.

Table 3.21 : Growth in Sectoral Non-Food Credit

Period	(Per cent)		
	SSIs	Medium and Large Industries	Exports
	1	2	3
1980-81 to 1989-90	19.4	16.7	18.8
1990-91 to 2001-02	11.6	13.7	15.7

3.106 An analysis of credit to major industrial sub-groups within the manufacturing sector reveals that during the reform period a substantial shift has taken place in favour of industries such as iron and steel, electricity, food processing, cement, gems and jewellery and petroleum (Table 3.22). Infrastructure sector improved its share to 6.5 per cent in March 2002 from 2.0 per cent in March 1998. The industries that recorded a decline in their respective shares were metal and metal products, engineering, cotton, jute and other textiles, paper and paper products, chemicals, leather and leather products and construction. The highest decline was noticed for the engineering industry with its share in gross bank credit declining from 22.6 per cent in 1991 to 10.5 per cent in 2002. The cotton, jute and other textiles together also witnessed shrinkage in their share from 13.2 per cent in 1991 to 11.3 per cent in 2002, reflecting partly the rising incidence of sickness in such industries.

3.107 Another important source of finance for industry is the financial assistance disbursed by the All India Financial Institutions (AIFIs) mainly for investment operations in medium to long-term horizon. In keeping with the trend in bank credit, the growth in disbursements by AIFIs increased from 21.8 per cent in the pre-reform decade to 24.7 per cent in the first phase of the reform period. Subsequently, however, disbursements witnessed a distinct slow down to 7.9

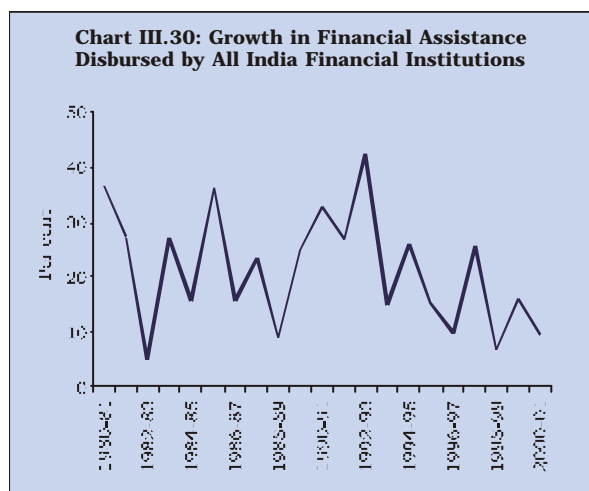
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Table 3.22 : Industry-wise Deployment of Gross Bank Credit – Share of Major Groups (Outstanding as on Last Reporting Friday of March)

Industries	1985-86 to	1991-92 to	1996-97 to
	1990-91	1995-96	2001-02
	1	2	3
Iron and Steel	5.1	6.4	9.2
Other Metals and Metal Products	3.5	3.5	3.2
All Engineering	23.9	21.4	12.6
Electricity	2.0	1.9	3.5
Cotton, Jute, Other Textiles	14.2	12.7	12.5
Sugar	1.5	2.0	2.0
Food Processing	1.9	2.1	2.8
Paper and Paper Products	2.5	2.1	1.7
Rubber and Rubber Products	1.6	1.5	1.2
Chemicals, Dyes, Paints etc.	12.3	12.7	11.3
Cement	1.5	1.5	1.6
Leather and Leather Products	1.5	1.7	1.4
Gems and Jewellery	0.7	2.2	2.5
Construction	1.6	1.9	1.6
Petroleum	0.4	0.5	4.0
Infrastructure	–	–	4.1

Note : Infrastructure has been included as a separate category from 1998 onwards.

per cent in the second phase of the reform period (Chart III.30). This is indicative of a slow down in the investment demand, particularly for the green-field projects and expansion activities in the industrial sector.



3.108 The slowdown in the credit flows from banks and financial institutions may be evaluated in the context of the behaviour of the prime lending rates (PLRs) charged by them. In real terms, the PLR of AIFIs (IDBI) ruled, on an average, 9.11 per cent during 1995-96 to 2001-02, which was higher than 5.52 per cent prevailing during the period 1990-91 to 1994-95 (Chart III.31 and Table 3.23). The real PLR of banks (weighted average lending rates of Scheduled Commercial Banks) also increased to 12.5 per cent from 6.8 per cent over the same period. Such high real interest rates on medium to long-term borrowings for the industrial sector work as a constraint in undertaking investment decisions. Persistence of high interest cost adversely impacts on the capacity build-up and upgradation. Over a medium-term, the high interest rate effect is ultimately reflected in lower output growth. An assessment of the present trends in the real interest rates for the industrial sector and the real

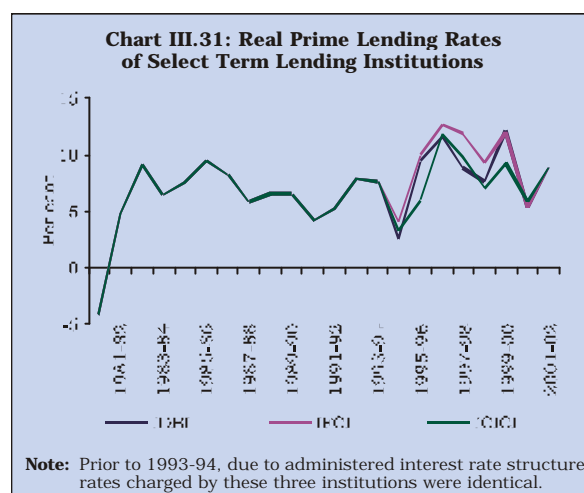


Table 3.23 : Average Real Lending Rates of Select Term Lending Institutions

Period	(Per cent)		
	IDBI	IFCI	ICICI
	1	2	3
1980-81 to 1984-85	4.71	4.71	4.71
1985-86 to 1989-90	7.34	7.34	7.34
1990-91 to 1994-95	5.52	5.82	5.67
1995-96 to 2001-02	9.11	9.99	8.38

Note : Represent ex-post real interest rates. The real rates are computed by subtracting the Inflation rate (WPI) from nominal Prime Lending Rates.

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output growth seems to indicate weakening sustainability of the investments. While during the period 1996-97 to 2001-02 growth of real output from industrial sector averaged to 4.9 per cent, the real PLRs remained distinctly high at around 9 per cent. Given the downward rigidity of medium and long-term real interest rates, industrial investment is rendered unviable when such rates are higher than the rate at which the industry is growing.

3.109 The decelerated credit off-take by industry from banks and AIFIs needs to be interpreted keeping in mind the alternative sources of finance that are available to industry in the reform period.¹⁴ A comparative analysis of financing patterns of select non-financial public limited companies indicates an increasing recourse to internal sources of financing as against the borrowed sources of funds, particularly since the late 1990s. Among the borrowed sources of funds, financing through debentures, and loans and advances declined from 11 per cent and 13.5 per cent, respectively, during the period 1985-86 and 1989-90 to 5.7 per cent and 11.5 per cent during the second phase of the reform period (Table 3.24). The declining share of credit from banks and financial institutions has been evident particularly in the second phase of the reform period when their share in total sources of funds raised by the corporate sector declined to 17.4 per cent in 2000-01 from 23.8 per cent in 1995-96.

3.110 The reduced role of conventional financing for the corporate sector such as bank credit and financial assistance from AIFIs should be seen in the context of increasing recourse to private placements of debt and equity on account of less stringent disclosure norms, low cost of issuance, ease of structuring instruments and reduced time lag in issuance.

Resource mobilisation through this route increased sharply from Rs.13,361 crore in 1995-96 to Rs.64,950 crore in 2001-02. Nevertheless, the high cost of credit in real terms from banks and AIFIs seems to have gone against the conventional sources of financing, inhibiting the growth of investment demand and capacity build-up in industry. The reduced industrial credit can also be seen as an outcome of the risk-based prudential requirements, such as capital adequacy and provisioning norms implemented for banks and financial institutions as part of the financial sector reforms (Nag and Das, 2002). As a result, bank funds have been largely deployed in Government securities, relatively risk free assets, which account for around 39 per cent of their net demand and time liabilities, far exceeding the minimum statutory liquidity requirement of 25 per cent.

3.111 It may be difficult to clearly distinguish as to what extent the lower credit growth to the commercial sector from banks and the financial institutions is attributable to the sluggishness in demand or to the heightened risk aversion arising from tighter supervisory/regulatory norms. While the present slowdown in the industrial demand seems to have contributed to the slowdown in the credit growth, both for working capital requirements and long-term investments, the possibility of high lending rates impacting on the credit demand of certain segments, particularly small enterprises having limited access to alternative sources of funds has been a matter of concern. Since large corporates can access alternative cheaper sources of funds, the burden of adjustment in the financial sector seems to have fallen relatively more on small and medium enterprises due to segmentation of credit markets. The problem seems

Table 3.24 : Sources of Funds of Selected Public Limited Companies

(Percentage share in total funds raised)

Period	Internal Sources	External Sources						Total
		Paid-up Capital	Borrowings				Trade Dues & Other Current Liabilities	
			Debentures	Loans and Advances		Total		
				Banks	FIs			
1	2	3	4	5	6	7	8	
1985-86 to 1989-90	31.8	7.2	11.0	13.5	8.7	37.9	22.8	68.2
1990-91 to 1994-95	29.9	18.8	7.1	8.2	10.3	32.7	18.4	70.1
1995-96 to 2000-01	41.2	12.1	5.7	11.5	9.2	32.1	14.2	58.9

Source : Selected Financial Statistics - Public Limited Companies, RBI.

14. The neoclassical theory of investment known as the Modigliani-Miller (1958) theorem, however, assumes that as long as the firm has profitable investments with returns above the cost of capital, it can obtain sufficient funds to undertake such investments. Thus, internal and external finance can be viewed as substitutes, and firms could use external finance to smoothen investment when internal finance fluctuates.

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to have been accentuated on account of lack of adequate credit risk assessment regarding small and medium enterprises emanating from poor credit information base on such enterprises. In view of these concerns, the credit delivery system has been a major focus of reforms since the 1990s with the objective of augmenting the total volume of institutional credit while securing an equitable distribution of credit, particularly for weaker bidders in the credit markets, including small enterprises. Besides improving the volume and terms of credit, policy efforts have been directed towards simplifying the procedures.

Productivity Trends in the Manufacturing Sector

3.112 Productivity plays a major role in sustaining the industrial growth since it is the principal determinant of cost, price and trade competitiveness of firms and industries. Notwithstanding the differences of views on measurement issues, there is a near unanimity in the empirical literature on productivity growth in the Indian manufacturing sector. It is recognised that there was a decline in total factor productivity growth (TFPG) till 1980, with a turnaround taking place in mid-1980s following the reoriented trade and industrial policies and improved infrastructure performance (Brahmananda, 1982; Ahluwalia, 1985, 1991).¹⁵ In fact, the significant shortfall in the target for industrial output till about the Sixth Plan can be attributed to the negligible TFPG in manufacturing. The later studies covering the period up to mid-1990s have found evidence of a positive TFPG (Balakrishnan and Pushpangadan, 1994; Majumdar, 1996; Rao, 1996; Pradhan and Barik, 1999) (Table 3.25). Thus, there seems to be turnaround in the productivity growth in the mid-1980s.

3.113 The role of the reform process in terms of its impact on manufacturing productivity continues to be debatable. While a positive rate of growth in productivity is noticed in the post-1985 period, the level of labour productivity is found to be abysmally low and its convergence to the international standards seems to be a difficult proposition in the near future (Trivedi *et al*, 2000). The low labour productivity appears to have offset the comparative advantage in terms of low labour cost (CII-World Bank, 2002). NCAER (2001) has observed a decline in productivity growth in 1990s (up to 1997-98) in relation to the 1980s. Besides, the mean technical efficiency of all firms taken together

Table 3.25 : Productivity in the Indian Industry : A Summary of Empirical Estimates

	Period Covered	TFPG (SD)	TFPG (DD)
		1	2
Brahmananda (1982)	1950-51 to 80-81	-0.2	—
Ahluwalia (1985)	1959-60 to 79-80	-0.6	—
Goldar (1986)	1959-79		1.06 to 1.31
Ahluwalia (1991)	1959-60 to 85-86	-0.4	—
Balakrishnan and Pushpangadan (1994)	1970-71 to 88-89	0.5	3.1
Dholakia and Dholakia (1994)	1970-71 to 88-89	-0.11 to 0.06	0.9 to 1.74
Majumdar (1996)	1950-51 to 92-93	1.7*	—
Rao (1996)	1973-74 to 92-93	1.3@	2.2
Pradhan and Barik (1999)	1963-64 to 92-93	0.6	
Trivedi <i>et al</i> (2000)	1973-74 to 97-98	1.95	3.7
NCAER (2001)	1980-81 to 96-97	-0.05 to 0.04\$	
Unni <i>et al</i> (2001)	1978-79 to 94-95	-0.1	

* The estimates are reported only for the sub-period 1973-74 to 1992-93, out of the total period of the study spanning 1950-51 to 1992-93.
 @ Growth rate of TFP is obtained indirectly from the estimates of TPG.
 \$ Represents different estimates of TFPG based on the firm level panel data set.
 SD = Single deflation method, DD = Double deflation method.

seems to have declined in 1990s as compared to the pre-reform period. Unni *et al* (2001) also provide evidence of a declining productivity growth in the first half of 1990s. Productivity growth in the SSIs also witnessed a decline, with the labour productivity growth decelerating to 3.7 per cent during 1990-96 from 6.2 per cent during 1980s and the capital productivity growth declining to (-)1.6 per cent from 2.6 per cent during the same period (SIDBI, 2000). Regarding trend in productivity in the unorganised manufacturing sector, Unni *et al* (2001) have observed a rapid decline in the TFPG to (-)3.1 per cent during the reform period (1990-95) from 11.4 per cent in the latter half of 1980s. The TFPG for the entire period of study, *i.e.* 1978-95 is estimated at (-)2.5 per cent. This reflects, *inter alia*, low technological change in the unorganised sector in the reform period.

3.114 Broad assessment of partial factor productivity for the industry can be based on an analysis of the changes in input intensities. The material intensity of the manufacturing sector which remained high during the 1980s and the first half of the 1990s, witnessed a sharp decline in the latter half (Table 3.26). This is indicative of

15. A major measurement issue is the conversion of nominal value added into the real value added done either with single deflation or double deflation method. In the case of single deflation method both nominal output and nominal material inputs are deflated by output price index, while under double deflation method, the nominal output is deflated by output price index and nominal material input is deflated by input price index. It is evident from the above studies that the factor productivity growth obtained through the single deflation approach is lower than the double deflation approach, implying that the relative prices of inputs and output have increased over time.

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Table 3.26 : Indices of Input Intensity in the Indian Manufacturing Industry

Year	Current Prices				Constant Prices			
	Mat Inpt/ Output	Cap/ GVA	Prod Cap/ GVA	Labour/ GVA	Mat Inpt/ Output	Cap/ GVA	Prod Cap/ GVA	Labour/ GVA
	1	2	3	4	5	6	7	8
1970-71	100	100	100	100	100	100	100	100
1975-76	95.9	81.9	88.5	105.8	114.7	80.3	86.7	109.1
1980-81	97.8	92.6	99	98.7	107.9	90.8	97	114.5
1985-86	105.2	93.1	96.4	89.8	119.7	85.7	88.7	94.1
1990-91	102.7	93.1	90.9	74.9	106.3	82.9	81	73.6
1995-96	101.3	91.7	88.9	62	92.4	83.9	81.4	58.4
1999-00	95.6	91.4	85.2	70.4	94.1	88.7	82.7	40.8

Mat Inpt = Material inputs, Cap = Fixed capital, Prod Cap = Productive capital, GVA = Gross value added

a shift away from material inputs as also the rationalisation of the production process, ensuring efficiency in use of material inputs. The labour intensity index (at constant prices), in contrast, witnessed almost a secular decline from the peak of 114.5 per cent in 1980-81 to 73.6 per cent in 1990-91 and further to 40.8 per cent in 1999-2000. A similar trend is discernible in the labour intensity index at current prices, though the extent of decline has been less. This can be attributed to the relatively high increase in the CPI of industrial workers than in the prices of manufacturing goods. On the other hand, the capital intensity has significantly risen during the 1990s as compared with the 1980s.

3.115 The productivity growth in the manufacturing sector seems to have declined during the 1990s and, more so, in the latter phase of the reform period, primarily as a sequel to the faltering pace of implementation of structural reforms, the binding infrastructure constraints, and the lack of required industrial restructuring – all impinging on the competitiveness of the Indian industry. The input intensity indices show that the production process in the manufacturing sector has become more capital intensive, possibly in view of the adoption of capital-intensive new technologies in response to the inflexibilities that characterise the labour market. The efficiency in use of material inputs has, however, shown improvement in the latter part of 1990s.

Summing Up

3.116 The industrial sector in the reform period (1992-93 to 2001-02) reported a slowdown in all its major segments. The manufacturing slowdown noticed since the latter part of 1996 had its origin in the cyclical slowdown of exports and subdued agricultural performance. The slowdown persisted in the subsequent period due to inadequate industrial restructuring and the resultant loss of competitiveness.

The lack of institutional and structural reforms, which affected the pace and content of industrial restructuring operates as the major binding constraint on manufacturing growth in a liberalised trade regime. The manufacturing slowdown has possibly been reinforced by the observed decline in productivity growth in the 1990s and the cyclical downturn in demand, both in the domestic and external markets.

3.117 Industrial performance continues to be hampered by physical infrastructure bottlenecks with demand-supply imbalances persisting during the reform period. The deteriorating infrastructure services have been a direct fall-out of shrinkage in infrastructure investment in the context of inadequate availability of internal resources of public infrastructure entities and dwindling Plan outlay earmarked for infrastructure. The declining public investment in infrastructure has not been offset by the private investment on account of inadequate institutional reforms. There are, however, signs of improvement in a few sectors, like communication.

3.118 The credit flow from the banking system has significantly slowed down for SSIs and medium and large industries in the second phase of the reform period. The deceleration has been more pronounced for the SSIs. Besides, disbursements from the all India financial institutions (AIFIs) to industry have witnessed a considerable slowdown. Such developments on the credit front need to be assessed in the context of increasing recourse to internal resources and private placement by corporates, high real cost of credit coupled with its downward inflexibility, and prudential requirements such as capital adequacy and provisioning norms for banks and financial institutions, as well as the existing structure of the credit delivery system. The high real interest rate for industrial sector, ruling above industrial growth rate, also seems to have inhibited investment and capacity build-up in industry.

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3.119 The increase in competition resulting from the reform measures *viz.*, delicensing, opening up of trade has had a mixed impact on the industrial sector. This is evidenced amply in the fact that the manufacturing inflation in the late 1990s was around 3 per cent as against 10 per cent in the early 1990s. The sharp decline in the manufacturing prices has impacted adversely on the profit margins of companies. Further, inadequate industrial restructuring has hampered industrial growth. Adequate flexibility in industrial restructuring involves more rapid bankruptcy procedures, easier reallocation of capital, faster transformation of urban land use and flexibility in labour use.

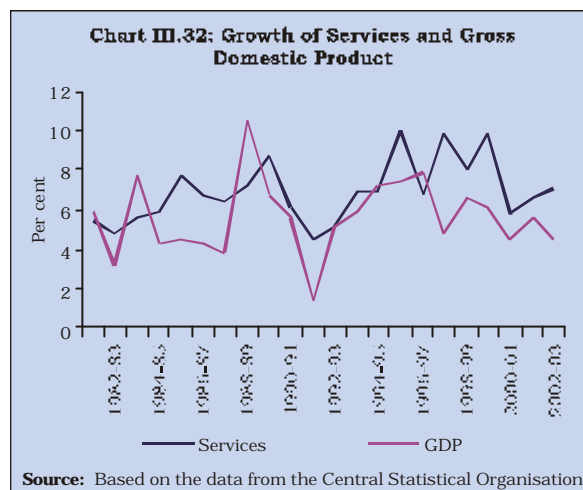
3.120 The reservation for SSI producers has created an anomalous situation where foreign producers irrespective of size are able to bring in reserved products but existing SSI producers are not allowed to expand investment and scale to economically efficient levels to compete with imports. Therefore, there is a need for dereservation in select products with strong export potential (Government of India, 2001).

3.121 Increase in competition denotes that any rise in the input costs is difficult to cope with. The dwindling public investment on infrastructure in the latter half of the 1990s, caused by deterioration in Government capital expenditure, has clearly impacted on the availability as well as the quality of infrastructure services. Simultaneously the high cost of infrastructure, particularly power and railways freight, has been loaded on to the industry. Together, the prevailing high real interest rates have adversely impacted the price competitiveness of the industrial sector. Exchange rate appreciation witnessed in the late 1990s increased further pressure on the competitiveness. Generally exchange rate adjustments compensate for the rise in input costs, but the large capital inflows into the Indian economy during the late 1990s have prevented such an adjustment.

IV. SUSTAINABILITY OF SERVICES GROWTH¹⁶

3.122 Since the 1980s, growth process in India has been marked by a robust performance of services sector. While this is partially in line with the experience of developed countries, the Indian experience is somewhat unique in the sense that the sectoral shift in favour of services sector accompanied almost stagnant share of industry and reduced share of agriculture. The momentum continued during the

1990s; in fact, it was the growth performance of the services sector that provided a modicum of resilience to the overall growth of the economy, particularly in times of adverse agricultural shocks and industrial slowdown (Chart III.32).



3.123 The set of economic reform measures initiated since 1991 also impacted on the performance of the services sector. First, reforms in the domestic industrial environment which resulted in rising manufacturing growth provided synergies to the services sector in the form of increased demand for producer services. Second, the liberalisation of the financial sector provided an environment for faster growth of the financial services. Third, reforms in certain segments of infrastructure services also contributed to the growth of services. Consequently, the services sector posted a much higher growth during the reform period as compared with the pre-reform period with its share touching nearly the 50 per cent mark. Finally, the rapid growth in services sector appears to have benefited from external demand; the typical example of which is the software industry and call centres. Interestingly, the decelerating trend in manufacturing and overall GDP seems to have been much less pronounced in case of services. Nevertheless, there are apprehensions about its sustainability in view of the contribution of "public administration and defence" to growth in services.

3.124 Against the above backdrop, the present section broadly looks into the following two issues: First, the performance of the services sector and second, the

16. While in the discussion of growth in Section I, "construction" is included under the services sector, for a detailed sectoral analysis, "construction" is excluded from services in this section.

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sustainability of services growth. After analysing the relative performance of the services sector in the reform period, the supply-side sources of services growth are examined followed by a discussion on the decomposition of services into three segments, viz., producer services, consumer services and Government services.

Performance of the Services Sector

3.125 Since the 1980s, services sector has come to occupy a position of dominance in the composition of GDP. The average share of services sector increased to 45.4 per cent during the reform period as against 38.9 per cent in the pre-reform period. In terms of growth, services sector posted a higher growth of 7.8 per cent during the reform period as against 6.7 per cent during the preceding period. However, services sector is actually an amorphous entity; on the one hand, it includes sectors like 'public administration and defence', largely independent of the level of economic activity, and on the other, it has sectors like 'trade, hotels and restaurants'. At the sub-sector level, 'trade, hotels and restaurants' continued to be the major segment in terms of its share in services. The growth performance improved for all segments during the reform period barring 'financing, insurance, real estate and business services'. However, the 'financing, insurance, real estate and business services' improved its share during the reform period when all other segments witnessed shrinkage in their respective shares, which seems to be the result of the financial sector reforms that led to emergence of new participants, instruments and markets. The poor performance of the non-banking sector, among others,

has been the cause for the deceleration in growth of this sector. Nevertheless, the relative contribution of this sub-sector to the services growth has been maintained across the periods (Table 3.27).

Factors underlying the Services Growth

3.126 Growth of services stemming from capital productivity/total factor productivity could be seen as an encouraging development in a capital scarce economy like India. The gross value added from services registered a higher growth in the reform period even though the trend growth of Gross Capital Formation (GCF) in services decelerated to 5.7 per cent from 5.9 per cent in the pre-reform period. This could imply an improvement in capital productivity and/or total factor productivity in services. There is a broad consensus that the recent surge in services has been contributed, among others, by the skill-intensive and high productivity activities such as Information Technology (IT) services, which have emerged as one of the fastest growing segments in the 1990s. The labour productivity in software services is estimated to be twice that of the manufacturing sector (Arora and Athreye, 2001). The ascendancy of services can also be seen as an outcome of the economic liberalisation and encouragement of private investment in industry and infrastructure (Government of India, 2002c). Besides, increased expenditure on public administration and defence, social services and rural extension services has had a positive impact on the services growth in the 1990s.

3.127 Given the inter-sectoral linkages of services sector with other sectors, particularly industry,

Table 3.27 : Share and Growth of Sub-Sectors of Services

(Per cent)

Sector	1981-82 to 1990-91		1992-93 to 2001-02		Growth during the three phases of 1992-93 to 2001-02		
	1	2	3	4	1992-93 to	1994-95 to	1997-98 to
					1993-94	1996-97	2001-02
	Share	Growth	Share	Growth	Growth	Growth	Growth
Trade, hotels and restaurants	32.2	5.9	30.7	8.1	6.6	10.9	7.1
Transport and communication	16.1	5.6	15.8	8.9	5.9	9.7	9.6
Financing, insurance, real estate and business services	21.0	9.9	26.1	7.8	9.6	6.9	8.1
Community, social and personal services	30.7	6.1	27.3	7.1	4.0	5.8	9.1
Services	100.0 (38.9)	6.7	100.0 (45.4)	7.8	6.5	8.2	8.1

Note : Figures in brackets are share of services in GDP.

Source : Central Statistical Organisation.

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performance of the commodity producing sectors has implications for the growth performance of services sector. To explore such inter-linkages, a demand function for services sector has been estimated using GDP from industry, exports of services and prices of services as explanatory variables. The estimates reveal a significant positive impact from the industrial sector as is evident from its elasticity at 0.11. Export of services also has a positive effect on the services demand with its elasticity at 0.02 while the impact of services prices turns out to be negative, as expected.¹⁷

Composition of Growth in the Services Sector

(i) Intermediate versus Final Consumption of Services

3.128 For a meaningful analysis, the issue of absorption of services as intermediate *vis-à-vis* final consumption is examined by classifying them into producer, consumer and Government services. Their relative roles can provide insights as regards the sustainability of services growth. Activities like 'trade, 'transport, storage and communication', 'financing, insurance, real estate and business services', which are more of intermediate nature, are taken as producer services. Activities like 'hotels and restaurants' and 'other services', having the nature of final consumption, are classified as consumer services whereas 'public administration and defence' (PAD) are treated as Government services.

3.129 The stylised facts on intermediate *versus* final consumption of services along with Government services during the pre-reform and reform period are presented in Table 3.28. While producer and consumer services have recorded a higher growth in the reform period, the Government services have witnessed a marginal decline. This has implications for growth dynamics, not only for services sector but also for the overall growth process.

Table 3.28 : Growth of Gross Value Added in Services Sector

Services	(Per cent)			
	1981-82 to 1990-91	1992-93 to 1994-95	1995-96 to 2001-02	1992-93 to 2001-02
	1	2	3	4
1. Producer Services	7.0 (67.6)	7.9 (70.1)	8.2 (71.0)	8.1 (70.7)
2. Consumer Services	5.8 (18.1)	4.9 (16.8)	9.3 (16.9)	8.0 (16.9)
3. Government Services	6.5 (14.3)	2.9 (13.0)	7.8 (12.1)	6.3 (12.4)

Note : Figures in the brackets are the shares of sub-sectors in GVA of services.

(ii) Producer Services

3.130 The increased share of producer services in total services in the reform period can be explained by, *inter alia*, the phenomenon of increasing relevance of outsourcing by the Indian industry. Peripheral service-oriented activities, which were carried out earlier in-house, are being contracted out to the outside agencies in order to focus on core competencies in an increasingly competitive environment in the reform period. Furthermore, the increasing share of producer services reflects the growing complementarity between services and manufacturing (RBI, 2002). The expansionary potential of services can be viewed from the fact that 50 per cent of the industries are directly or indirectly services-intensive (Bhowmik, 2000). The major demand for producer services emanates from the manufacturing sector as well as exports. The estimates of demand function for the producer services show that a rise in manufacturing output drives up the demand for producer services (elasticity 0.18). The export growth also leads to a rise in demand for producer services (elasticity 0.06). Increase in the price of producer services expectedly has a negative impact on demand (elasticity -0.24)¹⁸.

17. Demand Function for Services Sector (Sample 1970-71 to 2000-01)

$$Y_{sc} = -1.246 + 0.1142 L_{yind} + 0.018 L_{xser} - 0.138 L_p$$

(4.17) (1.947) (-4.309)

$$R^2 = 0.63 \quad DW = 1.71 \quad F = 11.29$$

where, Y_{sc} = Cyclical demand component of services, L_{yind} = Log of industrial output, L_{xser} = Log of services export, L_p = Log of prices of services.

18. Demand Function for Producer Services (Sample 1970-71 to 2000-01)

$$Y_{ps} = 0.065 + 0.18 L_{mfg} + 0.055 L_{xser} - 0.236 L_{ps}$$

(2.22) (1.864) (-3.56)

$$R^2 = 0.53 \quad DW = 2.0 \quad F = 6.90$$

Where, Y_{ps} = Growth of GDP from producer services, L_{mfg} = Log of manufacturing output, L_{xser} = Log of services exports and L_{ps} = Log of prices of services.

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However, as some of the producer services such as 'transport, storage and communication' are used as input for industrial production, a bi-directional relationship between industry and services sector cannot be ruled out.

Consumer Services and Private Final Consumption Expenditure

3.131 An upward trend was observed in consumer services, which recorded a growth of 8.0 per cent in the reform period as compared with 5.8 per cent in the preceding period. The increased growth in consumer services in the reform period has been accompanied by a similar growth pattern in private final consumption expenditure (PFCE) on services. The share of services in PFCE has moved up to 24.9 per cent in the reform period from 18.0 per cent in the preceding period. A disaggregated analysis of PFCE on services shows that medical care and hotels have recorded significant increases in growth during the reform period while growth in transport and communication has slowed down over the same period.

(iii) *Government Services*

3.132 Government services, comprising PAD is often singled out for the high growth in services since increased expenditure of the Government in the form of wage bill gets directly reflected in its value added even without any addition to services. An examination of the issue of faster growth of this sub sector in the 1980s showed that the tertiary sector growth was not solely due to increase in the growth of GDP originating from PAD (Nagaraj, 1990; Kumar, 1992). The steep wage hike in 1990s in line with the Fifth Pay Commission's recommendations brought back the issue into focus once again (Acharya, 2002). It is also observed that one percentage point of growth of 5.0 per cent in GDP for 1997-98 is attributed to the 20 per cent increase in real value added in the PAD sub sector arising chiefly from pay increases to Government servants (Government of India, 1999).

3.133 The growth in PAD, during the period 1997-98 through 1999-2000, has been far higher than growth in services excluding PAD and therefore PAD undoubtedly contributed to the overall growth of services. During the reform period as a whole, an assessment of services excluding PAD, however, contradicts the perception that PAD alone is responsible for higher services growth. Although the Fifth Pay Commission related pay increases might have distorted estimates of GDP originating from services for a few years, they do not affect the trend

growth which remains at 8.2 per cent during the reform-period even if Government administration is excluded altogether. The log-linear trend growth of services with and without PAD has been broadly the same during the reform period (Table 3.29). On the whole, the services sector growth appears to have accelerated in the reform period, with the impetus coming from sources other than PAD.

Table 3.29 : Growth in Public Administration and Defence (PAD)

Year	PAD	Services Sector without PAD	Services Sector
	1	2	3
1992-93	4.9	5.4	5.1
1993-94	2.6	8.5	7.1
1994-95	1.3	8.0	6.6
1995-96	6.8	11.0	9.5
1996-97	4.1	7.6	6.7
1997-98	14.5	9.1	8.9
1998-99	10.3	7.9	7.6
1999-00	12.2	9.3	8.8
2000-01	2.5	6.9	6.5
2001-02	2.9	7.3	6.8
1992-93 to 2001-02*	7.2	8.2	8.0
1981-82 to 1990-91*	7.4	6.7	6.8

* Log-linear trend rate of growth.
Source : Central Statistical Organisation.

External Demand for Services

3.134 The growing role of tradable services in international trade and exchange has come to be recognised with the General Agreement on Trade in Services (GATS). India's share in world exports of commercial services has doubled from 0.6 per cent in 1990 to 1.2 per cent in 2000, while the share in world merchandise exports has gone up marginally from 0.5 per cent to 0.7 per cent during the same period. Interestingly, there has been a consistent surplus on account of trade in services. The compositional shifts in foreign trade in favour of services in the reform period has helped in the emergence of new sources of earnings in India's balance of payments. Earnings from software exports have increased from negligible levels in early 1990s to a level of US \$ 7.5 billion in 2001-02. These are likely to surge by 30 per cent during 2002-03 as per the NASSCOM estimates. Thus, while the 1980s was dominated by tourism earnings, the second half of 1990s witnessed an unprecedented jump in India's earnings from new economy activities like software services exports and other information technology

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related skill intensive exports. The services exports thus, provided some element of stability to the external balance of the country and also positively impacted on the overall demand in the services sector.

Summing Up

3.135 The services sector has exhibited a strong trend component that has provided an element of stability to the growth process. The sector seems to have grown in the reform period, sustained by an increasing demand for producer and consumer services coupled with the external demand. The role of public administration and defence appears to have been limited in the growth process. The emergence of producer services as an important source of services growth reflects strong inter-linkage with commodity producing sectors of the economy. Apart from providing inputs, services contribute to the outward shift of the industrial sector's production frontier by enhancing productivity growth. Conversely, services growth could be sustained provided adequate demand impulses are generated in industry or agriculture. Given India's comparative advantage in information technology, services growth momentum can be sustained by exploiting new opportunities in international trade in services, particularly, in the area of communication and information services, technology transfer and software.

V. CONCLUDING OBSERVATIONS

3.136 The heuristic description of the growth experience of the Indian economy since the initiation of the reform measures in the early 1990s brings out a number of empirical regularities. At a broad aggregate level, there is evidence of a distinct, but not necessarily substantial improvement in growth of the economy during the reform period. Nevertheless, the silver lining of improved growth loses some of its gloss in view of the deceleration in the growth witnessed since the mid-1990s. The achievement of higher economic growth hinges on the attainment of both higher saving and investment. While saving in general and household saving in particular have exhibited rising trend during the reform period partly emanating from relatively higher income growth (despite the downward alignment of interest rates), public sector saving has fallen dramatically and has become negative. It is the poor performance of the public sector saving as a whole that has eroded the investment capacity of the country for generating higher economic growth. The deteriorating saving has led to erosion in public sector investment and deterioration in the availability and quality of public infrastructure services including transport, railways and electricity. Thus, the major challenge to economic

growth in future is the reversal of the public sector dis-saving to achieve the level of saving recorded in the late 1980s. This requires action on two fronts. First, a major improvement has to come about in the tax-GDP ratio which has deteriorated during the 1990s. Second, large-scale improvement in the operation of the public enterprises would be required by rationalising user charges on the services rendered. It would then be possible to invest adequately on provision of such infrastructure services which are necessary for higher growth. Another concern for achieving higher growth emanates from the indications of declining productivity growth in the latter half of the reform period (as reflected in the ICOR). This reinforces the need for accelerating the pace of structural reforms.

3.137 The growth performance of the commodity producing sectors is critical for improving overall growth rate of the economy. It is apparent that the agricultural sector in the 1990s witnessed slowdown but at the same time recorded unprecedented accumulation of foodstocks due to persistent price distortions. While there have been successive increases in MSPs of rice and wheat, their international prices have witnessed declining trend, thus reducing the export competitiveness of Indian rice and wheat. These factors together have led to higher procurement. As against higher procurement, the off-take has remained low due to rise in CIPs on the one hand and shifts in the consumption pattern away from cereals to non-traditional food items, on the other. The cumulative impact has been burgeoning food stocks, with attendant fiscal and monetary implications. This predicament of mounting foodstocks has occurred despite a deceleration in agricultural growth. It is quite possible that the problem would have been more serious in terms of piling of stocks, had there been higher growth in agricultural production. Notwithstanding the current reduced export competitiveness of Indian cereals and the piling up of foodgrain stocks, Indian cereals could still be competitive, provided the AMS in the US and European countries is reduced. The subdued growth of agricultural sector could be attributed to limited reforms directly affecting this sector. Furthermore, within the limited reforms in this sector, while the foreign trade was liberalised, the inter-state restrictions prevailed. This reflects the lack of proper sequencing of reforms. At the same time, lack of technological improvements is manifested in plateauing of yield gains across crops.

3.138 A higher growth in agriculture, thus, needs a comprehensive revamp of agriculture policy with reorientation towards rapid diversification of this sector. A progressive correction is required in the incentive

structure for agriculture so that the excessively high minimum support prices do not continue to distort resource allocation in agriculture. This will ensure that farmers diversify towards high value added segments of agriculture in response to the new demand structure. As the non-foodgrain commodities have inherent heterogeneity, policies regarding these have to be regionally more dispersed and market responsive. Agriculture growth will be hampered further unless the current approach to input subsidies, particularly relating to fertiliser, power and water is reoriented. Rationalisation of subsidies and economically viable user charges would be required to augment resources for productive investment in rural infrastructure. The lack of adequate storage facilities acts as a major bottleneck in the development of food processing industry. Furthermore, lack of standardisation of product quality hampers export competitiveness. The supportive rural infrastructure can be best developed in a decentralised private sector framework which would need appropriate policies and financing facilities.

3.139 Responding to the structural reforms introduced in the industrial sector during the initial years of the 1990s, the industrial sector grew at a remarkable rate. However, there was marked deceleration since the mid-1990s. The package of reforms carried over the past decade was expected to lead to significant restructuring in the industrial sector. The slow pace of industrial restructuring and the resultant loss of competitiveness in a liberalised trade environment, thus, led to current protracted manufacturing slowdown. The signs of reduced competitiveness are thus, observed in declining productivity growth, more particularly in the latter part of the 1990s. An overall growth impulse in the industrial investment, exports and employment can be generated provided coordinated reform measures are taken allowing rapid bankruptcy procedures, faster transformation of urban land use and flexibility in labour market. Further, existing restrictions on small scale sector in the form of size and scale of operation need to be removed to ensure new investments and technology upgradation in this segment to withstand competition.

3.140 It is apparent that the industrial performance continues to suffer from physical infrastructure bottlenecks with demand-supply imbalances persisting during the reform period. The deteriorating infrastructure services have been a direct fall-out of shrinkage in infrastructure investment in the context of inadequate internal resources of public infrastructure entities and dwindling Plan outlay for infrastructure.

The declining public investment in infrastructure has not been offset by private investment, primarily on account of inadequate institutional reforms; there are, however, signs of improvement for a few sectors, like communication. The adequate response of the private sector in basic infrastructure would primarily require economically efficient user charges to ensure the reasonable return on investment.

3.141 Apart from infrastructure, lack of adequate credit is often cited as a factor behind the slowdown. While the nominal interest rates have fallen, the real lending rates continue to remain high. The development has adverse implications for the industrial sector as interest cost-sales ratio remains much higher as compared to many emerging economies. Given the downward rigidity of medium and long-term interest rates and real GDP growth from industry falling much below the real interest rates, industrial investment becomes increasingly unsustainable over a longer horizon. It may be noted that in a liberalised interest rate scenario, policy measures have limited role to influence the cost of credit. While the credit flow to industry from both the banking system as well as the AFIs has significantly slowed down in the recent past, it is not clear whether the reduced credit flow is an outcome or the cause of industrial deceleration. Notwithstanding the unsettled status of the alleged "credit constraint" facing the industry, there are some concerns about the credit delivery mechanism. All these continue to pose challenges for achieving the much needed higher growth in the economy.

3.142 The services sector stands in a somewhat isolated position. Not only did it improve its performance during the reform period, to a large extent, it withstood the onslaught of deceleration. Furthermore, a sector-wise analysis of growth in the services sector has revealed that much of the alleged misgiving about its unsustainability is misplaced, as its growth performance was indeed robust and not necessarily dependent on 'Government services', like 'public administration and defence'. Nevertheless, the emergence of producer services as an important source of services growth, reflecting strong inter-linkages with commodity producing sectors, raises questions about the continuance of services growth, in the absence of an industrial revival. Although the services sector can continue to grow at higher rates, the acceleration in the overall growth rate of the economy over a medium term would necessitate a distinct improvement in the growth performance of the commodity producing sectors from their present levels.

