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INDIA'S ECONOMIC GROWTH:
From Socialist Rate of Growth to Bharatiya Rate of Growth

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Foreword

One of the important areas of ICRIER's research is that of Macroeconomics and growth. We intend to systemise and deepen this policy research and expand it to include issues of employment and poverty.

The current working paper is the first in a series of papers on Indian Economic growth performance. There is much mis-perception about Indian economic growth history, not only among foreigners, but even among Indians. It is therefore necessary to start with a simple paper that sets forth the basic unvarnished facts and sets the record straight. The paper also explores some of the causes of changes in growth trends and variations in performance. A deeper analysis will however be carried out in subsequent papers. The next paper will explore the productivity performance that underlines the growth performance. Future papers will also explore the links between policy, growth, poverty and employment.

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**INDIA'S ECONOMIC GROWTH:
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Abstract

This paper reviews India's growth performance since independence. Phrases such as "Hindu Rate of Growth," sometimes make a telling comment and expose obscure economic data to a wider audience, but they can just as readily obscure reality by focussing attention on the wrong issue. There is nothing in the literature that suggests that this period of the "Hindu Rate of Growth" had anything to do with Hinduism per se. This paper shows that had a lot to do with the Indian version of Socialism. The 30-year period from 1950-51 to 1979-80 is therefore better described as the "Indian-socialist" or perhaps "Hindu-socialist" period. The paper also identifies a truly disastrous 15-year sub-period within this Indian-socialist period, the negative lessons of which have still not been fully understood or absorbed by academics, policy makers and political parties.

One of the innovations in this paper is to take explicit account of rainfall variations that play a very important role in the Indian economy. This allows us to determine whether the Indian economy has become less dependent on the monsoons ('drought proof'). It also allows a statistically more accurate determination of the different phases of Indian economic growth. The paper confirms that, what the author has earlier dubbed, the "Bharatiya Rate of Growth" phase began around 1980-81. The paper fills out the sector details of the various phases of development and the role that government and government monopoly has played in different sectors. The paper also explores some of the growth puzzles in our economic history.

Key Words: Indian Economy, Economic Growth, Development, Phases of Growth, Socialism, Government Monopoly, Bharatiya Rate of Growth.

JEL Number: N1, O1, O4, O5, P0

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I. Introduction

How has the Indian economy performed since independence? Prof. Raj Krishna popularised the phrase ‘Hindu rate of growth’ in the seventies, during the period of increasing controls and slowing growth rate.¹ K N Raj (1984) however questioned this “so-called ‘Hindu’ rate of growth,” hypothesis. Patnaik (1987) and Dhar (1988) discerned some acceleration of growth in the eighties, while Virmani (1989) asserted a break in the growth rate from 1980–81. Nagaraj (1990) and Bhargava and Joshi (1990) did not find the break statistically significant.² Dandekar (1992) and Ahluwalia (1995) also noted the increase in growth rate during the eighties. Nevertheless there was a widespread belief in the general public that the Indian economy was stuck since independence in the ‘Hindu rate of growth,’ of about 3.5% per annum. This conventional wisdom prevailed throughout the eighties and perhaps into the nineties.³

The conventional wisdom changed again around the mid-nineties. The new conventional wisdom was that the ‘new economic policy’ introduced in 1991–92 had transformed the Indian economy and pushed it from the ‘Hindu rate of growth’ of 3.5% to a new higher rate that was variously estimated to lie between 5% and 6%. The latter has sometimes been referred to as the ‘new Hindu rate of growth.’ This new conventional wisdom was also immune to papers such as Virmani (1997a and 1997b) that demonstrated that the growth acceleration preceded the new economic policy.⁴ Only recently has this been explicitly recognised [De Long (2001), Williamson and Zaghera (2002), Acharya (2002)].

A new series of national accounts statistics was introduced by the Central Statistical Organisation (CSO) based on 1993–94 prices. Over the last few years the series has been extended backwards and is now available from 1950 onwards. We use this data to revisit the issue of growth phases in Indian economic development.

¹B P R Vithal was perhaps the first to refer to Hindu culture as in some way affecting economic development. My thanks to Y. V Reddy and Sanjaya Baru for this information.

² The former says that the evidence of a break cannot be rejected though.

³ This was reflected in domestic and foreign newspapers & magazine articles.

The paper is structured as follows. Section II analyses the historical growth experience of the Indian economy in terms of phases. The paper finds a sub-phase of economic growth, dubbed the “Socialist Rate of Growth (SRG)” in which the Indian economy had the worst performance in its post-independence history. The paper also confirms that there was a new phase of growth, measured by the rate of growth of the GDP (gross domestic product) at factor cost (GDPfc), starting in 1980–81 that we call the ‘Bharatiya rate of growth (BRG).’ We also find that each phase can be further sub-divided into two sub-phases characterised by differences in policy approach and growth performance. The two sub-phases of BRG throw up important puzzles regarding the impact of policy changes and economic reforms on growth performance. Section II attempts also to [unravel these puzzles](#), as they need to be resolved for informing the debate on future Indian growth.

Section III puts the Indian growth performance in an international perspective, to assess how India’s growth rate during the different sub-phases compared with that of other countries. Section IV concludes the paper.

⁴ While Bhagwati (1998) acknowledges the higher growth rate of the eighties, he does not consider the 1980 as a new phase in Indian development because he believes that the unsustainable policies of the eighties led to the 1990-91 BOP crisis.

II. Phases of Independent Development

The focus of our analysis is on the post-colonial period after India attained independence in 1947. The term “Independent development” is therefore merely a short form for ‘development of Independent India.’ This paper covers the period from 1950-51 onwards for which consistent data series are available. This means that growth rates are available from 1951-2 onwards. Though we use a fairly simple methodology, a brief overview of this methodology is given in the appendix for non-technical readers as well as for those interested in the logic behind the statistical exercises that follow.

A. GDP Growth Trends

The section starts with an examination of growth trends in the Indian economy since independence to determine what if any breaks there have been in growth performance. It then goes on to statistically determine the break points, which form the dividing line between different phases of economic growth. Subsequent sub-sections investigate to what extent the break in overall growth trends was due to a break in the trend growth of agriculture, manufacturing and services.

Figure 1 and Figure 2 show the annual growth rate of the economy, the growth trend in the HP (Hodrick-Prescott) filtered GDP series and the moving average of the growth rates over the half century. Two phases are clearly discernible, with the second phase having a significantly higher rate of economic growth than the first. This can be seen from either the growth rate trend of the HP-filtered series or the ten-year moving average.⁵ Figure 1 also shows that in the first 30 years there were four years in which the annual rate of growth was negative, and another four in which it was between 0% and 2%. In the subsequent 22 years there was no year of negative growth and only one year in which economic growth was between 0% and 2%. The average growth rate was therefore higher during this second phase. The growth trend as measured by the HP-filtered series reached a low point of 3.3% per annum during the first phase (1971–72 to 1973–74) and a highpoint of 6.1% per annum during the second phase (1994–95 to 1995–96).

⁵ The five-year moving average is centred on the given year, while the 10-year moving average has five earlier and four later years.

Thereafter, the trend growth rate has declined continuously (see HP filtered series). The 10-year moving average fluctuated between 3% and 4% during the first 30 years with occasional forays below (twice) and above (thrice) this band. Starting from 1978–79 there was a clear and unambiguous up trend in the 10-year moving average and it never fell below 4%. On the contrary it exceeded 5% from 1985–86 onwards (figure 2).

To find the precise dividing line between these two phases (the year T in which the first phase ended) one can look at the nature of the prevailing development regime or the nature of the growth experience or a combination of both. First, consider what happens to the average growth rate and the co-efficient of variation (CV) of the growth rates of phase I (1950–01 to T) relative to phase II (T to 2002–03) as we change the year T (Figure 3).⁶ There is a clear break in both the mean and CV if phase I ends in 1978–79. The relative CV falls sharply from 0.7 if T = 1978–79 to 0.3 if T = 1979–80. The relative mean correspondingly rises from 1.4 to 1.65. This is the lowest relative CV and the highest relative mean seen in Figure 3 , suggesting that phase I ends in 1978–79.

⁶ CV = Standard deviation/Mean.

Figure 1: Annual GDP Growth Rate and Hodrick-Prescott filtered series

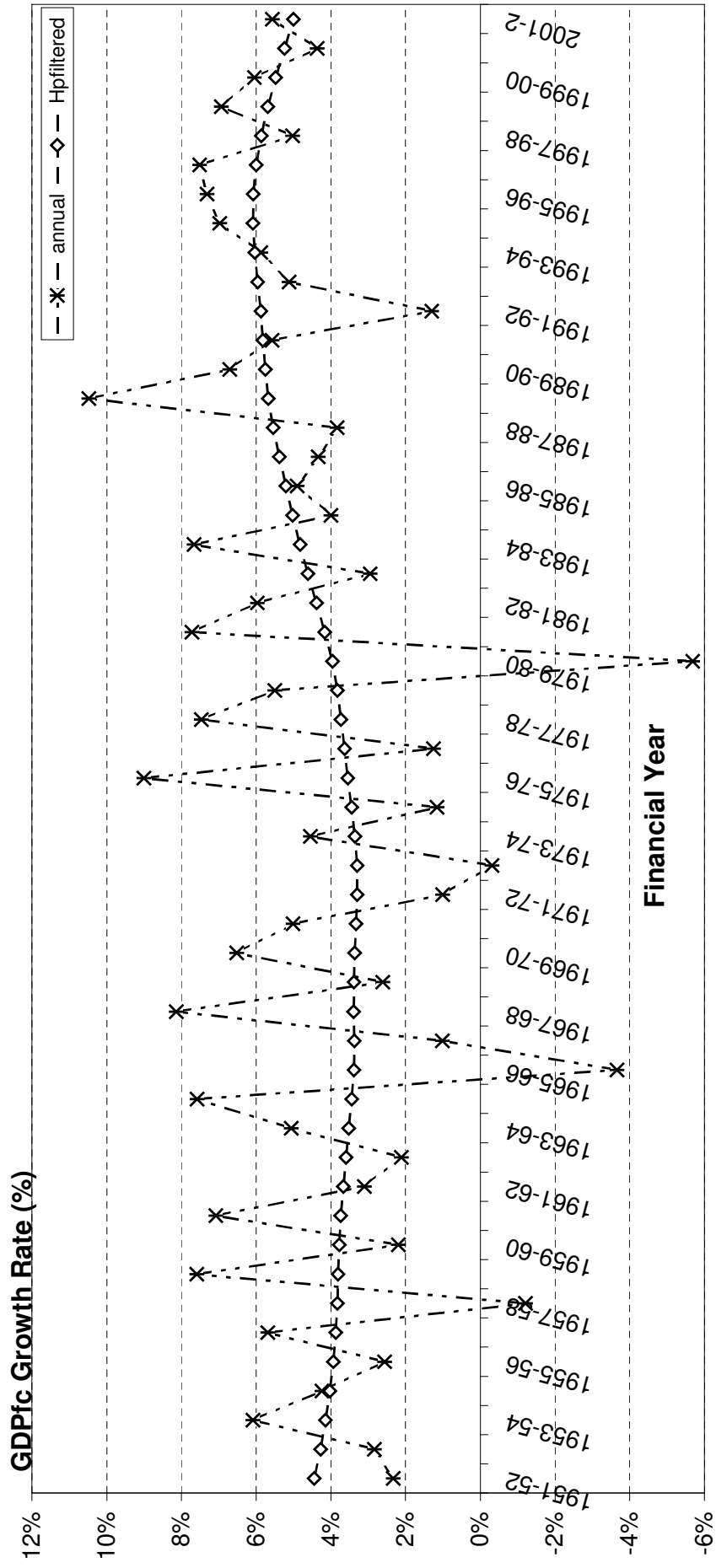


Figure 2: Moving Average of GDP Growth Rates and Hodrick-Prescott filtered series

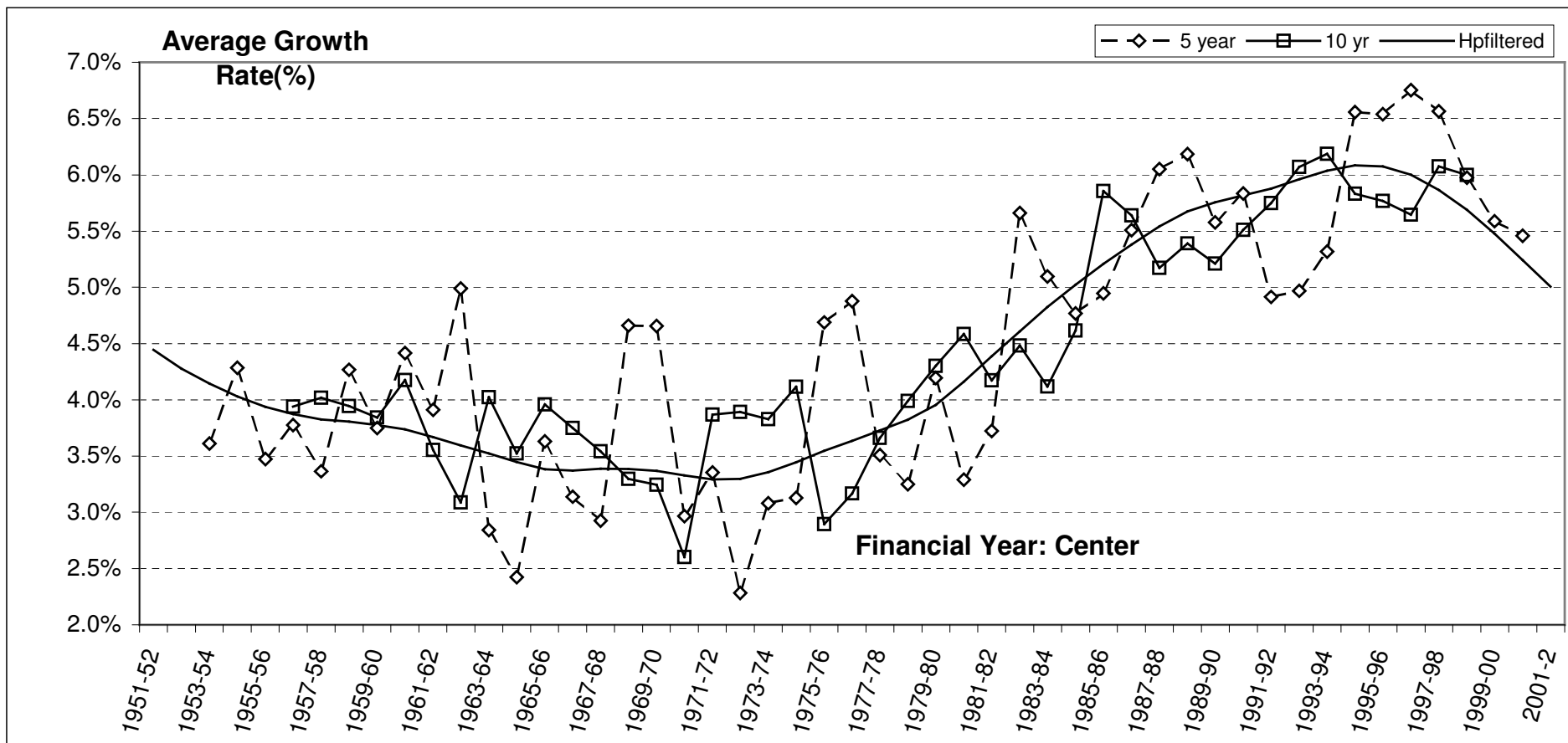
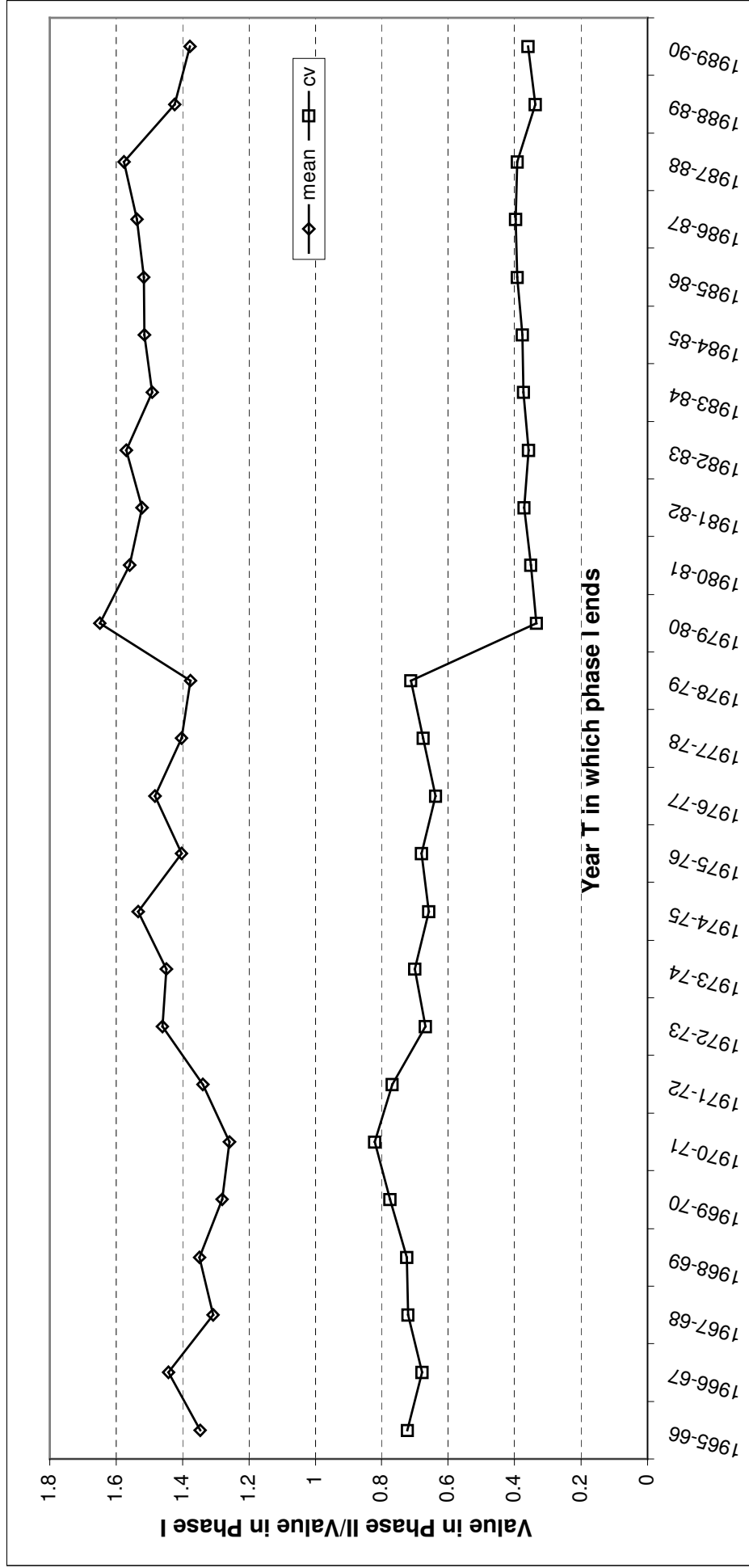


Figure 3: Variation of Mean and CV of Phase I Relative to Phase II with Dividing Year (T)



(-1.23)

(+0.98)

$R^2 = 0.638$, R^2 (adjusted) = 0.589, DW = 2.044. The two new variables are found to be insignificant, while all variables present in equation (2) remain significant with their coefficients virtually unchanged. Thus we conclude that ***there is no change in the effect of rainfall on the growth rate from 1980-81 onwards*** and we can use equation (2) for further analysis.

A significant experiment with coalition government ended in 1979–80 and the Congress(I) party returned to power in 1980–81. The recognition that the controls and subsidies introduced by the Congress governments during the earlier phase were not serving their intended purpose, had gradually dawned on the establishment during the late seventies.⁸ The new government gradually initiated a new approach to economic management. We, therefore, take 1979-80 as the end of the first development phase and 1980-81 as the start of the next.

The issue of stagnation or deceleration in Indian growth after 1965–66 has been the subject of much debate and analysis [Narayana and Srinivasan (1977)⁹, Bhagwati and Srinivasan (1984), Chakravarty (1984), Raj (1984), Dhar (1988), Nagaraj (1990), Bhargava and Joshi (1990)]. Chow stability tests on equation (1) show a possible breakpoint around 1963-4 with an F value of 2.09 (prob=0.11) and a log likelihood ratio of 6.64 (probability 0.084) with marginally lower values of F and log likelihood in 1962-3 and 1964-5. These values are however much lower than for the breakpoint at 1980-1 (above). A joint Chow test for 1980-1 and 1963-4 (etc.) yields a singular matrix. We therefore use growth regression analyses equation (2) and introduce another dummy for 1965-6 to 1979-80 (and similar periods). All these dummies turn out to be non-significant, confirming that ***there are no other statistically significant breaks in growth once the 1980-81 break is accounted for.***¹⁰

⁸ The Dagli committee on Controls and Subsidies, set up by the coalition government which was aware of the problem, submitted its report in 1979-80

⁹ According to Bhagwati and Srinivasan (1984), this is the first paper “to analyse the growth stagnation of the Indian economy since the mid-sixties.”

¹⁰ [Dummy variables for potential breaks in 1971–72 and 1975–76](#) are even less significant.

Figure 4 indicates why this may be so. If we divide the entire period of phase I into two sub-phases ending in different years, and measure the relative CV of the two sub-phases we find a sharp change in 1965–66. The CV of sub-phase IB relative to that of sub-phase IA falls from 2.3 if the end-year for sub-phase IA is 1964–65 to 1.3 if the end-year is 1965–66. The relative mean, however, changes by a very small amount. Thus, the break is more in terms of the degree of variability of growth rather than in terms of the mean growth rate (Figure 4).

Similar results are obtained for a possible break at the end of the eighties/beginning of the nineties using equation (1). The chow test shows a significant value for F and Log likelihood ratio in 1989-90 and 1992-3 but these values are lower than for the 1980-81 break. Thus for the potential 1989-90 breakpoint the F value is 3.22 (probability 0.031) and likelihood 9.934 (probability 0.019). Both these fall sharply in 1990-91 and 1991-2 and then rise in 1992-93 to 3.37 (prob =0.026) and 10.3 (prob=0.015). When however the latter is used along with the 1980-81 it yields a singularity. We therefore have to use equation (2) with an additional dummy for 1992-3 onwards. This dummy is found to be non-significant while D80 (1980-1 to 2002-3) remains strongly significant (as are others starting in 1990-1 & 1991-92). An alternative formulation with D80 replaced by two dummies for 1980-1 to 1991-2 and 1992-93 to 2002-3 shows that the coefficients on these are virtually identical. Therefore *we find no additional breakpoint in the nineties, once the breakpoint in 1980-81 is accounted for.*

2. Agricultural Slow down or Green Revolution?

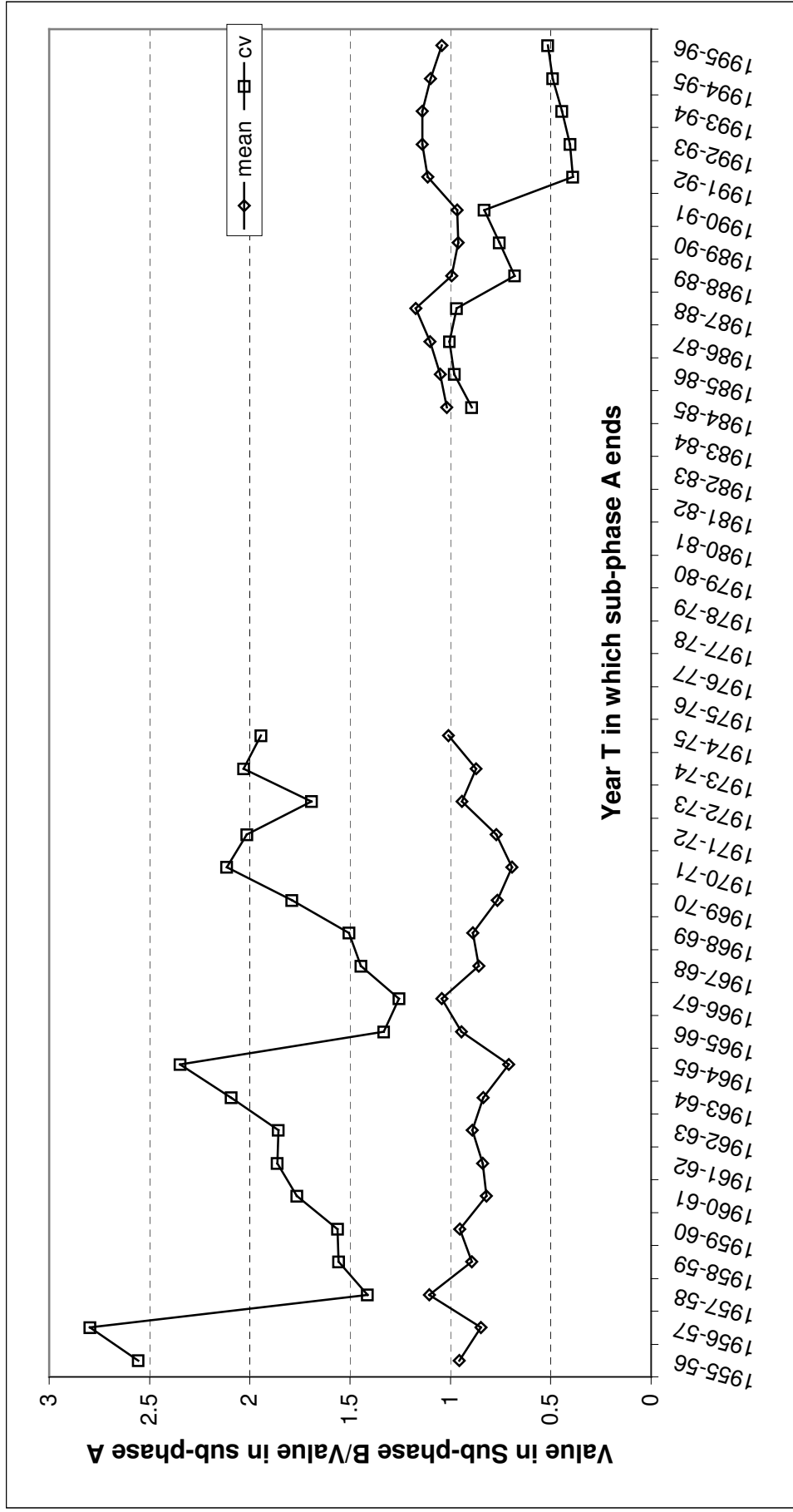
There has been a suspicion that the drop in GDP growth from 1965-66 is due to the fall in agricultural growth from the mid-sixties. Further it was felt that the introduction of the Green revolution thereafter (around the early seventies) led to a fundamental change in the growth potential of agriculture. We therefore test statistically for break points using the following equation for the growth rate of GDP from agriculture (GrGDPag):

$$(3a) \text{ GrGDPag} = 0.030 + 0.358 * \text{DrainMean} - 0.337 * \text{DrainMean}(-1)$$

(4.83) (5.86) (-5.32)

$$R^2 = 0.577, R^2 (\text{adjusted}) = 0.560, DW = 2.93.$$

Figure 4: Pattern of Change of Relative Mean and CV (of sub-phases) with Dividing Year T



The chow test using this equation reveals a potential breakpoint at 1964-65, with an F = 3.583 (probability 0.0207) and Log likelihood ratio = 10.921 (probability (0.031). The F is also above 3 for 1963-4 and 1962-3, while the Log likelihood ratio is above 10 for 1963-4. These values are much higher than found for a breakpoint for GDP around these years. However, when we introduce a dummy for 1964-5 onwards (or for 1950-1 to 1963-4) we find that it is insignificant. Because of the significant auto-correlation in equation (3a), we also estimate an alternative specification as follows:

$$(3b) \text{ GrGDPag} = 0.029 + 0.3885*\text{DrainMean} - 0.372*\text{DrainMean}(-1) - 0.492 \text{ AR}(1)$$

$$(8.0) \quad (7.26) \quad (-6.67) \quad (-3.93)$$

$$R^2 = 0.686, R^2 (\text{adjusted}) = 0.666, DW = 2.27$$

The chow test using this equation reveals a potential breakpoint at 1962-63, with an F = 3.31 (probability 0.0189) and Log likelihood ratio = 11.59 (probability (0.021). The F is 1.47 for 1961-2 while the Log likelihood ratio is above 6.55. The value for 1962-63 is much higher than found for a break point for GDP in the mid-sixties. However, when we introduce a dummy for 1962-63 onwards (or for 1950-1 to 1961-2) we find that it is insignificant.¹¹ If we apply the Chow test for subsequent years, we find that the F value falls to about 1 for 1967-8 to 1980-81 and is lower than one for any potential break points thereafter (up to the 1990s).¹² Thus *we do not find any statistical break in the growth of GDP from agriculture during the 53-year period, once the variations in rainfall are accounted for.*

When Drainmean80 and its lagged value are introduced into the right hand side of equation (3b) their coefficients are found to be insignificant. This confirms that there is *no change in the effect of rainfall variations on GDP from agriculture even after 1980-81.*

Conventional wisdom has been that Indian agriculture and the economy has become less dependent on the weather since the eighties. This has been based on the fact that share of GDP from agriculture has declined and that of services has increased. The

¹¹ Alternative dummies for 1963-4, 1964-5 etc. are also insignificant.

¹² A similar equation is also estimated for manufacturing growth: Using this equation Chow tests for growth break for 1980-81 shows an F = 1.653 (0.191) and LLR = 5.33 (0.149). The values become even less significant for 1979-80 and 1981-2.

above results along with those in equation (2') contradict this conclusion and imply that there is no change in the impact of rainfall fluctuations on the Indian economy.

3. Manufacturing

The same exercise was repeated for the manufacturing sector with similar results. The basic equation with GrGman as the rate of growth of GDP from manufacturing, is as follows:

$$(4a) \text{ GrGman} = 0.059 + 0.127 * \text{DrainMean}$$

(12.2) (2.68)

$$R^2 = 0.126, R^2 (\text{adjusted}) = 0.108, \text{DW} = 1.63.$$

This is tested using the chow test for the years from 1979 to 1987 to find a potential break point at 1981 [F=2.02 (Pr=0.14)]. To confirm this we introduce D81 the dummy for 1981-2 to 2002-3 into this equation:

$$(4b) \text{ GrGman} = 0.051 + 0.019 * \text{D81} + 0.14 * \text{DrainMean}$$

(8.3) (2.03) (3.03)

$$R^2 = 0.194, R^2 (\text{adjusted}) = 0.181, \text{DW} = 1.75.$$

This shows that the growth rate of manufacturing accelerated after 1980-81. This contributed to the acceleration of the rate of growth of GDP from 1981-2.¹³

4. Non-tradable Services

Virmani (2002c) showed that non-tradable services have played an important role in the growth of the Indian economy since 1950. It is useful to investigate a potential break out in the growth of non-tradable services (GrGntrdbl). To ensure that the changes are not due to government administration or the way these are measured we also use non-tradable services excluding GDP from government administration (GrGserv). The basic equation is

$$(5a) \text{ GrGntrdbl} = 0.058 + 0.039 * \text{DrainMean} + 0.501 \text{ AR}(1)$$

(11.8) (1.82) (4.00)

$$R^2 = 0.287, R^2 (\text{adjusted}) = 0.257, \text{DW} = 2.10.$$

The Chow test using equation (5a) reveals potential breakpoints in every year from 1980-1 to 1985-6. The highest probability of a break is however found for 1985-86 with an $F = 5.28$ (probability 0.003) and Log likelihood ratio = 15.37 (probability 0.0015). These values and probabilities are similar to those found for the GDP growth break point in 1980-81. In this case, however the F value is higher than 4 and log likelihood ratio higher than 12 for all years from 1980-81 to 1985-6. To confirm the break point for non-tradable services in 1985-86 we add a dummy for 1985-86 onwards into (5a);

$$(5b) \text{ GrGntrdbl} = 0.0475 + 0.027 * D85 + 0.068 * \text{DrainMean}$$

(18.3) (6.1) (3.26)

$$R^2 = 0.465, R^2 (\text{adjusted}) = 0.443, DW = 1.67.$$

This confirms that *there is a breakout in the rate of growth of non-tradable services in 1985-86. Alternative equations with D80, D81 etc still show high (but lower) statistical significance but have lower explanatory power (R^2).*

The equation for GrGerv is very similar but has even higher explanatory power because of stronger effect of variations in rainfall. The chow tests on this equation also show the same pattern with 1985-6 as the post probable breakpoint [$F=5.15$ (Pr=0.003), LLR=15.06 (Pr 0.0018)] and 1984-5 a very close second [$F=5.14$ (Pr=0.003), LLR=15.06(Pr=0.002)]. The final equation corresponding to (5b) is,

$$(5c) \text{ GrGserv} = 0.0463 + 0.028 * D85 + 0.083 * \text{DrainMean}$$

(17.5) (6.16) (3.78)

$$R^2 = 0.498, R^2 (\text{adjusted}) = 0.477, DW = 1.82.$$

This suggests that *the acceleration in the growth of GDP from services was a gradual process from 1980-81 to 1985-86, and it became firmly established in 1985-86.*

To summarise the results of this section, the rate of growth of agriculture as well as the effect of rainfall on it remained unchanged during the entire period of over 50 years. Thus there was no change in the marginal impact of rainfall variation on economic

¹³ The contribution of manufacturing growth to overall growth is quantified below.

growth. Manufacturing growth, however, started reviving in 1980-1 and was soon joined by services. This led to a significant acceleration in overall growth starting 1980-1. Subsequently around 1984-85 or 1985-86 there was an additional (sustained) growth impulse arising from the service sector.

B. Phase I: Indian Version of Socialism

The period of 30 years from 1950–51 to 1979–80 was the phase of socialist experimentation, in which the Indian version of socialism was developed. Chakravarty (1987) presents a detailed exposition of the underlying economic rationale and documents some of the ideological and political factors. In this phase the economy averaged a rate of growth of 3.5% per annum (Table 1) and average income, measured by per capita GDP, grew at 1.3% per annum. Growth during this period was fairly volatile, with a co-efficient of variation of 1.

Table 1: Macro-Economic Growth Parameters during Different Phases

	Phase I (1951-52 to 1979-80)			Phase II (1980-81 to 2001-02)		
	Sub-phase			Sub-phase		
		IA	IB		IIA	IIB
	Phase I	(1951-64)	(1965-79)	Phase II	(1980-91)	(1992-2001)
Growth rate (%)						
<i>GDP (market prices)</i>	3.6%	4.4%	2.9%	5.7%	5.5%	6.0%
<i>GDP (factor cost)</i>	3.5%	4.1%	2.9%	5.2%	5.5%	6.1%
<i>GDP at factor cost (HP filtered)</i>	3.7%	3.9%	3.5%	5.5%	5.2%	5.8%
<i>Per capita GDP at market prices</i>	1.4%	2.3%	0.6%	3.6%	3.3%	3.9%
<i>Per capita GDP at factor cost</i>	1.3%	2.0%	0.6%	3.6%	3.2%	4.1%
<i>Private consumption (PFCE)</i>	3.2%	3.7%	2.8%	4.7%	4.5%	4.9%
<i>Government consumption (GFCE)</i>	5.8%	6.6%	5.1%	6.3%	6.0%	6.6%
<i>Investment (GDCF)</i>	6.1%	7.9%	4.5%	6.3%	5.0%	7.8%
<i>Machinery & equipment</i>	6.6%	9.7%	3.7%	8.9%	9.9%	7.9%
<i>Private GFCF</i>	3.6%	3.5%	3.8%	8.5%	8.4%	8.6%
<i>Goods and Services Export</i>	3.8%	0%	10.2%	9.5%	8.4%	10.8%
<i>Oil Import</i>			37.1%	9.8%	6.9%	13.2%
Coefficient of Variation (Std/mean)						
<i>GDP at Market prices</i>	0.9	0.5	1.4	0.3	0.4	0.2
<i>GDP at Factor cost</i>	1.0	0.6	1.5	0.3	0.5	0.2

Sources: CSO (Series at 1993-94 prices); RBI (Series converted using implicit price deflator for GDP).

Notes: Data on the GDP is available till 2002–03 and on other aggregates it is available till 2001–02.

Though our focus is on the post colonial period it should be noted that this GDP growth rate was five times the average rate of growth of 0.7% per annum during the 30 year period from 1917 to 1946. It also represented a major jump from the -0.3% per growth of per capita GDP during these 30 years.¹⁴ This was however a very difficult period in world history, with the two world wars bracketing it and the great depression in between. The Indian economy grew at 1.5% per annum during 1900 to 1913 which was less than half the rate during phase I of the post-independence period. The purpose of the present paper is not to explain this acceleration (as the development economics literature of the time has widely done), but to identify policy failures and weakness that may have remained uncorrected and may even persist to this day.

This phase was characterised by a conscious effort to increase the role of the state in the economy. This was perhaps a reflection of what Chakravarty (1987) calls a “profoundly interventionist economic philosophy” prevailing at the time among Nehru and other intellectuals. He states that given similar perceptions of the reasons for India’s “structural backwardness”, which he presents, “even a more pragmatically inclined politician than Nehru could well have opted for the same set of arrangements for promoting economic development.” There was an inherent assumption that market failure was a serious underlying problem, that the private sector could not be trusted and that the public sector would produce economic and socially superior outcomes. The expansion of the State’s role took place through multiple channels including nationalisation of selected production activities, increased public investment in infrastructure and other production activities, and legislative measures to control and direct private activity and economic agents. Though the mix of measures used varied over the phase, the concept of modern regulation as against bureaucratic control was sorely missing through out the first phase of economic growth.

In this phase Investment grew strongly at 6.1% per annum led by the growth of government fixed investment at 7.2% per annum. Rapid growth of Government consumption at 5.8% also far exceeded economic growth. In contrast the growth rate of private consumption was a very modest 3.2% per annum a rate slower than that of GDP.

¹⁴ Based on data in Sivasubramonian (2000).

Though initially government investment and consumption may have led private consumption at some point during this phase it started substituting for and crowding out private investment and consumption.

From the supply side, a noticeable feature of this growth was the fact that the tradable goods sector – manufacturing, mining, and agriculture – grew at about half the rate (2.8% per annum) of the non-tradable services sector (table 2). Electricity production was the leading sector in this growth (9.6% per annum)). Other sectors with relatively robust growth were Banking and Insurance (6.7% per annum), Communication (6.7%), Other transport (6.3%) and registered/modern manufacturing (6.1% per annum).

Table 2: Sector Growth Rates during Different Phases

Sector	Phase I:	Sub-phase		Phase II:	Sub-phase	
	1951-2 to 1979-80	IA (1951-64)	IB (1965-79)	1980-1 to 2001-2	II A (1980-91)	II B (1992-2001)
1 Agriculture & allied	2.1%	2.9%	1.4%	3.6%	3.9%	3.3%
1.1 Agriculture	2.3%	3.1%	1.5%	3.8%	4.2%	3.3%
2 Mining	4.6%	5.6%	3.7%	6.3%	8.4%	3.8%
3 Manufacturing	5.3%	6.6%	4.1%	6.4%	6.1%	6.8%
3.1 Registered (Modern)	6.1%	7.9%	4.4%	6.9%	6.8%	7.1%
3.2 Unregistered	4.5%	5.4%	3.7%	5.6%	5.0%	6.3%
4 Electricity, Gas, & Water	9.6%	11.2%	8.1%	7.5%	9.0%	5.7%
5 Construction	4.9%	6.8%	3.2%	5.2%	5.2%	5.3%
6 Trade, Hotels, & Restaurants	4.8%	5.6%	4.0%	6.7%	5.4%	8.1%
6.1 Trade	4.8%	5.6%	4.0%	6.6%	5.4%	8.0%
6.2 Hotels & restaurants	4.8%	5.6%	4.0%	8.0%	6.1%	10.3%
7 Storage, transport, & communication	5.7%	5.9%	5.6%	7.2%	5.7%	8.9%
7.1 Railway	4.2%	4.8%	3.6%	4.2%	4.9%	3.3%
7.2 Other transport	6.3%	6.4%	6.3%	6.5%	6.0%	7.0%
7.3 Storage	5.5%	2.3%	8.5%	2.3%	2.5%	2.0%
7.4 Communication	6.7%	7.4%	6.1%	11.6%	6.3%	18.0%
8 FIREHBS	3.5%	3.1%	4.0%	8.6%	9.4%	7.7%
8.1 Banking & insurance	6.7%	6.6%	6.9%	10.6%	11.6%	9.4%
8.2 Real estate, housing & business services	2.6%	2.1%	3.0%	7.2%	8.0%	6.3%
9 Community, social, & personal services	4.3%	4.4%	4.2%	6.3%	5.6%	7.1%
9.1 Public administration & defense	6.1%	6.6%	5.7%	6.2%	6.2%	6.3%
9.2 Other services	3.3%	3.3%	3.3%	6.4%	5.2%	7.7%
<u>Sub-aggregates</u>						
A Tradable goods	2.8%	3.6%	2.0%	4.6%	4.7%	4.5%
B Non-tradable services	4.7%	5.2%	4.2%	6.9%	6.3%	7.5%
b.1 Services, excluding FIREHBS	4.9%	5.6%	4.3%	6.5%	5.7%	7.4%
C GDP, excluding GDP administration	3.4%	4.0%	2.8%	5.7%	5.4%	6.1%
D Services excluding GDP administration	4.5%	5.0%	4.1%	6.9%	6.4%	7.6%

Source CSO (all series at 1993-94 prices)

Notes: Data on growth by sector is available only until 2001–02

The share of production (GDP) originating in the public sector increased rapidly over most of this phase. The share of public investment on the other hand initially increased rapidly but then fell. Despite the fall in investment during the latter years of this phase, the government's share of production continued to increase fairly rapidly because of nationalisation of certain sectors. In addition the pace of control of activities accelerated through the passage of new legislation and the introduction of more stringent rules and more elaborate procedures.

During this 30-year period of 'socialism with an Indian face' we can discern two sub-phases. In the first phase lasting till about 1964-65 the leadership was infused with moral righteousness and developmental enthusiasm based on the philosophical background of Fabian socialism and the experience of Soviet state socialism. The best and brightest development economists in the world journeyed to India to advise on how to accelerate development and growth and some of them even worked in the Indian government or the Planning Commission to convert ideas into practical policy.¹⁵ In the second sub-phase starting from 1965-66 and ending in 1979-80, both the moral fervour and the academic certainties gradually seeped away. The policies were driven more by immediate crisis and political expediency than by economic logic. A less secure leadership struggling to establish itself was much more inclined to use economic policy as a political tool for besting its rivals¹⁶ As Dhar (1990) points out, this period saw "incoherence in the policies of the government." Socialistic legislation was presented as a policy for improving the lot of the poor while its main outcome was the suppression of market responses through quantitative controls implemented by an increasingly self-serving politico-bureaucratic system. Bhagwati (1993) analysed the failure of strategies adopted for Indian development prior to the nineties' reforms. He argued that the extensive controls and the inward-looking policies, which hobbled private sector efficiency, along with the substantial and inefficient public sector were the three broad factors that stifled Indian growth in the seventies and, to a lesser extent, in the eighties.

¹⁵ See Bhagwati and Chakravarty (1969) for a survey of some of the technical literature and Chakravarty (1987) and the first chapter in Bhagwati (1993) for general expositions

¹⁶ Patel (2002), in his fifth chapter, describes a failed attempt by economists to ensure political stability and a strong and united leadership for the troubled period after 1965.

He states that “the weak growth performance reflects, not a disappointing savings performance, but rather a disappointing productivity performance.”¹⁷

1. Phase I A: Quest for Commanding Heights

a) Overview of Phase I A

The first sub-phase of economic growth stretched 15 years from 1950–51 to 1964–65. On average 52.5% of the population was poor during this phase. In this post-colonial period economic growth accelerated sharply to an average of 4.1% per annum and average income grew by 2% per year (Table 1).¹⁸ This growth was led by the modern manufacturing sector and supported by modern services such as electricity, communications, banking & insurance and “other transport.” Modern manufacturing was the leading sector in economic growth, growing at an unprecedented annual average rate of 7.9% and contributing 17.3% to overall growth (Table 2 and Table 3).¹⁹ Two critical infrastructure services essential for this sector kept pace with this growth. The electricity, gas, and water sector grew at an even faster 11.2% per annum while the communication sector growth at 7.4% per annum (Table 2), all from a small base.²⁰

The financial sector (6.6%) and ‘other transport’ which grew at 6.4% (Table 2), complemented the development of the modern manufacturing sector. Manufacturing, finance, and ‘other transport’ were largely private during this phase and driven by market forces and the last partly substituted for the inadequacy of the monopoly railway sector.

b) Sector growth

The communication and electricity sectors needed public investment to grow and this was apparently forthcoming. The railway and communication sectors were

¹⁷ The fact that India’s growth rate did not rise significantly, despite an impressive savings performance, and the implications thereof for future growth strategies has been much analysed and debated such as by Chakravarty (1984) and Bhagwati and Srinivasan (1984).

¹⁸ As measured by the rate of growth of the GDP at factor cost at 1993-94 prices. The rate of growth using the GDP-at-market-price series is 4.4% per annum.

¹⁹ Much of traditional manufacturing is in the unregistered household sector. For expositional simplicity we are assuming that the registered manufacturing sector is ‘modern’.

²⁰ The former is an abbreviation for the ‘electricity, gas, and water supply’ sector as electricity is the overwhelming component of this composite.

monopolised by the government with 100% of the GDP from these sectors as well as 100% of the investment coming from the government in 1960–61 (Table 4). The existing companies in the electricity, gas and water sector were allowed to continue to operate, but all green-field investment came under the government with 87% of the GDP from this sector and 92% of the investment in this sector coming from government in 1960–61 (Table 4). These three sectors – electricity, communication, and railways – accounted for 40.5% of government investment in 1964–65, the end of the first sub-phase.

Table 3: Sector Contribution to Overall Growth by Phase

Sector	Phase I (1950-51 to 1979-80)			Phase II (1980-81 to 2001-02)		
	Phase I	Sub-phase		Phase II	Sub-phase	
		I A 1951-64	I B 1965-79		II A (1980-91)	II B (1992-99)
<i>(Contributions calculated as proportion of GDP at factor cost)</i>						
1 Agriculture & allied	23.0%	36.9%	16.8%	18.0%	21.9%	13.8%
1.1 Agriculture	21.0%	34.7%	14.6%	16.9%	20.9%	12.6%
2 Mining & quarrying	2.1%	2.2%	2.5%	2.3%	3.6%	1.6%
3 Manufacturing	16.4%	17.3%	19.4%	17.7%	20.5%	17.1%
3.1 Registered (modern)	10.2%	10.8%	12.1%	12.0%	13.9%	11.7%
3.2 Unregistered	6.2%	6.5%	7.3%	5.7%	6.6%	5.3%
4 Electricity, gas, & water supply	2.3%	1.5%	3.4%	2.8%	3.2%	2.6%
5 Construction	6.1%	7.7%	6.1%	4.9%	4.7%	4.7%
6 Trade, hotels & restaurants	13.1%	13.3%	16.0%	16.1%	13.0%	18.1%
7 Transport, storage, & communication	7.2%	5.5%	10.2%	9.3%	6.1%	11.1%
7.1 Railways	1.5%	1.6%	1.8%	0.9%	1.2%	0.8%
7.2 Other transport	4.3%	3.0%	6.4%	4.5%	3.9%	4.9%
7.3 Storage	0.1%	0.0%	0.2%	0.0%	0.1%	0.0%
7.4 Communication	1.2%	0.9%	1.7%	3.9%	1.1%	5.5%
8 FIREHBS	6.2%	4.7%	8.9%	14.8%	14.0%	15.8%
8.1 Banking & Insurance (Finance)	3.0%	2.0%	4.5%	8.1%	6.7%	9.2%
8.2 Real estate, housing, business services	3.3%	2.6%	4.6%	6.7%	7.3%	6.6%
9 Community, social, personal services	12.1%	10.4%	16.4%	14.1%	12.9%	15.1%
9.1 Public administration & defense	6.3%	4.9%	8.8%	6.1%	6.3%	6.0%
9.2 Other services	5.8%	5.3%	7.6%	8.0%	6.6%	9.1%
<i>(Contributions calculated as proportion of GDP at market prices)</i>						
Tradable goods	41.5%	49.2%	34.9%	34.7%	40.4%	30.2%
Non-Tradable services	47.3%	37.9%	55.3%	56.6%	47.5%	62.6%
FIREHBS	6.2%	4.7%	8.9%	14.8%	14.0%	15.8%
Services excluding FIREHBS	41.1%	33.8%	47.3%	43.1%	35.2%	48.0%

Source CSO (all series at 1993-94 prices)

Notes: Data on shares of each sector in the GDP is available only until 1999-2000.

Contributions are period averages.

Table 4: Public Sector Share in GDP and GCF by Economic Sector

Sector	Share in total sector GDP (factor cost)					Share in total sector GCF				
	Earliest year of data (1960-61)	End of sub-phase I A (1964-65)	End of sub-phase I B (1979-80)	End of sub-phase II A (1991-92)	Last year of data for sub-phase II B (2000-1)	Earliest year of data (1960-61)	End of sub-phase I A (1964-65)	End of sub-phase I B (1979-80)	End of sub-phase II A (1991-92)	Last year of data for sub-phase II B (2000-1)
1 Agriculture & allied	1.6%	2.1%	3.8%	3.1%	2.7%	38.2%	45.0%	40.5%	29.2%	22.6%
1.1 Agriculture	0.7%	1.3%	3.0%	2.7%	2.4%	38.5%	45.6%	40.4%	28.9%	23.5%
2 Mining & quarrying	19.1%	26%	97.2%	90.3%	86.7%	53.8%	77.2%	70.3%	95.8%	86.1%
3 Manufacturing	7.0%	13%	15.4%	19.7%	12.1%	31.6%	28.6%	38.5%	16.1%	5.9%
4 Electricity, gas & water supply	86.9%	92%	102%	100%	100%	91.8%	89.4%	87.3%	89.6%	81.0%
5 Construction	4.6%	4.7%	13.6%	14.4%	16.4%	6.2%	13.3%	24.5%	21.8%	10.6%
6 Trade, hotels & restaurants	1.4%	2.4%	7.5%	4.8%	2.9%	2.5%	3.4%	6.5%	-48%	38.9%
7 Transport, storage, & communication	61.8%	61%	58.9%	52.4%	54.9%	57.8%	66.4%	45.8%	45.7%	56.9%
7.1 Railways	100%	100%	100%	97%	100%	100%	100%	100%	100%	100.0%
7.4 Communication	100%	100%	100%	96.2%	89.7%	100%	100%	100%	100%	100.0%
8 FIREHBS	6.5%	8.4%	26.0%	35.5%	30.9%	8.8%	8.3%	10.5%	15.5%	12.4%
8.1 Banking & insurance	29.2%	34%	72.5%	78.3%	58.4%	46.2%	51.3%	59.8%	46.8%	62.8%
9 Community, social, & personal services	39.8%	46%	61.3%	66.6%	66.5%	85.2%	86.2%	91.5%	81.2%	72.5%
9.1 Public administration & defense	100%	100%	100%	97.8%	100%	100%	100%	100%	100%	100%
9.2 Other services	12.3%	15.8%	30.4%	39.0%	39.5%	25.1%	23.9%	54.6%	36.0%	21.8%
All sectors (1 to 9)	9.0%	11.8%	22.1%	25.9%	25.8%	44.6%	50.1%	47.3%	38.4%	32.8%
						<u>1950-01</u>				
Total GDP from Public sector (alternative source)						26.7%	52.4%	49.2%	38.8%	25.8%

Source: CSO (all series in 1993-94 prices)

Note: Data on the public sector share in output and investment by sector is available only between 1960–61 and 2000-1.

Agriculture (and allied sector) growth was a modest 2.9% per annum given the low priority accorded to it in the Mahalanobis model of development (Table 2). As a result the tradable goods sector grew at only 3.6% per annum, half the rate of the non-tradable sector (5.2%). The share of both manufacturing and mining increased. In this initial phase of development government administration grew rapidly at 6.6% per annum. This pulled up the non-tradable sector's growth by 0.2 percentage points per annum from the service sector (excluding administration) growth of 5% per annum. Telecommunications in contrast became a public sector company with an independent set of accounts and the potential of putting some distance between the governments functioning and the commercial objective of providing telephone services (Table 2).

c) Role of the State

The role of the State in production increased inexorably through the first sub-phase. The share of government in gross capital formation (GCF) doubled from 26.7% in 1950–51 to a peak of 53.6% in 1963–64.²¹ Public share of Gross fixed capital formation (GFCF) also doubled from 27.2% of total in 1950-51 to 54.4% in 1963–64. Government investment was not however limited to public goods and infrastructure, as manufacturing, and mining received 16.6% of the total gross investment by the government in 1964–65 with another 11.5% going to agriculture.²² The government built not only large irrigation dams and canal systems but also large capital-intensive factories; both termed the 'Temples of Modern India.' Though at the end of phase IA the public sector's share in GDP from mining and manufacturing was 26% and 13% respectively, the jump in public share in GCF to 77.2% and 32.1% (1963-64) respectively were initial steps on the road to fiscal and financial crowding out.²³ Public investment in sectors like trade, hotels and

²¹ These figures are from the CSO statement on capital formation by type of asset and institution, which provide data from 1950–51 onwards. These differ from the figures provided in the CSO statement on capital formation by sector, which are used for constructing Tables 4 and 6 and provide data only from 1960–61 onwards. Therefore, there may be discrepancies in the numbers cited here and in Tables 4 and 6 for comparable years.

²² The division between private goods and public infrastructure (dams and canals) is not available in the national accounts statistics.

²³ By fiscal crowding out we mean the crowding out of government expenditure on public and quasi-public goods. Financial crowding out refers to the effects of government borrowing on private credit and interest rates.

restaurants, storage and real estate, housing and business services compounded the problem in subsequent years.

The monopolisation of the infrastructure sectors and the complete removal of the threat of competition²⁴ from these critical infrastructure sectors laid the foundation for future increases in X-inefficiency. The merger of regulatory functions in the administrative ministries (telecom) or worse in the organisations that were operationally responsible for service delivery (railways, electricity), laid the basis for progressive neglect of user interests and deterioration in the quality of service. The institutional structure of railways and electricity also affected the speed of deterioration. Both were departmental undertakings whose financial accounts was part of the government budget. Thus the ills of bureaucratic red tape and political interference were multiplied for organisations whose ostensible objective was to supply commercial services.

The monopolisation of these sectors by the government also had the unfortunate effect of converting a technical issue into an ideological one. The technical issue was one of degree of complementarity between production of and investment in *infrastructure* (or utility) services and the *other sectors* of the economy. This was converted into an ideological issue of the complementarity between *public* investment and *private* investment. A priori one would expect that electricity and to a lesser extent modern communications and transport are complements to modern industrial production and market systems. The technical possibility of complementarity or substitutability does not, depend on whether one or other or both are private or government owned.²⁵ The fact that these sectors were under government monopoly misled many economists into thinking and arguing as if the issue was one of complementarity between private and government investment in all sectors (i.e. including manufacturing, mining, agriculture and other services).

²⁴ By reserving them for the public sector.

²⁵ The best way to estimate substitutability can however depend critically on the ownership pattern and consequently the incentives and behaviour of the managers.

2. Phase I B: Socialist Rate of Growth

a) Overview of outcomes

The second sub-phase started with a severe drought in 1965–66 and was followed five years later by the first oil shock. The sub-phase ended in 1979–80 with one of the worst droughts since independence coupled with the second (smaller) oil shock. Economic growth collapsed to 2.9% per annum during this sub-phase, with per capita income growing at a minuscule 0.6% per annum (Table 1). Agriculture led the downward spiral with an average growth of 1.4% per annum, [half](#) of its growth [rate](#) in sub-phase IA (Table 2). Given the bad monsoons, the decline in agriculture growth this is perhaps not surprising, except when one recalls that this was also the period during which the relative neglect of agriculture ended and the ‘Green Revolution’ was introduced into India. The reason for calling it a sub-phase rather than the second growth phase is because the decline of 0.6% point below the average of 3.5 for the entire period is not statistically significant.²⁶ The contribution of agriculture to overall growth fell dramatically from about 35% of total growth in the first sub-phase to less than 15% in the second (Table 3).

The growth rate of modern manufacturing decelerated only a little less sharply than agriculture to 4.4% or 0.56 of IA growth (Table 2).²⁷ As unregistered manufacturing decelerated less, total manufacturing contributed 19.4% of total growth during this sub-phase, a higher contribution than during the previous sub-phase (Table 3). The rising share of manufacturing and declining share of agriculture was also responsible for the former contribution exceeding the latter during this sub-phase.

Somewhat surprisingly the three service sectors that had shared the high growth of the previous period did not decelerate as rapidly as can be seen from Table 2. The electricity sector remained the top performer at 8.1% per annum – 0.72 of its sub-phase IA growth – while communication growth decelerated even less to 0.82 of previous levels—6.1% per annum. The banking and insurance sector was one of the few sectors that grew faster than in the first sub-phase at 6.9% per annum, because of policy

²⁶ In other words there is no statistical difference in growth during this period once monsoon fluctuations are accounted for by using a rainfall index in the [growth regression as in eq. 1](#).

²⁷ See Krishna (2002) or Goldar & Mitra (2002) for a review of the extensive literature on the deceleration in registered manufacturing growth.

decisions by the government with respect to the banking sub-sector after nationalisation.²⁸ The non-tradable services sector, as well as the service sector excluding public administration, continued to grow at about twice the rate of the tradable goods sector.

b) Policy Change and Effect

Overall, this was an extremely volatile period of economic history.²⁹ The severe droughts in 1965 and 1966 followed by the devaluation of the rupee, the oil crises of 1971, and a number of other exogenous shocks led to a re-evaluation of existing policies and a re-orientation of development policies. There were both positive and negative features of this re-orientation. The former included a renewed recognition of the importance of agriculture and the initiation of the ‘Green Revolution’ and conservative and successful management of the macroeconomic imbalances created by the oil shock. There was, however, increasing resort to the rhetoric and methods of ‘State socialism’ during this phase of development. In a country in which fairly sophisticated markets for commodities and finance (the ‘Hundi’ system) had existed for centuries, in which there were well developed [traditional](#) stock exchanges and forward markets for commodities at the turn of the century, this represented something of a contradiction. The negative features included the following.

(a) A number of laws, such as the Monopolies and Restrictive Trade Practices (MRTP) Act and the Foreign Exchange Regulation Act (FERA) designed to control the private sector and private economic activity

(b) The nationalisation of banks³⁰ and general insurance designed to supplant the private sector by the public sector

(c) An increasing resort to licensing and controls to direct industrial investment, imports, and agricultural exports

(d) The spread of the public sector into a variety of areas such as consulting and consumer goods

²⁸ Storage sector growth more than tripled during this phase. The public sector’s share of the total GDP from this sector was 23.3% in 1980–81, the first year for which data is available in the national account statistics.

²⁹ The standard deviation in growth was 4.2%, implying a CV of 1.5. This CV is 2.5 times the CV of 0.62 in sub-phase IA (Table 1).

(e) Tightening of labour laws and procedures, such as requiring prior permission from the state government for retrenchment in firms with 300 or more employees.³¹

The inefficiency arising from this legislative-bureaucratic socialism was reflected in the near doubling of the real ICOR (incremental capital–output ratio) for the economy from 3.9 in the first sub-phase to 6.7 in the second sub-phase (Table 5).³² The ICOR for mining more than tripled from 2.1 in sub-phase IA to 6.3 in sub-phase IB, while the ICOR for agriculture almost tripled to 5 from 1.8 in sub-phase IA (Table 5). The ICOR for manufacturing almost doubled to 7.9 during this sub-phase from an average of 4.2 in the first sub-phase (Table 5).

The issue of inefficient resource use or stagnation also finds supports in figures on decadal total factor productivity growth (TFPG) and capital stock growth.³³ Using data from Nehru and Dhareshwar (1993) and Barro and Lee (1994), Guha-Khasnobis and Bari (2003) find that for India, TFPG for the economy turned negative in the seventies from a positive value in the sixties. The largest change is of 1.60 percentage points, from 1.20% in the sixties to –0.40% in the seventies. In contrast, the growth rate of capital stock in India remained positive and decelerated only marginally in the seventies.³⁴ In our view negative TFPG growth is inconsistent with the concept of technical change that TFPG was initially constructed to measure and (most likely) indicates declining capacity utilisation of capital and other fixed factors.³⁵

³⁰ See Patel (2002), chapter 5, for a description of how the nationalisation happened and the subsequent public reaction.

³¹ Earlier they were only required to report to the government their intent to retrench (on a ‘last come first go’ rule). The number of employees for this rule to apply was changed to 100 in 1982.

³² See the caveats in Srinivasan and Narayana (1977) and Raj (1984)] on using the ICOR.

³³ It is not commonly recognised however, that variation in capacity utilisation will affect estimates of both ICOR and TFPG. Ignoring capacity utilisation is likely to yield biased estimates of TFPG as a measure of productivity.

³⁴ The change in the capital-stock growth estimate of Table 2.4 (corresponding to the TFPG figures in footnote 17) is of 0.21 percentage points, from 1.70% to 1.49%.

³⁵ When labour laws make it difficult to fire workers and/or exit is difficult regular blue-collar workers may also be a quasi-fixed factor and would also be affected in the same way.

Table 5: Incremental Capital-Output Ratio (period averages at 1993-94 prices)

Sector	Economy-wide						Public Sector					
	Phase I (1951-52 to 1979-80)			Phase II (1980-81 to 2002-03)			Phase I (1951-52 to 1979-80)			Phase II (1980-81 to 2002-03)		
	Sub-phase		Phase	Sub-phase		Phase	Sub-phase		Phase	Sub-phase		Phase
	I A	I B		II A	II B		I A	I B		II A	II B	
	I	64	79	II	91	99	I	64	79	II	91	99
1 Agriculture & allied	2.9	1.9	4.9	1.8	1.9	1.8	16.3	13.5	17.3	40.0	50.2	25.7
1.1 Agriculture	2.9	1.8	5.0	1.7	1.8	1.6	17.8	13.5	20.2	42.5	40.3	50.0
2 Mining & quarrying	3.8	2.1	6.3	6.6	6.1	8.2	2.9	3.2	2.7	8.4	7.2	14.6
3 Manufacturing	5.7	4.2	7.9	8.0	8.0	8.0	9.8	4.1	17.4	6.1	7.4	3.7
3.1 Registered (modern)	7.7	6.5	9.6	7.5	6.9	8.3	--	--	--	--	--	--
3.2 Unregistered	2.4	0.7	4.8	8.3	10.4	5.9	--	--	--	--	--	--
4 Electricity, gas & water supply	17.2	16.2	18.4	15.8	15.7	16.0	15.0	13.4	15.3	11.8	15.1	6.9
5 Construction	1.0	0.7	1.5	1.4	1.3	1.5	2.0	2.6	1.9	1.6	1.8	1.3
6 Trade, hotels & restaurants	1.6	0.8	2.7	1.1	1.5	0.7	2.0	0.5	2.7	4.5	3.5	5.9
7 Transport, storage, & communication	12.8	14.3	11.4	6.3	7.6	5.0	11.7	16.2	9.9	7.1	8.8	5.4
7.1 Railways	23.1	27.9	17.1	10.6	8.9	15.0	21.9	30.8	17.3	11.5	9.4	18.4
7.2 Other transport	10.9	10.0	11.8	6.2	7.3	4.9	6.4	6.3	6.6	7.8	10.2	5.5
7.4 Communication	4.4	3.9	5.0	4.6	6.8	3.3	4.7	3.6	5.1	5.0	7.4	3.4
8 FIREHBS	11.3	13.8	9.5	3.5	3.5	3.4	2.1	4.4	1.5	1.2	1.1	1.3
8.1 Banking & Insurance	0.7	0.6	0.8	1.1	0.8	1.5	0.4	0.6	0.4	0.7	0.6	0.9
8.2 Real estate, housing, & business services	20.3	25.0	17.2	6.3	5.9	7.0				77.1	77.6	75.3
9 Community, social, & personal services	5.8	6.0	5.6	3.2	3.9	2.5	6.3	6.1	6.2	4.1	4.6	3.3
9.1 Public administration & defense	9.5	10.3	8.6	4.9	5.8	3.8	8.3	7.5	8.4	5.3	6.1	4.1
9.2 Other services	2.3	2.4	2.2	1.6	1.8	1.4	1.5	1.3	1.5	1.5	1.6	1.3
Total (1 to 9)	5.1	3.9	6.7	4.1	4.3	3.9	8.1	7.7	8.0	6.1	7.0	4.6

Source CSO

Notes

1. Data on investment by sector is available only until 1999–2000.
2. Data for the public sector's investment by sector is available only from 1960 onwards

c) Impact of Expanding Public Sector

Though the public share of investment stabilised during this sub-phase, its share of the GDP, however, continued to grow, thus increasing the direct role of the government in the economy and the crowding out of private activity and initiative. The allocation of public investment worsened. The ratio of government investment to total

investment in the economy declined from 52% in 1964-65 to 49% in 1979-80.³⁶ This was partly because the administrative infrastructure had been largely completed, allowing the share of public investment allotted for this purpose to decline by six percentage points (Table 6). The share of public investment going to mining and manufacturing increased from 16.7% to 27%, an indication of distorted priorities in public investment towards private goods and away from public goods. Agriculture's share of public investment also increased by about 4 percentage points. There were contrary developments with respect to the monopolised infrastructure or utility sector—the share of public investment allocated to electricity increased to 20% while that going to railways plummeted to 6% from 23.1% at the end of sub-phase IA (Table 6). Though this appears to be a rather drastic cut one positive result was to cut wasteful expenditure in the railways, a fact reflected in the dramatic decline in the ICOR for the sector to 17 from about 28 in the previous sub-phase (Table 5).³⁷ In contrast, the ICOR in the fast growing utility and infrastructure sectors, communication and electricity increased by 1.1 point (to 5.0) and 2.2 points (to 18.4), respectively (Table 5).

Srinivasan and Narayana (1977) had a somewhat different view of government investment, stating that “if the Indian economy is to break away from its recent stagnation, a return to vigorous growth in public sector investment as a part of a return to planned development is essential.” They attribute the growth stagnation since the mid-sixties to the downturn in public sector real GFCF after 1965–66, on the grounds of public investment driving private investment profitability, employment, and poverty reduction.³⁸ They also point to the exhaustion of possibilities from import-substituting industrialisation, low agricultural growth, problems in public-sector management and operation, non-growing public saving and declining aid, and state that the 1966 devaluation and other liberalisation measures were not taken far enough.

³⁶ These figures used in this paragraph are again from the CSO statement on capital formation by type of asset and institution.

³⁷ The high ICOR in IA was probably due to over ambitious extension of new railway lines ignoring long gestation lags and low traffic projections.

³⁸ The authors note that the trends established before 1965 could not have been carried forward without major changes in policies and acknowledge that efficiency issues are important [as in Bhagwati and Desai (1970) and Bhagwati and Srinivasan (1974)].

Table 6: Distribution of Public Gross Capital Formation (GCF) by Sector

Sector		<i>Earliest year of data (1960-61)</i>	<i>End of sub-phase I A (1964-65)</i>	<i>End of sub-phase I B (1979-80)</i>	<i>End of sub-phase II A (1991-92)</i>	<i>Last year of data for sub- phase II B (2000-1)</i>
<i>1</i>	<i>Agriculture & allied</i>	13.1%	12.1%	15.9%	6.6%	5.3%
<i>1.1</i>	<i>Agriculture</i>	12.4%	11.5%	15.2%	5.8%	4.7%
<i>2</i>	<i>Mining & quarrying</i>	2.4%	3.4%	6.1%	10.8%	3.7%
<i>3</i>	<i>Manufacturing</i>	18.0%	13.3%	20.7%	14.5%	6.4%
<i>4</i>	<i>Electricity, gas, & water supply</i>	8.6%	14.6%	19.8%	30.3%	23.4%
<i>5</i>	<i>Construction</i>	0.4%	0.6%	1.0%	0.7%	0.7%
<i>6</i>	<i>Trade, hotels, & restaurants</i>	0.1%	0.2%	0.7%	-3.0%	6.0%
<i>7</i>	<i>Transport, storage, & communication</i>	22.9%	27.6%	12.5%	16.0%	24.6%
<i>7.1</i>	<i>Railways</i>	19.1%	23.1%	5.8%	5.8%	4.7%
<i>7.2</i>	<i>Other transport</i>	2.3%	2.0%	4.2%	4.5%	3.2%
<i>7.3</i>	<i>Storage</i>				0.0%	1.0%
<i>7.4</i>	<i>Communication</i>	1.5%	2.5%	2.5%	5.6%	15.8%
<i>8</i>	<i>FIREHBS</i>	2.6%	1.9%	2.2%	5.5%	4.9%
<i>8.1</i>	<i>Banking & Insurance</i>	0.4%	0.3%	0.5%	4.0%	3.3%
<i>8.2</i>	<i>Real estate, housing,, & business services</i>	2.2%	1.6%	1.7%	1.5%	1.6%
<i>9</i>	<i>Community, social, & personal services</i>	31.9%	26.3%	21.0%	18.7%	25.0%
<i>9.1</i>	<i>Public administration & defense</i>	30.0%	25.0%	18.7%	16.3%	22.4%
<i>9.2</i>	<i>Other services</i>	1.9%	1.3%	2.3%	2.4%	2.6%
	<i>Total (1 to 9)</i>	100%	100%	100%	100%	100.0%

Source CSO (all series in 1993-94 prices)

Notes: Data on sector shares in public sector investment is available only between 1960–61 and 2000-1.

The share of the public sector in total GDP almost doubled during sub-phase IB to 22.1% from 11.8% at the end of the previous sub-phase (table 4). This was due to a tripling of the share in mining to 97% and in trade hotels & restaurants to 7.3%, and a more than doubling in agriculture (to 3%), construction (to 13.6%) and Banking & Insurance (to 72.5). In other community, social & personal services it almost doubled to 30.4%. Thus the direct role of the government in production of goods and services expanded vigorously during this sub-phase and along with the legislative and procedural control stifled private initiative, entrepreneurship and innovation.

d) Throttling Manufacturing

Ahluwalia (1985, 1991) has analysed the stagnation in growth of value added in the registered manufacturing sector (ASI & IIP) since the mid-sixties and the turnaround in growth in early eighties in terms of trends in TFPG growth in this sector. We analysed in a qualitative way the effect of the “socialist” policies introduced during phase IB on the manufacturing and other sectors of the economy. The question that we address here

is the quantitative impact of the “socialist” policies, as well as the lagged effect of similar policies introduced in the previous phase, on growth of GDP from manufacturing. A dummy for the period 1965-6 to 1979-80 (D6579) is introduced into equation (4a). Its co-efficient is found to be significant at the 10% level. The best fit is however found with the dummy for 1965-6 to 1980-81 (D6580) whose co-efficient is highly significant:

$$(4c) \text{ GrGman} = 0.066 + -0.0252 * \text{D6580} + 0.114 * \text{DrainMean}$$

(12.1) (-2.54) (2.53)

$$R^2 = 0.228, R^2 (\text{adjusted}) = 0.196, \text{DW} = 1.74.$$

This equation establishes that there was a reduction of 2.5% per annum in the growth rate of manufacturing during 1965-6 to 1980-81. In general this could have been due either to the policies we followed or to external/exogenous factors. *In our view the policies followed during sub-phase IB (1965-6 to 1979-80) reduced the rate of growth of manufacturing by 2.5% points during the period 1965-6 to 1980-81.* If we compare this equation with (4b) containing the dummy D81 (1981-2 to 2002-3) we find that the (4c) has greater explanatory power. Further when both dummies are included simultaneously D6580 has greater significance than D81.³⁹ This suggests that the removal of some of the constraints/barriers to growth imposed during 1965-6 to 1979-80 had a greater role in the acceleration of manufacturing growth from 1981-82 than the stimulation of new growth impulses from 1981-82 onwards. We will examine this issue below in greater detail.

e) Governance Impact

This sub-phase of legislative-bureaucratic socialism and the political and other developments that took place during this period, set in motion a gradual deterioration in formal government institutions. The effect of this deterioration in governance is with us to this day.

³⁹ T= 1.57 (prob=12.3%) versus t=0.67 (prob=50%)

C. Phase II: Bharatiya Rate of Growth

1. Introduction

The second phase of economic growth started at the beginning of the eighties. The high growth rates during 1994-95 to 1996-97 led to widespread speculation and assertion that India had entered a new phase of growth and development with enactment of radical new economic policy framework in 1991-92.⁴⁰ It is therefore important to determine whether a new phase started in 1991 or 1992 or whether the phase that started in 1980–81 continues till today. We can test this statistically by introducing a dummy for the period 1991–92 to 2002–03 (D91+) or for the period 1992–93 to 2002–03 (D92+) into the growth equation (1). These dummies are found to be statistically insignificant, suggesting that the growth phase that started in 1980–81 continues till today. We therefore treat the entire period since 1980-81 as a single phase, but divide it into two sub-phases.

2. Macro perspective

During the period 1980–81 to 2002–03 economic growth averaged 5.7% per annum (Table 1). This rate is 1.2 percentage point higher than that during the first phase of development. It is 2.8 percentage points higher than that in the sub-phase IB. Economic growth during this phase has been remarkably stable with a CV of only 0.3, one-third of the CV during the first phase of development (Table 1). We call this the ‘Bharatiya rate of growth’, to distinguish it from the 3.5% average rate of growth during the first phase of development, a rate that has come to be associated in most peoples minds as the ‘Hindu rate of growth,’ **but is more accurately called “Hindu-socialist” or “Indian-socialist.”** Per capita income has been growing at 3.6% per annum during the Bharatiya rate of growth phase, more than double the per capita income growth of 1.3% per annum during the Hindu-socialist rate of growth phase.

The Bharatiya growth phase has been characterised by recognition of the harmful effects of industrial and other controls on distribution, production, and investment and the need to remove the distortions created by government policy on the industry and exports. There was much more gradual and hesitating recognition of the problem of government

⁴⁰ For instance in Investment Bank research reports and economic newspapers and magazine.

and public sector failure. This was reflected in the 0.5% point step up in the rate of growth of government consumption to 6.3% (from 5.8%).

The step up in the growth rate during the BRG phase has been led, on the demand side, by an increase in private consumption, whose growth accelerated to 4.7% per annum from 3.2% per annum in the HRG phase. The acceleration of export growth to 9.5% per annum, over 2½ times the earlier growth rate of 3.8% per in HRG contributed to the acceleration, even though part of this may have been offset by higher oil import bill due to rising prices. Investment growth remained virtually unchanged at 6.3% per annum relative to 6.1% earlier. The fact that growth accelerated despite this small change implies that the efficiency of investment must have improved during the BRG phase. This is supported by a change in the structure of investment towards machinery and investment, whose growth accelerated to 8.9% per annum during the BRG phase from 6.6% per annum during the HRG phase. The rate of growth of private fixed investment more than doubled from 3.6% in the HRG phase to 8.5% per annum in the BRG phase. With completely different objective function of profit maximisation (versus political support maximisation in public sector) this would have contributed to the efficiency of capital use.

3. Potential Sub-phases

The second phase of development can be divided into two sub-phases. In the first sub-phase (IIA), exchange management, tax, and tariff policies continued their earlier trajectories. It was only during the second sub-phase (IIB) that there was a quantum change in approach, with a much clearer articulation of the reform philosophy and acceleration in actual economic reform measures. The relative CV falls sharply after 1990–91, while the relative mean rose, a phenomenon also observed in between sub-phases IA and IB (Figure 4). From this perspective the first sub-phase ended in 1990–91 and the new one began in 1991–92.

There is, however an alternative dividing line based on growth. From this perspective, the low growth rate in 1991–92 is linked to the policy mistakes during earlier years and the problems accumulated as a result of such policies. These mistakes and

problems cannot be corrected instantaneously; there is a lag of about a year for any new policy to take effect. Thus, any change in policy during 1991–92 would only affect growth in 1992–93.⁴¹ From this perspective the new growth phase would begin in 1992–93, after the old growth phase ended in 1991–92. We replace D80+ in equation (1) by two dummies, D8091 for the period 1980–91 and D92+ for the period after 1992–2002 and find both significant. This has slightly greater explanatory power⁴² than if D80+ is replaced by the dummies D8090 for the period 1980–90 and D91+ for the period after 1991–2002. In our view this division into sub-periods is more appropriate for evaluating the effect of policies – good and bad – on the economy. For the moment we adopt this division into sub-phases, and will return to the first approach subsequently.

A third commonly used approach to study crises is to leave out the main crisis year *along with the year in which reforms are initiated*, and lump these together as the crisis years. Comparisons are then made between the pre-crisis and post-crisis years. As our objective is to study the growth trends over fifty years and not to study the crisis per se, we do not pursue this approach.⁴³

D. Phase II A: Modest Reform

The first sub-phase of the second (BRG) phase of development started after one of the worst droughts and ended after the BOP crisis of 1990–91. During this phase, the process of reform was very selective and case by case. As K.N. Raj (1986), pointed out there was no official resolution or statement about the ‘new economic policy’, which saw “certain changes in policy initiated in stages over the last several months.” The pace of reform was quite slow, held back by severe bureaucratic and political inertia. This inertia was certainly linked to and perhaps caused by the democratic system prevailing in India. Williamson & Zaghera (2002) used the term ‘Hindu rate of reform’ to describe the entire

⁴¹ In fact in most countries across the world in which such balance of payments (BOP) crises have occurred, the recovery has taken at least two years.

⁴² The R-square and adjusted R-square values are higher.

⁴³ Acharya (2001), in comparing the period from 1950–51 to 1980–81 with the eighties and nineties, states that “Some commentators believe that the growth in the crisis year of 1991/92 should be included in the earlier, “pre-crisis” period (which would pull down that average to 5.3 per cent) on the grounds that the crisis was a direct result of the policies and trends in the eighties. Others, such as Williamson, feel that 1991/92 growth belongs in the latter period because of “slack built up during the crisis”. My preferred option of omitting 1991/92 from both periods would seem to be a reasonable compromise.”

process of reform including that in the nineties. In our view this term is more appropriate for the reform undertaken during the eighties, when only the most glaring and obvious distortions introduced by government intervention, on which there was broad consensus among economic analysts, were corrected.

1. Policy Reform

Industrial de-licensing measures included automatic endorsement of capacity expansion up to 25% of licensed capacity, broad banding of industrial licenses,⁴⁴ de-reservation of 40 industries, and rise in the size limit (value of output/sales) defining small-scale industry (SSI). The cement and aluminium industries, which were subject to price, distribution, and investment control, were de-licensed. In 1985, firms with assets below Rs. 5 crore were de-licensed subject to certain conditions. This limit was raised to Rs. 15 crore in 1988. The scope for large industrial groups was expanded over time by a gradual rise in the limit below which MRTP clearance was not required for investment (Rs. 100 crore). This was sorely needed to increase competition in the economy, which was being stifled by vested interests to increase their monopolistic power, with the MRTP being “reduced to the proverbial ‘grin without a cat’ in Alice in Wonderland”, as K.N. Raj (1986) put it. The scope for diversification and expansion of capacity for the industries under investment licensing was gradually expanded.⁴⁵ There was virtually no reform in other production sectors such as mining and agriculture.

Imports of capital goods were made procedurally easier through licensing of imports for modernisation and export industries. Intermediate imports were gradually moved from licensing to tariff protection and made available for export production at lower or zero duty.⁴⁶ Tax rates declined slowly from the absurd highs they had reached in the seventies (such as an over-100% marginal rate on income from assets, inclusive of wealth tax) and modified value-added tax (MODVAT) credit was introduced into the excise tax. The control regime, however, continued to be extended in areas such as exchange management and import tariffs continued to rise.

⁴⁴ This was done in stages to include 28 industry groups by 1986.

⁴⁵ According to Raj (1986), the main thrust of the mid-eighties policy changes was the greater scope for expansion it offered the private sector and the opportunities opened up thereby for multinationals.

⁴⁶ Tariff rates on manufactured goods increased during the first half of the eighties.

2. Outcome: Macro perspective

Sub-phase IIA covered the period from 1980–81 to 1991–92. During this sub-phase economic growth has averaged 5.5% per annum, only 0.2 percentage points different from the 5.7% rate for the full second growth phase (Table 1). As a result of the policy reforms, Investment (gross capital formation) growth accelerated marginally from 4.5% per annum in sub-phase IB to 5% in sub-phase IIA. More important than the size of the increase was the change in the structure of investment. The rate of growth of investment in Machinery and equipment more than doubled from 3.7% per annum during sub-phase IB to 9.9% per annum during sub-phase IIA. This raised the average share of machinery in gross fixed capital formation by 15.4% points between the two phases. As shown by De Long & Summers (1991, 1992, 1993) equipment investment is strongly correlated with long run growth. Hendricks (2000) models the effect of equipment prices and equipment investment. We find that the relative price of machinery declined by 0.8% per annum during sub-phase IIA after rising by 2.2% per annum during IB. The opening of capital good imports likely improved the quality (in terms of embodied technology) of capital goods and put some competitive pressure on domestic capital goods producers. Though the nominal price of imported capital goods may have been higher (thus moderating the decline) the quality-adjusted price of capital goods may have fallen even more. *Thus the increase in investment in machinery and the greater availability and use of higher quality equipment imports were important factors in the acceleration in growth during this phase.*⁴⁷

There was also a sharp acceleration in the rate of growth of private investment from 3.5% per annum during sub-phase IB to 8.4% per annum during sub-phase IIA. The share of private investment consequently increased by 10.9% points between 1964-5 and 1979-80 (i.e. over IIA).⁴⁸ *The increased role of the private sector also contributed to the acceleration in the growth rate.* For the entire economy, the TFPG figures given in Guha-Khasnobis and Bari (2003) turned positive in the eighties, with the largest change being of 2.90 percentage points, from –0.40% in the seventies to 2.50% in the eighties.

⁴⁷ As shown by DeLong & Summers (1991) machinery investment is an important driver of economic growth.

⁴⁸ The average share of the Private sector in gross fixed capital formation however decreased by 2.8% points between these two periods because of several trend reversals over 1964-5 to 1980-81.

3. Sector growth and the Public Sector

The growth of the *banking and insurance* sector accelerated even further to 11.6%, resulting in its becoming the fastest growing sector (Table 2).⁴⁹ Its contribution to overall growth increased to 7% from 4% in sub-phase IB (Table 3) and it attracted much more public investment during this phase reaching 4.0% of total public GCF in 1991–92, up from 0.5% in 1979–80 (Table 4). The decline in the share of public investment in the banking and insurance sector from 60% in 1979–80 to 47% in 1991–92 suggests that the role of the private sector also started expanding (Table 4). The share of the public sector in the GDP from banking and insurance lagged this decline in investment. It rose to a peak of 81.5% in 1988–89 before starting to decline.

The decision of the government to allocate more of its investment budget to the banking and insurance sector is however questionable, as the ICOR and non-performing assets (NPAs) increased during this sub-phase. The ICOR increased by 50% during this sub-phase to 0.6 (from 0.4 in previous sub-phase). The NPAs of the banking sector also expanded during this period. With the introduction of income and capital adequacy norms in 1992 the regulators found that banks had accumulated a large stock of NPAs. Given the political interference, “loan melas”, etc. during sub-phase IIA, it is likely that a substantial part of the outstanding NPAs on March 31, 1992 were generated during this phase. Thus the expansion of public banking as measured by the GDP from the public sector overstates the net benefits of public banking as the cost of the NPAs generated in sub-phase IIA were paid in sub-phase IIB

Electricity sector growth accelerated to 9% per annum based on a substantial increase in the share of public investment going to this sector, from 20% in 1979–80 to 30% in 1991–92 (Table 2 and Table 5). The ICOR for electricity declined to 15.7 during this sub-phase close to the sub-phase IA level of 16.2 and sharply down from the excessive levels reached in sub phase IB (Table 5).

Mining sector growth also accelerated to 8.4%, the third highest sector growth rate (Table 2). Mining presented a mixed picture during this sub-phase. The government or public share of the GDP in mining declined to about 90% in 1991–92 (from 96% in

1979-80) while its share in the GCF increased to about 96% from 70% in 1979–80 (Table 4). Thus, the ICOR for public sector mining more than doubled during this sub-phase to 7.2 from 2.7 in sub phase IB, even though the overall ICOR declined marginally because of the improved performance of the private sector (Table 5). Thus, the government’s virtual monopoly of the mining sector continued to be a burden on the economy during sub-phase IIA.

Agricultural growth recovered to 4.2% per annum and contributed 21% to total economic growth even with a reduced share of agriculture (Tables 2 and 3). The improved growth rate probably resulted from the lagged effect of the green revolution, the steady spread of high-yielding varieties across the country complemented by better monsoons. Overall utilisation in agriculture improved dramatically, as reflected in the return of the ICOR for the sector to a normal level of 1.8 in this sub-phase, from 5 in sub-phase IB (Table 5). However, the public sector’s ICOR in agriculture doubled to 40, from 20 in sub-phase IB, highlighting the increasing inefficiency of the public production system (Table 5).

4. Role of Demand and Supply factors

Registered manufacturing growth picked up substantially to 6.8% per annum with a sharp reduction in the ICOR to 6.9 from the previous sub-period’s 9.6 (Tables 2 and 6). The ICOR in public sector manufacturing also declined to 7.4, from over 17 (Table 5). Consequently, the contribution of manufacturing to economic growth equalled that of agriculture during this period (21%) (Table 3). Such a sharp reduction in the ICOR suggests that demand constraints played a role in pushing up the ICOR in sub-phase IB and these constraints were reduced or removed in sub-phase IIA.⁵⁰ Part of this stimulus could have come from the acceleration of real government consumption expenditure to 6% per annum during sub-phase IIA from 5.1% per annum during sub-phase IB (Table 1). The conventional wisdom is that it indeed came from the increase in the fiscal deficit, which for the central government grew from an average of 4.1% of GDP in sub-phase IB

⁴⁹ See Gordon and Gupta (2003) for an analysis of the Service sector.

⁵⁰ Whether these are ‘structural domestic demand constraints’ as emphasised by Chakravarty (1984) or those induced by ‘lack of policy or failure of policy’ and ‘export demand constraints’ as emphasised by

to 7.7% of GDP in sub-phase IIA.⁵¹ Half to 2/3rd of this, however spilled over into the external account (Virmani (2001)), with the current account deficit more than doubling from 0.7% of GDP in IB to 1.8% of GDP in sub-phase IIA (table 7). To the extent that this spill over was directly linked with debt financed import of defence equipment it constituted a future burden on the economy. On the domestic side, inflation (WPI) declined from 10.7% per annum in IB to 8.6% per annum in IIA. It is therefore possible that *the (domestic component of the) fiscal deficit, in the presence of excess capacity, could have (temporarily) increased the growth rate through better capacity utilisation.*

Another more important factor in our view was a supply-side stimulus. The sharp increase in oil prices and the consequent increase in the oil bill since early seventies acted like a tax on the Indian economy. The real oil import bill paid by the citizens of India increased by an average of 37% per annum during sub-phase IB, while it increased by only 6.9% per annum during sub-phase IIA (Table 1). Thus, the huge transfer of resources to the Organisation of Petroleum Exporting Countries (OPEC) during sub-phase IB was reduced to a fraction during sub-phase IIA. This would in principle leave more purchasing power in the hands of Indians during the latter sub-phase relative to that in the former and provide a supply-side stimulus equivalent to a tax reduction.⁵² This is confirmed by the acceleration in the growth of real private consumption expenditure to 4.5% per annum during sub-phase IIA, from 2.8% per annum during sub-phase IB and 3.7% in sub-phase IA (Table 1). ***A decline in the relative price of imported oil reduced the implicit (foreign) tax on the private sector stimulating private consumption. As a consequence, inflation declined and capacity utilisation probably increased during this sub-phase.***

Another consequence of the growth recovery in agriculture, manufacturing, and mining was the narrowing of the growth differential between tradable and non-tradable goods. During this sub-phase, tradable goods production grew by 4.7% per annum while

Bhagwati and Srinivasan (1984), Srinivasan and Narayana (1977), and Bhagwati and Srinivasan (1974) is a question that needs to be answered.

⁵¹ As represented by the World Bank country reports on India. See also Joshi and Little (1994).

⁵² Conventional wisdom has focussed on the stimulus provided by the rising fiscal deficit during the eighties as an explanation for the rise in the growth rate, but a growth rate that high could not be sustained for this very reason.

non-tradable services grew by 6.3% per annum (Table 2). This gap was narrower than that during any previous sub-phase.

5. Acceleration Puzzle and Solutions

A question that analysts have started raising over the last few years (without providing an answer) is how what appears to outside observers to be limited reforms in the eighties could produce such dramatic changes in the growth rate. One factor identified earlier is the ostensibly export-linked liberalisation of capital goods imports, under the Export Promotion Guarantee Scheme, which resulted in a dramatic increase in the import of capital goods generally [Virmani (2001)]. Such imports of embodied technology played a role in the enhanced growth rate. Another factor that has been identified in this paper is the change in the structure of investment from structures to machinery & equipment. The third factor in our view was the credibility of the reforms that were introduced. The fourth factor (discussed below) is the under-performance of the economy during sub-phase IB, which increased the gap between the potential and actual GDP.⁵³ This combined with the fiscal stimulus and the supply side impact of the slower rise in oil prices to increase capacity utilisation.

The growth gap can be very crudely estimated as follows: Let us assume that the 4.1% average growth rate of the economy during sub-phase IA represented the underlying growth potential of the economy during this period.⁵⁴ Thus, because of various reasons including bad policies, the economy under-performed by 1.2% per year during sub-phase IB. At the end of the 15 years of this sub-phase, the economy had an output gap, which could potentially add 18 percentage points or about 1.5% per annum to the growth rate over the next 12 years if these wrong policies could be reversed. This would have resulted in a growth rate that was almost identical to that actually seen in sub-phase IIA.

Alternatively, we can focus on the tradable goods sector where the output gap was present and the growth potential concentrated. This result is replicated in the tradable

⁵³ A third, not mutually exclusive possibility is that production from non-licensed capacity that had been built up 'illegally' gradually started to be declared officially as it began to be allowed officially.

goods sector, which under-performed by 1.6% per annum during sub-phase IB relative to sub-phase IA, i.e., by 24 percentage points cumulative (Table 2). Thus the output gap in this sector had the potential to raise the growth rate of the GDP from tradable goods to 4.6% per annum during the next 12 years, which is exactly what happened during sub-phase IIA—the actual growth rate was 4.7% per annum. The limited liberalisation that took place in the eighties was directed at the tradable goods sector, particularly manufacturing. To this extent, the above explanation is linked to the one in Virmani (2001). The statistical analysis in equation 4b confirms that the change in the policy regime starting in 1980-81 had lifted the depressing effect of the “socialist” policy rhetoric on manufacturing growth. Thus the growth of manufacturing was by 1981-2 back on the track established during 1950-51 to 1964-65.

The story is similar, but not identical in the non-tradable services sector, whose growth rate increased by 2.1 percentage points between sub-phase IB and sub-phase IIA (Table 2). The acceleration was even higher at 2.3 percentage points if we exclude the GDP from public administration from this sector (Table 2). A deeper examination of the service sectors shows that only one sub-sector – ‘Banking, Insurance, Real Estate and Housing, and Business Services’ (FIREHBS) – shows a different pattern. The growth rate of all other services taken together declined from 5.6% per annum in sub-phase IA to 4.3% in sub-phase IB and then recovered to 5.7% per annum in sub-phase IIA (Table 2). In contrast the FIREHBS sub-sector accelerated from 3.5% per annum in phase I to 8.6% in phase II (Table 2). Its growth rate was faster in sub-phase IB (4%) than in sub-phase IA (3.1%) followed by an unprecedented 9.4% per annum during sub-phase IIA (Table 2). Within the FIREHBS sub-sector, the growth rate of Banking (finance) and Insurance (FI) as well as of Real Estate, personal Housing, and Business Services (REHBS) accelerated between sub-phases IB and IIA (Table 2). This provided the new growth impulse to the service sector that we have statistically identified as having started from 1984-5 or 1985-6.

The credibility of the reforms instituted during the 1980s was very high for several reasons. The same leader, who had instituted the earlier control policies that

⁵⁴ The alternative would be to assume that the average growth rate during phase I of 3.5% represented the

slowed the economy, was changing the direction of economic policy. As she was perceived to have learnt from her own experience, the changes were more credible to both potential beneficiaries and losers. To the latter she could say, I introduced the policies that you wanted but they need to be changed now. Her surprising come back after a period in the wilderness made her unchallenged in her own party, virtually silencing any internal critics till her death.⁵⁵ Her victory also shocked the opposition into silence, as it was so unexpected. In any case many in the opposition had been critics of her earlier policies and could not reverse their position without losing their own credibility. Whatever reforms were introduced was seen as examples of the new direction she was setting. These would determine the future economic environment so critical for investment decisions. Economic agents could see the economic policy clearly beginning to turn around and realised that it would like a large oil tanker changing direction, take time for it face in the opposite direction. This view was further strengthened by a much younger man taking over the reigns of government on her death as it was widely hoped that he would make the transformation to a modern market economy even faster. This hope was reflected in the fact that despite limited experience of governance he received an unprecedented and overwhelming majority in parliament.⁵⁶

In the discussion of sub-phase IB it was noted that government institutions started to deteriorate during this sub-phase. According to the institutional literature this would tend to reduce the rate of growth. Virmani (2004) has shown that paradoxically a deterioration in the quality of institutions may increase the rate of growth (termed the 'Governance paradox'). The paper categorises government institutions into three types and shows that a deterioration in the quality and efficiency of one type (market substituting institutions implementing market distorting policies) will have a positive effect on growth. Anecdotal evidence suggests that this is indeed what happened during sub-phase IIA as firms started to evade the control regime and the market substituting institutions started to collude with them.⁵⁷

potential. In this case 4.85% annum would result from catch-up and only 0.65% from new measures.

⁵⁵ The importance of this factor will become apparent when we analyse phase IIB.

⁵⁶ Some observers attribute this primarily to the sympathy vote.

⁵⁷ The most prominent (alleged) case was of a company that imported and built a petrochemical plant of twice the size given in the import license and the investment/production license.

*To summarise, the policy framework that was responsible for the slowdown of growth started to change during the eighties and its enforcement also slackened due to deterioration in governance. Even though individual policy reforms were incremental ('tinkerisation') rather than revolutionary, **remaining controls and restrictions also started to be evaded thus resulting in greater de-facto (as against de-jure) de-control.** They were also politically credible signals of the intent to reform failed policies. This had an impact on the investment environment leading to more private investment and a shift from building of structures towards machinery and equipment. The opening of the economy to capital goods imports magnified the impact that they had on the efficiency of investment. In addition the output gap that had opened up during the previous sub-phase provided an opportunity for catch-up growth or an upturn in the growth cycle. An increase in the fiscal deficit, which stimulated government consumption and a deceleration of growth in oil prices, which stimulated private consumption, in the presence of unused capacity put the economy on the recovery leg of the growth cycle and (at least temporarily) accelerated growth.*

E. Phase IIB: Broader Reform

The second sub-phase (IIB) began in 1992–93 with external reforms coupled with the macroeconomic response to the BOP crisis.⁵⁸ These reforms led to a quick recovery and an investment and manufacturing boom not seen in India's economic history. After the initiation of the nineties reforms. The trend rate of growth as measured by the HP-filtered series exceeded 6% for five years, which was unprecedented, and there were four years in which the five-year moving average of the growth rate exceeded 6.5%, which was again unprecedented. The boom was however short-lived and growth soon reverted back to the 'Bharatiya rate of growth.' Nevertheless, growth during this sub-phase has averaged about 6.1% per annum—0.6 percentage point higher than during sub-phase IIA. ***The co-efficient of variation of growth also halved during this sub-phase compared to IIA thus showing an improvement in what has been termed as the "Quality of growth"*** (Table 1).

⁵⁸ The reforms have been documented and analysed by Chopra, Collyns, Hemming, et al (1995), Joshi and Little (1994), Ahluwalia and Little (1998), Srinivasan (2000), Acharya (2001), Virmani (2001), and Williamson and Zagha (2001) among others.

1. Macro overview

The rate of growth of both private and government consumption increased only marginally during this sub-phase. Growth of export of goods and services accelerated to 10.8% from 8.4% per annum in the previous sub-phase. The small increase in the growth stimulus provided by the faster export growth was however countered by a doubling of the rate of growth of the oil import bill to 15.7% per annum, from 6.9% (Table 1).⁵⁹

The rate of growth of *investment* accelerated by 3.8% points to 7.8% per annum. Though fixed investment in machinery continued to grow at a fast clip of 7.9% this was 2% point lower than in sub-phase IIA (table 1). Nevertheless ***the average share of machinery in fixed investment in IIB was 10% point higher than in IIA***. Most of this increase came from private investment as the growth of public investment in machinery decelerated dramatically. ***The share of private investment in fixed investment consequently increased from 52.6% in IIA to 67.6% in IIB***. As shown in Virmani (2001) growth in import of capital goods also decelerated. The growth of fixed investment in manufacturing, that had accelerated sharply during sub-phase IIA decelerated somewhat to 9.7% per annum during IIB, despite an acceleration in the rate of growth of registered manufacturing to 12.8% per annum. GFCF growth in Mining & quarrying also collapsed during IIB. Gross fixed capital formation in agriculture, which had collapsed from its green revolution boom of 5% per annum during IB to 1.3% during IIA withered to 0.6% per annum during IIB. The deceleration in tradable sector investment growth may have (temporarily) affected productivity growth.

Import controls, quantitative restrictions and protective custom tariffs declined during sub-phase IIB. Peak tariff rates, which had risen to 150% by 1990-91, had been reduced to 30% in 2002-3 and to 25% in 2003-4.⁶⁰ The net effect on protection was a combination of this reduction and offsetting changes in the nominal exchange rate. The reduction in protection of manufactured goods and minerals would have led to a depreciation of the real exchange rate i.e. a fall in the price of tradable goods relative to that of non-tradable goods. We would therefore *expect to find during an initial*

⁵⁹ The rupee values of exports and imports have been deflated using the GDP deflator.

⁶⁰ There were a few items up to 300% during 1990-91. In 2003-4 the tariff rate on the automobile sector, a dozen agricultural goods and alcoholic beverages exceeded 25%.

adjustment period, a reduction in the rate of growth of tradable goods relative to the rate of growth of non-tradable services. This is what happened. The growth of the tradable goods sector decelerated to 4.5% during IIB, while that of the non-tradable services sector accelerated to 7.5%, the highest level of any sub-phase. The growth of the services sector excluding government administration accelerated to 7.5% per annum, from 6.4% in sub-phase IIA (Table 2). Consequently the share of tradable goods in GDP declined by 8.4% points over sub-phase IIB compared to a decline of 4.9% points over sub-phase IIA.

2. Growth Impulse

To test the statistical significance of the (temporary) growth boom we estimate equation (2) for the period 1980-1 to 2002-3 (phase II) with a dummy for 1994-5 to 1996-7:

$$(6) \text{GrGDPfc} = 0.0559 + 0.016 * \text{D9496} + 0.139 * \text{DrainMean} - 0.083 * \text{DrainMean}(-1)$$

(19.9) (2.1) (5.1) (-2.9)

$$R^2 = 0.892, R^2 (\text{adjusted}) = 0.644, DW = 1.68.$$

The dummy is found to be significant at the 5% level of confidence. The confidence level falls to 10% if D9496 is replaced by a dummy for 1994-4 to 1999-2000 (or 1998-99).⁶¹ Alternative dummy variables starting from 1993-4 are not found to be significant at the 10% level. Interestingly the dummy D9497 for 1994-5 to 1997-98 is insignificant, indicating that something happened during 1997-98 to bring the boom to a halt. One possibility is that the change of government during the year undermined the credibility of reforms.⁶² This is not surprising given the fall of a government widely perceived as reform oriented and its replacement with one in which many members still used the rhetoric of phase IB socialism. There was apparently some recovery thereafter as another government that was traditionally perceived as relatively pro-market/anti-Statist came to power.⁶³

⁶¹ These dummy when introduced into equation (2) and estimated for the full 52 year period are not however statistically significant at the 10% level.

⁶² United front coalition government.

⁶³ National Democratic Alliance (NDA) led by the Bharatiya Janta Party (BJP).

We repeat this exercise by inserting the same dummy(s) into the growth equation 4(b) for manufacturing.

$$(7) \text{GrGman} = 0.063 - 0.0216 * \text{D6580} + 0.046 * \text{D9496} + 0.106 * \text{DrainMean}$$

$$(11.5) \quad (-2.25) \qquad (2.41) \qquad (2.46)$$

$$R^2 = 0.31, R^2 (\text{adjusted}) = 0.268, \text{DW} = 1.92.$$

D9496 the dummy for the period 1994-5 to 1996-97 is very significant but D9497, D9498 and D9499 are not.

Similarly in the equation for non-tradable service growth equation (5b), D9496 is not significant but the dummy D9599 for the period 1995-6 to 1999-2000 is highly significant.

$$(8a) \text{GrGntrdbl} = 0.0475 + 0.022 * \text{D85} + 0.017 * \text{D9599} + 0.063 * \text{DrainMean}$$

$$(19.1) \quad (4.6) \qquad (2.25) \qquad (3.09)$$

$$R^2 = 0.516, R^2 (\text{adjusted}) = 0.486, \text{DW} = 1.67.$$

This is however no longer true if we use (5c) the equation for services excluding government administration (GrGerv). None of these dummies are found to be significant.

These results suggest that *the economic reforms of the early nineties imparted an additional growth impulse to the manufacturing sector. This led the growth boom of Indian economy during 1994-95 to 1996-7. The boom however petered out in 1997-8.* The reasons for this are explored further below.

3. Relative Sector Performance

Within the service sector the depth of de-licensing and decontrol affected the speed and degree with which private investment and production expanded. *The communication sector with a phenomenal growth rate of over 18% per annum can be called the leading sector in this sub-phase of growth* (Table 2). Given its small size it contributed only about 5% to overall growth; this is however five times its contribution in the sub-phase IIA (Table 3). Clearly the breaking of the government monopoly over telecom, the entry of private competitors, and the early set-up of a regulatory system, however imperfect, have played a vital role in the high growth. Despite initial hiccups

and false steps telecom demonstrates the potential contribution to growth of opening previously government-owned or monopolised sectors given a moderately good regulatory system to deal with natural monopoly elements and promote competition.

The *financial sector* dropped to third place with a lower growth rate of 9.4% per annum (Table 2). This brought its contribution to overall growth to 9% from 7% in sub-phase IIA (Table 3). The introduction of modern regulatory norms and procedures led to the exposure of hidden NPAs in the banking system (particularly public sector banks) and slowed the growth of the banking system a cost that had to be paid for past sins. This was partly offset by the growth impulse imparted by gradual de-control of the banking system and the stimulus arising from private entry and competition. [The public share in the GCF in banking and insurance fell sharply during sub-phase IIB to half its level in sub-phase IIA, but has risen sharply since 1997-98 \(47% in 1991-92, 41.7% in 1997-98\).](#) Its share in GDP from this sector declined to [58.4% in 2000-1](#) from over 78% in 1990-91 (Table 4).

The *electricity sector* was however dethroned from its place among the top three performers as its growth rate slowed to 5.7% per annum (Table 2). The gradual conversion of the electricity sector from a public utility to a Mafia-type operation run for the benefit of employees and political bosses played a role in this slowdown as organised theft increased to half of total production in some states.⁶⁴ The lack of will to challenge power theft and the absence of a clear policy and regulatory framework for promoting private entry and competition were major factors in the growth slowdown.

Agriculture growth slowed to 3.3% per annum, almost the same rate as seen in sub-phase IA (Table 2), reducing its contribution to 13% of total growth (Table 3), given that the share of agriculture had declined to about a fourth of the GDP. The manufacturing sector contributed 17% to overall growth, only marginally less than its contribution in sub-phase IA (Table 3). Manufacturing growth accelerated to 6.8% per annum, with both modern (registered) and traditional (unregistered) segments growing faster (Table 2). *The net effect of increased competition on manufacturing growth was*

⁶⁴ I use the word 'Mafia' consciously as state electricity board employees reserved the right to cut off electricity to any establishment that did not provide them free services or cash (as appropriate).

therefore positive as improved access to imported technology and inputs and cheaper imports more than offset the reduction in relative prices arising from lower tariffs on output. Intra industry trade (import & export) has also increased across a range of two-digit industries during the nineties indicating efficiency improvements through increased specialisation (Veeramani (2003)). This was also reflected in the remarkable stability of the ICOR, which remained unchanged from the previous two sub-phases.

The measured ICOR for modern manufacturing however increased to 8.3 after declining to 6.9 in sub-phase IIA from 9.6 in sub-phase IB (Table 5). Entry of new firms and up gradation of technology (by the more competitive firms) through new investment with limited exit of existing firms would raise the ICOR and reduce TFPG (as measured).⁶⁵ As labour laws effectively apply only to the registered manufacturing sector, and the exit problem is most acute for large units within this sub-sector, a lowering of manufacturing tariffs could be followed by a period during which measured average total factor productivity growth (TFPG) declines. An ICRIER working paper by D. K. Das (2003) shows that TFPG has declined in a majority of (registered) three digit industries during the nineties. In our view this (probably) reflects a decline in capacity utilisation of so called ‘sick’ and other inefficient firms that are not allowed to exit because controls and policy restrictions. Goldar and Kumari (2003) have shown that capacity utilisation in registered manufacturing increased during the eighties.

Mining sector growth collapsed to 3.8% per annum, only a little higher than its low point of 3.7% in sub-phase IB (Table 2). The slowdown was accompanied by a worsening of capital utilisation as the overall ICOR rose to 8.2, from 6.1 in sub-phase IIA, and that for public sector mining increased to 14.6 (Table 5). Public sector mining’s share in the gross value added declined to 86.7% in 2000-1 from 97.2% in 1979–80, while its share in the GCF went up from 70% to 86.1% (Table 4). *The liberalisation of the mining sector during sub-phase IIB has been woefully inadequate, with the vital Coal Nationalisation (Amendment) Bill languishing in Parliament for several years, and a clear policy framework and modern regulatory structure still absent for most minerals.*

⁶⁵ With no adjustment for capacity utilisation.

Many other services, besides those considered above, contributed to the acceleration of non-tradable service growth. Among these were hotels and restaurants, which had the second highest growth rate of 10.3%, trade (8%), community, social and private services (7.7%), other transport (7%), and real estate, personal dwellings, and business services (6.3%). Several services grew faster than registered manufacturing (7.1%) during this phase. Contrary to some perceptions, government administration grew by only 6.3% per annum (table 2) and actually pulled down the average for the service sector, even though real government consumption expenditure grew at a faster clip at 6.6% per annum (Table 1). Construction, railway, and storage were the other sectors that grew at a lower rate than all manufacturing (6.8%) (Table 2). Thus, the gap between the growth rate of tradable goods and services widened to its highest level of any sub-phase.

4. Reform Puzzle: Constraints to Growth

In sub-phase IIB the puzzle is the reverse of that in sub-phase IIA. With much wider, deeper, and more comprehensive reform during this sub-phase (particularly in 1991-92 and 1992-93) why has the growth rate increased only marginally above that seen in sub-phase IIA? There are a number of possible explanations, which are discussed below.

a) Structural Reform: Impact Lags

It can be argued that fundamental changes in the economic policy framework take time to work their way through the economic system as agents take time to learn and respond to new conditions. Many industry-linked economists have asserted that the nineties reforms are leading to profound changes in the way that industry conducts it self.⁶⁶ Though these changes are visible in only a handful of pioneering companies they will gradually spread through out the industry and the macro effects will become apparent over the decade. We have already seen however, that the reforms initiated in 1991-92 resulted in an industrial boom during 1993-94 to 1996-97 led by the consumer durable sector, including automobiles. Further, the underlying growth rate as measured by the HP filtered series has been declining continuously since the peak of 6.1% in 1994-95 and 1995-96 to reach 4.8% in 2002-03 (Table 1). Prima facie this does not provide

support to this contention in terms of economic lags. One way to validate this assertion at this stage would be to find other countries that went through a similar reform experience followed by a lagged spurt in growth. The statistical analysis of the growth impulse (given above) however does not support this hypothesis.

b) Real Interest Rates

One hypothesis is that growth is slower than warranted by the reforms because interest rates are too high.⁶⁷ Using the State Bank of India (SBI) lending rate and the wholesale price index (WPI), we find that the real lending rate during Phase I was negative, averaging -1.9% if we use the WPI and -2.3% if we use the WPI for manufacturing (Table 7). The real interest rate increased from -2.8% (-3.7%) in sub phase IA to -0.6% (-0.9%) during sub-phase IB. This increase could have contributed to the decline in the growth rate between these two sub-phases. The low interest rate during phase I was not due to the investment demand as it grew at 6.1% per annum almost the same as the 6.3% per annum during phase II. Similarly the rise in real interest rates during sub-phase IB cannot be attributed to increased investment demand as the growth rate of investment declined to 4.5% per annum from 7.9% per annum during sub-phase IA (Table 1). At the same time the private saving rate and overall national saving rate continued to grow.

The real interest rate increased dramatically in Phase II, averaging 7.8% to 7.9% (Table 7). Investment demand grew at a marginally higher rate of 5% per annum during sub-phase IIA than it did earlier (Table 1), while the supply of government saving declined progressively over the eighties. The decline in the government saving rate must be one important factor in the rise of real interest rate along with a possible increase in inefficiency of the politically directed banking system (a la 'loan melas' in the 1980s). The higher growth rate during phase II was therefore achieved despite the rise in interest rates.

⁶⁶ One example of such an economist is Dr. Omkar Goswami of the Confederation of Indian Industry.

⁶⁷ This stance is favoured for instance by Dr. Surjit S. Bhalla of Oxus Research.

Table 7: Real Interest Rates (SBI) and Real Effective Exchange Rates (REER)

	Phase I (1950–51 to 1979–80)			Phase II (1980–81 to 2001–02)		
	Phase I (1950-1 to 1979-80)	Sub-phase		Phase II (1980- 1 to 2002-3)	Sub-phase	
		I A (1950-64)	I B (1965-79)		II A (1980-91)	II B (1992-2000)
SBI lending rate (real)						
<i>(deflated by)</i>						
WPI (total)	-1.7%	-2.9%	-0.6%	7.8%	7.9%	7.8%
WPI (manufacturing)	-2.3%	-3.7%	-0.9%	8.6%	8.3%	8.9%
Inflation Rate						
WPI (total)	9.0%	7.3%	10.7%	7.6%	8.6%	6.5%
WPI (manufacturing)	9.6%	8.3%	10.9%	6.9%	8.2%	5.4%
REER (calendar year)						
<i>(average growth rate)</i>						
Export-Weighted Index	-2.3%	-0.3%	-3.9%	-1.4%	-3.2%	0.5%
Trade-Weighted Index	-0.8%	-0.3%	-4.1%	-1.0%	-2.7%	0.8%
Ratio to GDP						
Fiscal Deficit-Center	3.6%	3.4%	4.1%	6.8%	7.7%	5.7%
Current Account Deficit	1.4%	1.3%	0.7%	1.3%	1.8%	0.9%

Source RBI (2003); (various years)

Note: The REERs are calculated for calendar years because data for financial years are only available from 1975–76 onwards. The REERs from 1950 to 1959 are our estimates.

There is little change in the real interest rate between sub-phases IIA and IIB when measured using the total WPI and a marginal increase of 0.5 percentage points when deflated by the WPI for manufacturing, from 8.3% to 8.8% (Table 7). This marginal rise in real interest rates has however been more than offset by other factors ('animal spirits' activated by the 'new economic policy') with real gross domestic investment accelerating to 7.8% per annum during sub-phase IIB (Table 1). Thus, at this broad level of analysis, real interest rates do not explain the growth puzzle.

At the same time, the above analysis does not imply that real interest rates do not have an impact on private investment or economic growth. It is quite possible that the growth rate would have been higher than it was, if real rates were lower. Perhaps manufacturing growth during sub-phase IIB would have been higher if real interest rates were lower. The average real interest rate at 6.9% (7.7%) during 1994-5 to 1996-7 was somewhat lower than the average for sub-phase IIB as a whole, and could have provided some growth stimulus. The small decline in the real rate thereafter is likely the result of a fall in effective demand from the private sector as growth petered out.

The precise impact of interest rates on these variables will be analysed in subsequent work. This requires recognition of the fact that Indian credit markets are not as developed, competitive or free as those of the developed countries. The floor on saving deposit rates in banks plays a small role, but other factors are much more important. The legacy of nationalisation of banking (in sub-phase IB) and the introduction of wide and deep structure of controls and directed credit still shapes the monetary system despite the liberalisation of the nineties. The multiple role of the RBI as the government's debt manager (salesman), proxy manager of the nationalised banks, and regulator responsible for the health of the payment system often results in actions that are not consistent with efficient monetary management. In our view these contradictions have kept the RBI from lowering the short-term (1 to 7 day) repo rates during periods of low growth and moderate inflation and weak private credit demand since 1997-98. One consequence of these high repo rates has been to put a floor under the overnight inter-bank, call-money rates and thus prop up the entire structure of bank lending rates. Another outcome of this policy has been a rising differential between domestic short-term rates and global short-term rates during 2002. This has attracted short-term capital inflows during 2002-3.

An additional factor in the downward stickiness of bank interest rates is the government monopoly of the banking system with government banks still constituting about 70% of total bank assets, the highest proportion in the world. With the RBI and government either exercising regulatory forbearance or conniving in keeping deposit rates high and stable, loan interest rates often do not reflect credit market conditions during periods of low demand/excess supply.

The inflation rate relevant for determining the real overnight rate is the current rate. Expectations about future inflation are irrelevant in determining such rates. Those who assert that expectations of higher future inflation (because of high fiscal deficit and rising government debt) have kept bank lending rates (for one year or more) high have been disproved by the flat term structure of interest rates on government paper during 2002-3. The floors on the Government Provident Fund (GPF) and Post office saving instruments (so called small saving instruments) have not kept this from happening.

c) Incomplete Reform: Reform Gaps

Another argument for the under-responsiveness of the tradable goods sector to the trade and other liberalisation of the nineties is the lack of sufficient complementary domestic reforms. These arguments are however quite distinct from arguments about the hollowing out of Indian manufacturing or of the manufacturing sector being a drag on overall growth. Manufacturing growth in sub-phase IIB at 6.8% per annum has not only been distinctly higher than the 6.1% per annum in sub-phase IIA but also higher than the 6.6% per annum average during sub-phase IA (Table 2).

Though reduction of protection has created the conditions for labour-intensive agriculture and manufacturing to grow and export, India's tariff rates remain among the highest in the world [Virmani (2002a)]. Domestic policy constraints have kept even the limited potential created so far from being fully exploited. Thus, *labour-intensive manufacturing continues to be hampered by the anachronistic SSI reservation policy and labour laws, rules, and procedures that have converted labour from a variable to a fixed factor in firms with over 100 employees, with attendant consequences on employment. Minimum wage laws applied to modern (power-using) firms with more than 10 employees and excise tax exemptions for firms with sales up to Rs.1 crore (\$200,000), continue to distort the entire system of production and efficient division of labour, such as in the textile sector.* This explanation is consistent with the statistical analysis of the growth impulse and its petering out.

As many of these policies were introduced during sub-phase IB, the increase in the share of manufacturing in GDP was only 2.4 percentage points during this period, compared to an average increase of 3.1 percentage points for the countries of S. Asia (Table 8). It is not surprising that with the persistence of policy distortions (in some cases even a worsening), the share of manufacturing increased by only 2.3 percentage points during phase II. The share of manufacturing at 17.1% of the total GDP is therefore currently less than half that in China (34.5%) and a little more than half that in Malaysia (32.8%), Thailand (31.9%), and the average for East Asia & Pacific (31.8%) (Table 8).

Similarly the lack of reform in the agriculture and allied sector has hampered the growth of agriculture [Virmani and Rajeev (2002d)]. The State monopoly over electricity

production and supply coupled with the organised theft of power [Virmani (1996)] is another factor that affects growth of modern manufacturing and agriculture.

d) Governance Deterioration: Public Goods

One argument made earlier is as follows: the pace of reform has picked up during the nineties and has had a positive effect on growth. This has been offset by a slow but steady deterioration in governance over the last several decades that is beginning to have a significant negative effect on growth [Virmani (2002b)]. Thus, the net effect of the positive reform factor and the negative governance factor may be a growth ‘plateau.’ This explanation is also consistent with the statistical analysis of the growth impulse.

Governance deterioration also has another paradoxical result. As noted earlier, deterioration in the quality and efficiency of “Market distorting institutions” (Virmani(2004)) during sub-phase IIA, meant that the effectiveness of several controls and licenses was undermined. Thus when these controls and licenses were formally eliminated in sub-phase IIB, the effect on growth was less than one would expect if governance quality had remained unchanged, as the degree of ‘de-facto’ de-control was less than the ‘de-jure’ de-control.

The deterioration in the electricity and railway monopolies run by the government is examples of this general deterioration in governance. Both these are however “private” goods and have (less efficient) substitutes in the form of private generation and road transport.⁶⁸ More important, *these artificially created monopolies can be dismantled through private entry, selected privatisation and independent regulatory systems.* This is much more difficult in the case of “Public Goods,” as private substitutes are an option for a very limited number of the richest and most powerful. Thus the deterioration in the supply of “Public goods” like law and order, safety and security, courts, police, roads, public health, and civic education and “Quasi-public” goods (drinking water, sewage, sanitation, basic education and rural infrastructure) has a powerful negative effect on the economy and on public welfare.

⁶⁸ Though they have substantial externalities in rural areas.

Table 8: Manufacturing Share in the GDP (%) and Change in Ratio

Country	Share in year					
	<i>Start of Phase I</i> (1950-51)	<i>Start of sub-phase IB</i> (1965-66)	<i>Start of Phase II</i> (1980-81)	<i>Start of sub-phase IIB</i> (1992-93)	<i>Last year of data in Phase II</i> (2002-03)	
India	8.9%	13.1%	13.8%	15.7%	17.1%	
China ¹		29.2%	40.5%	33.1%	34.5%	
Indonesia ¹		8.4%	13.0%	19.1%	26.0%	
Malaysia ¹		9.5%	21.6%	25.8%	32.8%	
Thailand ¹		14.2%	21.5%	27.5%	31.9%	
South Asia ¹		13.5%	15.8%	16.1%	15.6%	
East Asia & the Pacific ¹		21.0%	30.6%	28.7%	31.8%	
Change during period (percentage points)						
Country	Sub-phase			Sub-phase		
	<i>Phase I</i> (1951-79)	<i>I A</i> (1951-64)	<i>I B</i> (1965-79)	<i>Phase II</i> (1980-2002)	<i>II A</i> (1980-91)	<i>II B</i> (1992-2002)
India	6.0	3.6	2.4	2.3	1.0	1.3
China ²			10.8	-5.5	-7.3	1.8
Indonesia			3.3	14.4	2.6	11.8
Malaysia			11.0	12.8	5.6	7.2
Thailand			7.2	10.8	7.2	3.6
South Asia			3.1	-0.9	-0.6	-0.3
East Asia & the Pacific				1.7	-1.9	3.6

Sources: CSO and World Bank (2002)

Notes

1. The data on manufacturing share in the GDP for other regions and countries are reported for calendar years, i.e. for 1965, 1980, 1992, and 2000 and are available only between 1965 and 2000.
2. The change in ratio for China over sub-phase IB is computed with 1965 as the first year because data for 1964 is not available.

There is an impression that government's role in production and supply of good and services has been reduced during the broad reform sub-phase (IIB). The reality is that the GDP from public sector averaged 25.9% of total GDP during sub-phase IIB, 2.6% points higher than in sub-phase IIA (23.3%). The sharp and continuing rise of the share has, however, been arrested, with the share in 2000-1 (25.8%) almost identical to that at the end of phase IIA (Table 4). Thus there is still considerable scope for eliminating government involvement in the production and supply of private goods and enhancing it in public goods.

The proposed solution to the problem of deteriorating governance is, (a) to get the government completely out of the production and supply of private goods. (b) To narrow its

focus on public goods and quasi public goods (strong externalities) and social security aspects that government is expected to achieve but has neglected [Virmani (2002b)].

e) Credibility of Reforms

Reform can only have an effect on economic actors if the reforms are credible. The more limited reforms undertaken during the eighties had great credibility, and their effect on the economy was therefore magnified. The reforms undertaken in 1991-92 and 1992-93 were much more comprehensive, but took a few years to gain credibility as they were wrongly perceived (initially) as being driven by the IMF/World bank. Agents were afraid that the reforms might be reversed once the crises passed. The reforms gained some credibility by 1993-94 and the effect was felt in the 1993-4 recovery and subsequent boom (1994-5 to 1996-7). Subsequent economic policy actions have been characterised by a ‘two steps forward and one step backward’ approach that (perhaps) gradually eroded this credibility.

The political economy of Indian reforms since 1993-4 seems to be that whenever reforms are beginning to take-off, someone within the ruling party, the ruling coalition or its supporting organisations feels it is in their interests to undermine and slow down or even halt the entire process.⁶⁹ In fact the position may have worsened with ‘two-and-a-half steps forward’ being followed by ‘two steps backward’. The result of this vacillation is a lack of credibility and a repeatedly aborted growth take-off, during the nineties. Thus, the enormous growth potential of the Indian economy is not being realised because of the constraints placed on it by the Indian political system. Some economists have asserted that this is because the Opposition parties oppose all reforms when they are not in the government even if they initiate or support reform when they are in power. In our view it is the duty of the Opposition to criticise and question change, within limits.⁷⁰ The public and economic agents accept such questioning as natural in a democratic country such as India. What is not acceptable is internal criticism, sabotage, and worse from within the ruling set-up—this has a much more devastating effect on the credibility of reforms.

⁶⁹ Whether this is the old ‘crab theory’ of Indians in operation or something else, this is what we have repeatedly seen in every government since around 1994–95.

⁷⁰ The limit is not exceeded if for instance the opposition party after criticism and testing of the Treasury benches in the Lok Sabha (ruling coalition has a majority) does not kill reform bills in the Rajya Sabha (where it has a majority).

III. Global Comparison

Ahluwalia (1988) states that “In the period up to the mid-seventies India’s growth rate of around 3.5 per cent per year was much lower than the average of about 6.0 per cent achieved by developing countries as a whole. In the past ten years, however, India’s growth rate has accelerated, while growth rates in most of the developing world have decelerated. India’s growth rate in the period 1981–86 was almost 5 per cent, when all developing countries together grew by 2.5 per cent, while non-oil-developing countries grew at 3.5 per cent per year. In fact India’s growth performance in the eighties is exceeded only by some of the fastest growing East Asian economies and China.” Bhagwati (1993) states that from the mid-fifties to the end of the seventies, “not merely did India’s weak performance in increasing income and per capita income fall below her own aspirations, it also put India behind many developing countries in this race, and way behind the super-performers of the Far East.” Ahluwalia (1995) states that, “India’s growth performance was close to the bottom of the group during 1965–80 and improved to the middle of the range in 1980–90,” in comparison with “not only high-flyers such as Korea, but other large economies such as Indonesia, Mexico, Brazil, and China, on the one hand, and India’s small neighbours such as Bangladesh, Pakistan, and Sri Lanka, on the other hand.” More recently De Long (2002) concluded that the performance of the Indian economy was about the average of the developing countries prior to 1980.

A. Socialist Rate of Growth

Since different authors use different periods for comparison a multiplicity of conclusions have been drawn. It is therefore useful to compare the performance of the Indian economy in terms of the phases or sub-phases that we have found to be relevant when we look at the performance of the Indian economy in isolation. As comparable data on economic growth during the fifties is available for only a very limited set of countries, we start with the sixties. During 1961–64, India’s GDP-growth ranking was 39 out of the set of 73 medium and large economies, those with a GDP at factor cost in 2000 greater than \$15 million, for which data is available for this period. Thus, it is quite plausible that India’s performance during 1950–64 was around the median of all countries. India’s performance deteriorated dramatically during 1965–79 (sub-phase IB), falling to 69th among a slightly larger set of 79 countries for which the GDP-growth data is available (Table 9). So, during this period only 6 developing countries had an average growth rate lower than the 2.8% per annum average for India. This in

our view was an abysmal performance for a country with India's potential. As recognised quite early by a few perceptive Indian economists like Jagdish Bhagwati and T. N. Srinivasan(1974, 1984) the inferior performance was the result of the economic policies introduced during the period.

B. Bharatiya Rate of Growth

The performance of the Indian economy improved dramatically from the 1980s as documented in Virmani (1999b). India's growth ranking improved sharply to 9th position during the 21-year period from 1980 to 2000 out of a larger set of 86 medium-large countries for which comparable data is available for this period (Table 9). Thus what we have termed the 'Bharatiya rate of growth,' was not just better performance relative to our own earlier growth, but also far superior to that of most other countries in the world. India's rank has improved over the last few years despite a fall in its growth rate, because other country growth rates have fallen even more. Thus, our rank improves by one position to eighth if we take either the 22 years from 1980 to 2001 or the 23 years from 1980 to 2002. Only China, Singapore, Taiwan, S. Korea, Malaysia, Vietnam, and Thailand had a higher average growth rate than India during the last 23 years. This is a creditable performance by global standards.

India's rank was somewhat lower during the two sub-phases. India ranked 12th during sub-phase IIA (1980 to 1991) with Hong Kong, Indonesia, Pakistan and Cyprus also growing faster during this period. Our rank improved to 10th during sub-phase IIB (1992 to 2002) as the growth rate of S. Korea, Taiwan and Thailand fell sharply after 1997 while the growth rate of Ireland, Uganda, Mozambique and Dominican Republic improved. Thus only China, Singapore, Malaysia and Vietnam had a higher GDP growth rate than India in the full phase as well as in both sub-phases.

Table 9: India's Comparative Growth Rate and Global Growth Rank

Country	Period growth rates													Variation in Rank Over Last Two Decades <i>(based on 10-year moving averages)</i>										
	Rank							Growth rate (%)																
	Sub-phase							Sub-phase																
	IA	IB	IIA	IIB	1980-2000	1980-2001	1980-2002	IA	IB	IIA	IIB	1980-2000	1980-2001	1980-2002	1979-88	1980-89	1981-90	1982-91	1984-93	1987-96	1991-2000	1992-2001	1993-2002	
China	73	25	1	1	1	1	1	-1.8	6.1	9.0	9.8	9.5	9.4	9.4	1	1	1	1	1	1	1	1	1	1
Singapore	29	2	5	7	2	2	2	5.8	10.5	7.5	6.4	7.7	7.2	7.0	5	4	5	5	7	3	2	5	7	
Korea, Rep.	27	4	3	13	4	3	3	6.1	9.0	7.8	5.6	7.0	6.8	6.8	4	3	2	2	5	6	11	15	13	
Taiwan		3	2	17	3	4	4		10.2	7.9	5.3	7.2	6.8	6.6	3	2	3	4	4	9	10	16	16	
Vietnam				4	6	6	5				7.2	6.4	6.3	6.3		84	90	91	92	10	4	4	5	
Malaysia	22	13	9	8	5	5	6	6.7	7.3	6.4	6.1	6.6	6.4	6.3	12	12	10	7	9	5	6	8	11	
Thailand	19	9	4	33	7	7	7	6.9	7.8	7.7	4.0	6.2	6.0	5.9	7	6	4	3	3	2	30	38	44	
India	39	69	12	10	9	8	8	5.2	2.8	5.5	5.8	5.7	5.6	5.6	15	10	11	11	17	13	20	11	10	
Indonesia	68	16	7	37	10	10	9	2.3	6.8	6.8	3.8	5.6	5.5	5.4	10	8	7	6	8	8	34	39	45	
Hong Kong	2	7	6	39	8	9	10	13.2	8.6	6.8	3.8	5.8	5.5	5.4	2	5	6	8	10	14	32	34	43	
Ireland	52	43	31	3	13	11	11	4.2	4.7	3.5	7.4	5.3	5.3	5.3	44	35	23	27	28	16	5	3	3	
Uganda			28	6	16	14	12				6.6	5.2	5.2	5.3		85	93	94	29	11	8	7	6	
Pakistan	21	35	8	35	12	13	13	6.7	5.5	6.5	3.9	5.4	5.3	5.3	6	7	8	10	13	21	40	40	47	
Chile	46	65	14	11	11	12	14	4.5	3.1	4.6	5.8	5.4	5.3	5.2	20	14	22	18	6	7	7	15	14	
Cyprus			10	28	14	15	15			5.8	4.3	5.2	5.2	5.0	8	9	9	9	12	15	36	29	36	
Egypt (EAR)	17	33	11	26	15	16	16	7.1	5.5	5.5	4.4	5.2	5.1	5.0	11	11	12	12	23	33	33	26	25	
Bangladesh	35	76	16	19	19	18	17	5.5	2.3	4.4	4.9	4.6	4.7	4.6	16	17	15	21	22	29	26	21	18	
Luxembourg	54	66	18	21	17	17	18	4.1	3.0	4.3	4.9	5.0	4.8	4.6	31	15	16	13	11	18	14	18	17	
Sri Lanka	59	44	17	24	18	21	20	3.6	4.7	4.4	4.5	4.8	4.5	4.5	18	19	18	20	21	26	21	27	21	

Sources

1. World Bank (2002), 4 (5) years data is missing for Uganda (Vietnam) during the eighties.
2. IMF WEO (recent years)

It is interesting that the 23-year growth ranking for India is better than its growth ranking in either sub-period (of 13 years and 10 years, respectively). The reason is the remarkable stability in the growth rate of India relative to some of the other high-growth economies. This is reflected in the growth ranking based on the 10-year moving average growth rate. India's growth rank by this measure has fluctuated between 10th and 15th with a mean position of about 13th (Table 9). There were five periods in which the rank was better and two periods in which the rank was much worse. The best 10-year performance has occurred at the start and end of the period, with a rank of 10th for the decade of the eighties (1980–89) and for the period 1993–2002. The former followed an improvement from 15th for the period from 1979 to 1988. Following the BOP crisis of 1990–91 the rank deteriorated to 17th for the period from 1984 to 1993. There was a sharp improvement in rank following the introduction of the new economic policy in the nineties to 13th for the period 1987–96. After remaining around this level the position collapsed temporarily to 20th for the period 1991–2000, partly because of the export-led recovery of East Asia (Table 9).

C. Comparison of Service Shares

Our analysis has shown that services played a role in the step up in the GDP growth rate from the mid-eighties.⁷¹ The recovery in manufacturing growth from 1981-2 was however equally significant. Consequently there was little discontinuity in the share of GDP from services. The share of services in GDP at 1993-4 prices rose almost linearly from 32% in 1950-51 to about 58% in 2002-3 (i.e. about 0.5 per cent point per year). The service share has, however, been above this linear trend for the last five years or so.

To see whether the share of services in Indian GDP is excessively high we need to compare it with the share in other countries. We do this by constructing the average share during 1992 to 2000 (sub-phase IIB) along with the average per capita GDP at constant ppp (pcgdpk) and regress one against the other to derive a normative value of the service share at each income level.⁷² India's average service share is then compared with this norm. For the 160 countries for which data is available in the World Development Indicators we find that that a third order polynomial in pcgdpk fits the data best. Based on this equation India's average

⁷¹ See also Gordon and Gupta (2003).

service share of 45% (+2%) is almost identical to the predicted/normative value of 44% based on India's average pcgdpk during the period. Thus we conclude that the Service sector share during phase IIB was normal.

We repeat this exercise for the period 1980 to 1991 (sub-phase IIA) with the smaller set of countries (148) for which data is available in the World Bank's WDI. In this case we find that the average service share for India was (at 40%) 6% lower than the norm of 43%. The faster growth of services during phase II, therefore, seems to have corrected an imbalance that had emerged earlier.

The exercise for 1992-2000 shows that with the exception of the island economies of Singapore (+1%) and Hong Kong (+28%) most other fast growing economies had an average service share less than the norm for their per capita GDP. These countries (with the average service share in brackets) are Vietnam (-3%), Chile (-4%), Thailand (-8%), Ireland (-13%), Indonesia (-14%), S Korea (-19%), Malaysia (-21%) and China (-31%). The reason for this contrast between the other high growth economies and India, is the failure of the manufacturing sector in India to grow as fast as it did in these high growth economies. As a consequence the structural transformation of the Indian economy from agriculture to manufacturing has not taken place. If the manufacturing sector can be freed of the remaining shackles and distortions, the rate of growth of GDP and of employment can be accelerated.

⁷² We use the US GDP deflator to convert from current US\$ to constant US\$ 1995 Prices.

IV. Conclusion

This paper has reviewed the growth performance of India since 1950-51. It is widely believed that the Indian economy has become less dependent on the weather over the last half century of independence. This paper shows that there is a statistically insignificant reduction of the impact of rainfall on Indian agriculture and of rainfall on the Indian economy (as a whole). In other words agriculture and GDP growth are both as dependent on rainfall in the fourth quarter of the century as they were in the third.

The paper also shows that Indian economic growth has been remarkably stable. We are statistically able to distinguish only two phases of growth during its post-colonial history. The first phase characterised as the 'Indian-socialist' rate of growth (ISRG) starts after independence and lasts to the end of the seventies. The proportion of the population below the poverty line increased during this phase from 45.3% in 1951 to 47.3% in 1979-80. The second phase, which starts thereafter (1980-81) is still going on and is characterised as the 'Bharatiya' rate of growth (BRG) phase. There was a sharp and statistically significant acceleration in the growth rate during the BRG phase. During the ISRG phase the economy averaged a growth of 3.5% per annum with per capita growth averaging 1.3% per annum. Growth accelerated to an average of 5.7% per annum during the BRG phase with per capita income growing at an average rate of 3.6% per annum. The Poverty rate (proportion of people below the poverty line) declined from an average 52.8% of the population during the ISRG phase to a (conservatively estimated) average of 36.6% of the population during the BRG phase.

We also find a (statistically) significant acceleration in the rate of growth of services during the BRG phase. In the case of manufacturing the higher growth rate during the eighties was more in the nature of a recovery from the oppressive hand of socialist controls & public monopolies and a closing of the gap between actual and potential output that had opened as a consequence. As a consequence the share of GDP from services does not show any abrupt change (discontinuity) and has been rising slowly but steadily over the past half century. The paper debunks the scare talk of the unsustainability of "service led growth" by showing that the average share of services in GDP during the last decade was close to the estimated global norm for a country of India's per capita GDP level.

In this paper we argue that each of the two phases of economic growth can be divided into two sub-phases based on the nature of the policy regime and the development focus. The growth rate in one sub-phase of a given phase differs from that in the other sub-phase, but this difference is not statistically significant. From the policy perspective, however these four sub-phases (Quest for commanding heights, Socialist rate of growth, Modest reform and Broader reform), can be thought of as distinct. The growth rate declined from 4.1% per annum during the Commanding heights sub-phase to 2.6% per annum in the Socialist rate of growth phase. It is hypothesised that this was due to a combination of direct control on private activity and the accumulating burden of government imposed costs. These costs arose from oppressive controls as well as from the crowding out of private production by public sector supply of goods and services unconstrained by compulsions of profitability, efficiency, and quality. Supply-side factors such as the rise in global oil prices, which acted as an external tax on citizens and the inefficiency of public utility monopolies contributed to the slowdown. Credible changes in the direction of economic philosophy that resulted in some liberalisation of industrial (production and investment) controls and the trade regime (particularly with respect to exports and capital goods imports) played a role in the recovery of growth during the eighties.

The conclusion of earlier papers that India's performance during the first three decades was around the average of the developing countries' is not supported by the facts presented in this paper. This was only true during the Commanding heights sub-phase (15 years). In the socialist rate of growth sub-phase (next 15 years), India's performance plummeted to the bottom of the global order, with only six developing and four developed countries having a GDP growth rate lower than that of India.

With a change in orientation of the government from socialism to market there was a change in the rhetoric of the government and of intellectuals and consequently in the atmosphere/environment in which private agents and investors operate. This change in orientation started in the late seventies when the still 'socialist' oriented Mrs Gandhi broke the railway strike in 1976. The change continued with the coming to power of so called 'right-wing' political parties such as the Congress (O) and the BJP (though some of the coalition partners were Indian socialists). There was consequently an acceleration of GDP growth from

the socialist rate of Growth of 2.6% per annum to 5.6% annum during the Modest Reform sub-phase of BRG.

One ‘puzzle’ is how such a significant growth impulse resulted from what appear prima facie to be modest changes in the control regime. The paper has argued that the economic reforms introduced during the 1980s had a great deal of credibility. As a result the rate of growth of private investment accelerated and the structure of investment moved towards machinery & equipment and the quality of machinery and equipment improved because of greater access to imported capital goods. This played an important role in the growth acceleration. In addition, the output gap had opened up during the Socialist Growth sub-phase due to the (policy resultant) suppression of economic growth below its potential was closed during the ‘modest reform’ sub-phase. This gap was eliminated during the first sub-phase of the BRG period, partly because of the supply side stimulus provided by slower growth of oil prices and the demand side stimulus provided by the rising fiscal deficit. Thus the acceleration of growth in the first sub-phase of BRG had a substantial element of temporary acceleration above its potential, a catch-up process that bridged the output gap by around 1990-91.

There was also a small increase in the growth rate in second sub-phase of BRG (over and above this ‘gap closing’ acceleration) following the introduction of broader reforms. This constitutes the second ‘puzzle’, the obverse of the first—why such major and fairly comprehensive reform raised the growth rate of the economy only modestly? The paper explores the potential reasons and analyses their broad impact and importance. Four reasons are found to be most compelling: One the gaps in the reform process. Two the failure of public monopolies to provide critical infrastructure services like electricity and rail transport. Three the deterioration of government supply of public and quasi-public goods (quantity & quality). Four the dissension within the ruling coalition / party / organisation that undermine credibility of reform. The growth puzzles will be explored further in forthcoming papers.

India’s global growth rank has improved dramatically to 8th during the BRG phase, with the rank being 12th during the first sub-phase and 10th during the second sub-phase. The rank for the entire phase is better than that in either sub-phase, because the growth rate has been less volatile than in many other countries.

We seem currently to be stuck at the ‘Bharatiya’ rate of growth of around 5.8% per annum.⁷³ In fact the trend rate in 2002-3 appeared to be about 1% point lower than this because of the very sharp cyclical decline in growth that occurred in 2002-3. With the cyclical recovery of the economy to a predicted 8% plus growth in 2003-4 and a forecast of 6% growth rate in 2004-5, the economy is returning to the ‘Bharatiya’ rate of growth trend of 5.8% per annum.

Forthcoming papers will however explore, whether there are underlying improvements or structural changes in productivity that have not been translated into higher growth so far, but which could in future result in a sustained upward shift in the growth trend.

⁷³ Based on CSO data. The WDI data gives a lower average of 5.6%.

V. Appendix: Methodology

The analysis through out the paper is based on rates of growth. The annual rate of growth (GrY) is defined for any variable Y as $GrY(t) = Y(t)/Y(t-1) - 1$. Trend growth rates are defined in three ways.

(a) By taking a moving average. Thus a five year moving average can be defined as $MA5Y(t) = [Y(t)+Y(t-1)+Y(t-2)+Y(t-3)+Y(t-4)]/5$. This moving average is centred on year t-2.

(b) By applying the Hodrick-Prescott filter to the basic series Y to get the filtered series Y_{hp} and then determining its growth rate i.e. $GrY_{hp}(t) = Y_{hp}(t)/Y_{hp}(t-1) - 1$. $GrY_{hp}(t)$ then shows the trend rate of growth as against the actual annual growth rate $GrY(t)$.

(c) By fitting a polynomial of order 2 or 3 or more to the actual growth rate $GrY(t)$ i.e. estimating the coefficients a, b, c (d etc.) in the equation $GrY(t) = a + bt + ct^2 + dt^3 + ut$, where t is time or year and ut is a random error term.

We also use growth regressions to search for breaks in the growth performance of the economy in terms of its Gross Domestic Product at factor cost. Conceptually the evolution of the economy can be defined by set of (endogenous) variables such as GDP, current account deficit, foreign exchange reserves, fiscal deficit, exports, imports, prices, money supply, employment etc. Each of the endogenous variables (vector Y) are functions of each other and of exogenous variables. The latter consist of policy variables P (e.g. tariff rates) and external environment Z (e.g. rainfall, world oil prices, world GDP growth). In reduced form we can write the endogenous variables as functions of the exogenous variables, $Y = F(P, Z)$.

In the Indian context the most important exogenous variable Z is rainfall variation and we take account of this variable in examining GDP growth and growth of GDP from different sectors. Other exogenous variables such as oil price shocks have been thought to affect the growth of the economy, but the rate of growth of oil prices is found to be statistically insignificant in the GDP growth regressions.⁷⁴ Therefore $Y = F(P, \text{rainfall})$. There are two difficulties that arise in directly introducing policy variables into the estimating equation. Firstly continuous series are not available from 1950 to the current

time. For instance the average tariff rate is available from 1980 onwards, but not before. The second problem is that some variables may be either exogenous policy variables (P) or endogenous outcomes (Y) depending on the policy regime. Thus for instance in a controlled system the exchange rate and many interest rates are directly controlled policy variables set by the government while in a market system they are outcomes of market supply and demand. The difficulty is compounded if they are target variables even in the market situation. These technical problems can be dealt with by appropriate econometric techniques. In this paper, however, we take an alternative simpler route.

We assume that different periods (i) in India's history were characterised by different sets of policies P_i . For instance if there were four periods then $i= 1, 2, 3, 4$. To find out whether any set of policies P_i had an effect on the growth rate we introduce a dummy variable D_i into the equation to represent the policies during the period (the time subscript t is dropped):

$$GrY = A + B*Drainm + D_i + U$$

Where $Drainm$ is the deviation of rainfall from mean and U is the error term. If D_i for period i is statistically significant, we take this as a demonstration of a significant effect of the complex of policies P_i pursued during the period on the growth of Y during the period. The policies P_i are then analysed in a qualitative way. Formal modelling of the effect of policies on endogenous variables and its econometric estimation is left for subsequent papers.

As far as Y is concerned, it should be kept in mind that total GDP is by definition the sum of the GDP from different sectors (e.g. Agriculture, Manufacturing, Services). Thus a policy that affects even one sector will affect overall GDP growth through this sector. Some policies may affect more than one sector, with the relative effect on these sectors varying over time. A given policy may also affect one sector positively and another negatively. In this case the effect on overall GDP growth may be either positive or negative. A set of policies will in general have positive and negative effects on different sectors, with the net effect on overall GDP being an aggregation of these sectoral impacts. The dummy variable method will only indicate the net affect of all

⁷⁴ When growth rate of world oil prices is added to equation (1) of text, its t statistic is -1.4 and Probability 0.167, i.e. it is not significant at the 10% level of confidence.

these policies and will not help us in identifying which policy has a positive and which a negative effect on a specific sector (or on aggregate GDP).

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