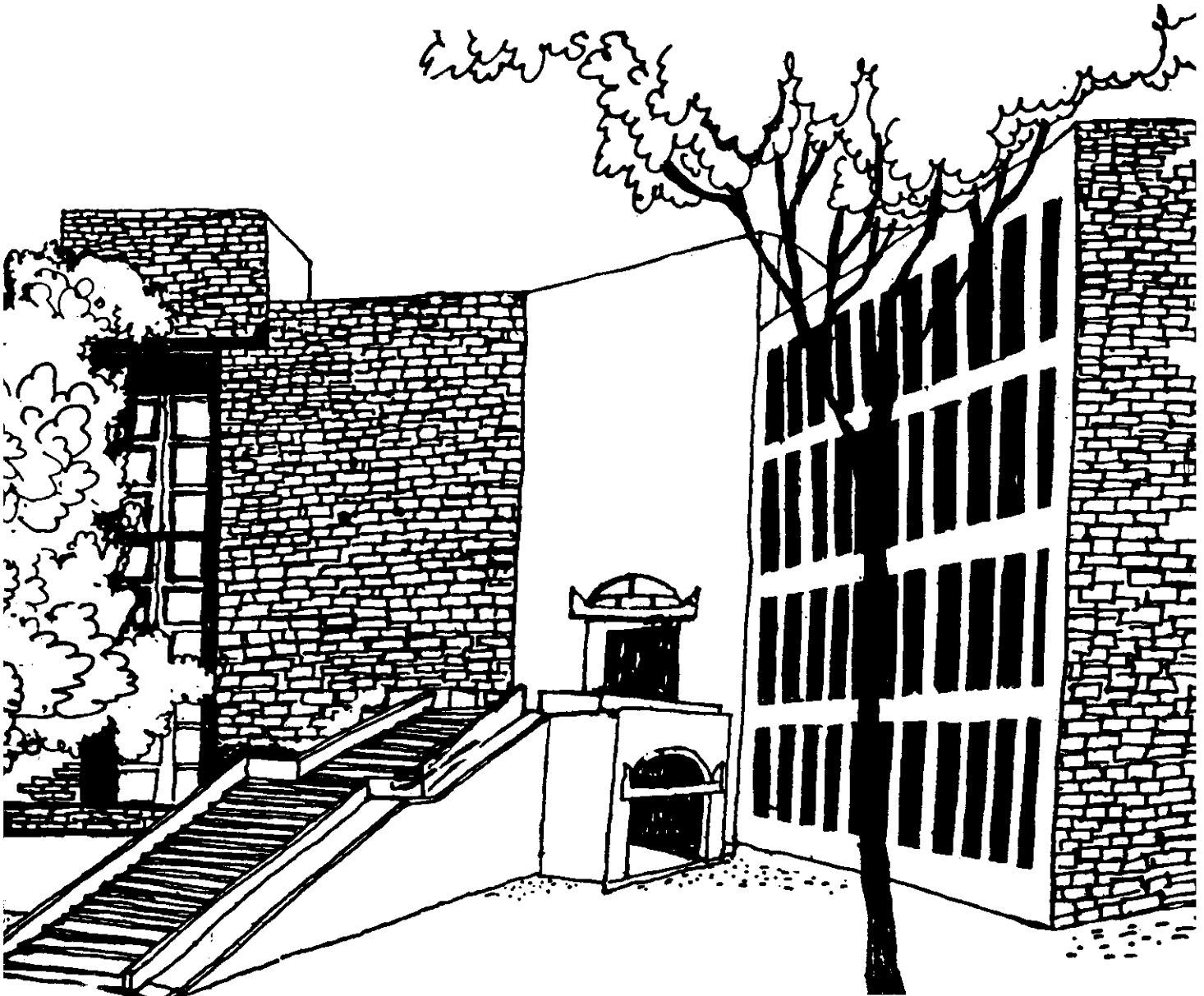




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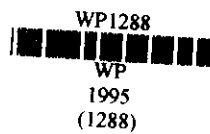


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Sources of India's Economic Growth

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Abstract

An attempt has been made in this study to estimate the sources of economic growth of Indian economy during the period 1960-61 to 1993-94. The study presents the estimates of the contributions made by various factors such as labour input, land input, capital input and total factor productivity to the average annual growth rate of (a) Indian economy as a whole; (b) the primary, the secondary and the tertiary sectors of the economy; and (c) the public sector as well as the private sector. An attempt has also been made to estimate the sources of acceleration in the growth rate of Indian economy during the post-1980-81 period.

Sources of India's Economic Growth

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1. The Background

Almost since the days of Adam Smith, economists have been concerned with the theme of economic growth. However, it is only during the post-war period that special attention has been given to a detailed analysis of the sources of economic growth. The empirical evidence emerging from the initial studies in this direction shed new light on the role of technological advance in the process of growth by assigning to it nearly half of the growth of national income and more than four-fifths of the growth of output per person employed in the United States.^{*1} These pioneering studies by Moses Abramovitz and Robert Solow have dealt a severe blow to the classical beliefs regarding the role of technological progress in economic development and in the process redressed the neo-classical under-emphasis on technology.

Technological progress is of course not a new phenomenon in human history. What is unique about the modern era, however, is the rapidity, depth and constancy of the flow of new technology. In the more distant past, the progress of technology like past economic development in general, was sporadic, uneven and comparatively slow; and it was certainly not so systematic and dependable as it has actually turned out to be in many developed countries during the last few decades. It is perhaps not so surprising, therefore, to find that the classical economists writing in the nineteenth century regarded technological change as an exogenous influence on the rate of economic development of a nation. It goes without saying that the findings relating to the role of "technological progress", or of "productivity increase" to use a more general term, would have surprised the classical writers. What is interesting to note, however, is that these findings surprised their authors also. Thus, for instance, Moses Abramovitz has remarked : "This result is surprising in the lopsided importance which it appears to give to productivity increase....Since we know little about the

causes of productivity increase, the indicated importance of this element may be taken to be some sort of measure of our ignorance about the causes of economic growth in the United States and some sort of indication of where we need to concentrate our attention".²

Of the several recent studies on this subject, the most comprehensive and far-reaching studies are those made by Edward Denison.³ In these path-breaking studies, the author estimates the contributions made by a wide range of identifiable sources to the growth rates of the American and the Northwest European economies. Such studies have, however, been confined to an analysis of the growth experience in some of the advanced western countries only, the most prominent among them being the United States. Little work seems to have been done in this direction for the majority of developed countries, which would have a much greater concern for rapid economic development. More specifically, the quantitative appraisal of India's economic growth especially during the last two decades, using the growth accounting framework, has yet to be made. As a result, our knowledge about the subject of Indian economic growth lacks both the comprehensiveness and the quantitative character which have become the salient features of the analysis of economic growth in the Western countries. While an earlier study carried out in the seventies attempted estimation of the sources of India's economic growth during the fifties and the sixties,⁴ such initial attempts would not shed any light on the sources of significant acceleration in India's economic growth during the eighties. Moreover, no attempt has been made to analyse the sources of growth at a more disaggregated level of broad sectoral categories by the type of activity or the type of institution.

The present study, which concentrates on the quantitative analysis of the sources of economic growth in India, is an attempt in the direction of filling up this serious lacuna in our knowledge about the process of economic growth in India during the last three decades. Following broadly the method adopted by E.F. Denison, it makes an attempt to quantify the importance of various sources of India's economic growth during the period 1960-61 to 1993-94, both at the aggregate level of the economy as a whole as well as at the disaggregated level of broad sectoral categories. An attempt has also been made to examine the sources of growth acceleration experienced during the eighties.

In a developing country such as India where rapid economic growth has become a national goal, such a study analysing the sources of growth assumes special significance not only because it helps to find out what has and what has not been important in the growth which has already occurred but also because of the obvious implications it has for the crucial decisions and policies that affect the future growth - its rate as well as pattern. In addition to this, it may also be noted here that a study of the sources of economic growth in India would provide useful information on the process of economic growth in a typical underdeveloped overpopulated country as distinguished from the more developed industrialized countries of the West. Moreover, it would pave the way for an analytical comparison of the sources and rates of growth in India as against some of the Western countries contributing thereby to a more systematic explanation of the question so often raised, viz., why growth rates differ. It is obvious, however, that in order to serve all these purposes adequately and satisfactorily, a well-directed sustained effort on a larger scale is required before any set of firmly established quantitative conclusions can be arrived at.

2. The Methodology

It is customary in the current discussions on the quantitative appraisals of the factors affecting the rate of economic growth to define "the sources of economic growth" as "the changes that cause national income to increase from one date to another".⁵⁵ Broadly speaking, these may be divided between changes in the resources (or factor inputs) used to produce the national product and changes affecting output per composite unit of factor inputs. The factor inputs usually include the three classical factors of production, viz., labour, land and capital (including enterprise).

The broad method of evaluating the contributions made by each of these conventional inputs and also by the so called "output per unit of input" to the growth rate of national income consists of the following steps:

- i) constructing a separate index for each of the factor inputs and deriving the average annual growth rates of various factor inputs from the indices so constructed:

- ii) Deriving an index of "total factor input" by combining the separate indices for various factor inputs in the same proportion as their relative shares in national income;
- iii) calculating the contribution made by each factor input to the growth rate of national income as the product of the growth rate of each factor input and its relative share in national income; and finally,
- iv) deriving the index of output per unit of input as a ratio of the index of national income and the index of total factor input, and calculating the average annual growth rate implicit in the index so derived which indicates (after a small adjustment, wherever necessary, for "the interaction factor") the contribution made by the increases in output per unit of (measured) Input.

Broadly speaking this method of analysis, which was introduced by Jacob Schmookler and by various economists at the National Bureau of Economic Research in the United States (NBER),^{*6} underlies Denison's approach to the problem of quantifying the importance of various sources of economic growth.^{*7} It is easy to see that this method of analysis is based on the so-called 'factor share approach' and it is based primarily on the theoretical framework provided by the well-known neo-classical theory of economic growth.^{*8} According to this framework, if Y_t denotes net output in period t , L_t , K_t and N_t denote labour, capital and land inputs (measured in real terms or in physical units) respectively in period t , and A_t denotes the efficiency of factor inputs in period t , then the production function, specifying the relationship between Y_t on the one hand and L_t , K_t , N_t & A_t can be written as :

$$Y_t = F (L_t, K_t, N_t, A_t) \quad \dots \dots (1)$$

Given this basic functional relationship, it follows that there are four fundamental sources of growth of output, viz., the growth of labour input, the growth of capital input, the growth of land input, and the increase in the efficiency of factor inputs. Hence, we get the following important functional relationship :

$$G_Y = f(G_L, G_K, G_N, G_A) \quad \dots \dots (2)$$

where G_Y , G_L , G_K , G_N and G_A denote the average annual rates of growth of net output,

labour input, capital input, land input and the overall efficiency of factor inputs, respectively, over a given period of time.

If we denote the elasticities of output with respect to labour input, capital input and land input by W_L , W_K and W_N respectively, and postulate that the production function represented by equation (1) above is linear and homogeneous (i.e., it exhibits constant returns to scale), then we can show that the functional relationship given in equation (2) turns out to be linear with W_L , W_K and W_N as the given slope parameters and G_A as the constant term. Thus, we arrive at the following relationship :

$$G_Y = W_L \cdot G_L + W_K \cdot G_K + W_N \cdot W_N + G_A \quad \dots \quad (3)$$

Given this equation it is evident that in order to estimate the rate of change in the overall efficiency of factor inputs (G_i), we require the estimates of G_Y , G_L , G_K , G_N , and W_L , W_K & and W_N . The estimation of the first four of these seven factors involves the derivation of an appropriate index for each of the four aggregates, viz., net output, labour input, capital input and land input.

The estimation of the remaining three factors, viz., W_L , W_K and W_N can be simplified from an empirical viewpoint, if we postulate that the productive system under consideration is operating under the conditions where the earnings of labour, capital and land are proportional to the value of their respective marginal products. The reason is that, under the conditions of proportionality between the observed factor earnings and the corresponding marginal products of factor inputs, the elasticities of output with respect to labour, capital and land turn out to be exactly equal to the relative shares of labour, capital and land, respectively, in the total net income originating from the process of production.⁹⁹ This, in turn, implies that in order to estimate W_L , W_K and W_N , we require the estimates of the functional distribution of income, i.e., the distribution of net product among labour, capital and land.

The precision of the estimates obtained through the method of using the relative factor shares to assess the contribution of factor inputs to output growth depends, apart from the validity of the basic postulate of proportionality between factor earnings and marginal

products, upon the degree to which the relative factor shares are insensitive to the changing factor proportions on the one hand and the changing technology on the other. The highest degree of precision is achieved only when the relative factor shares are completely independent of both the changing ratio of factor inputs and the changing technology. The former requires the elasticity of substitution among factor inputs to be equal to unity, and the latter requires that the technical progress should be neutral with respect to the given factor inputs.*¹⁰

In actual estimation, the bias resulting from any errors involved in the above assumptions or requirements can be minimised, first, by dividing the longer period under consideration into a number of sub-periods (say, each of about five years or so) and, then, by using the average value of relative factor prices within each sub-period as the estimates of the corresponding elasticities of output with respect to the respective factors of production. The first step in this procedure aims at restricting the above assumptions only to the shorter sub-periods, while the second step aims at eliminating the effect of the essentially short-term fluctuations in the relative factor shares on the corresponding estimates of elasticities.*¹¹

Finally, we may note that, although the method of using relative factor shares as the estimates of the corresponding factor elasticities of output for the purpose of estimating the contributions made by factor inputs to the growth rate of output suffers from some basic limitations,*¹² this method is widely used in empirical studies dealing with the quantitative aspects of economic growth. The reason evidently lies in its utmost simplicity coupled with the general belief that it yields results which in most cases provide reasonably good approximations to the underlying reality. Thus, the present study, which follows this method, is essentially based on the hypothesis that the estimates of relative factor shares provide an adequate basis for an analysis of the absolute and the relative contributions made by various factors to the growth of net output in Indian economy.

3. Growth of Net Output and Factor Inputs

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It is evident from the above methodology that in order to estimate the sources of economic growth in Indian economy, we need basic time-series data on net output and factor

inputs covering the entire period under consideration. For this purpose, net output is measured in terms of net domestic product at factor cost at 1980-81 prices, capital input is measured in terms of net capital stock at 1980-81 prices, land input is measured in terms of the actual land area available for productive use and labour input is measured in terms of the number of workers (man-years). While the data on NDP are directly available from *National Accounts Statistics (CSO)**¹³, the required time-series data on factor inputs are not directly available and the same have to be derived from various sources of official statistics relating to Indian economy. We have derived the estimates of working force from the basic information compiled from Population Census for 1961 to 1991 and various relevant rounds of National Sample Survey*¹⁴. Similarly we have derived the time-series of land area under productive use from the basic information on land utilisation statistics compiled from the relevant publications of the Ministry of Agriculture*¹⁵. The time-series of net capital stock is derived from the bench-mark estimates of net capital stock at 1980-81 prices and the corresponding time-series of net capital formation at 1980-81 prices. The basic time-series data on net output and factor inputs, so derived, are presented in *Appendix Table 1.1* for the entire economy and *Appendix Table 1.2* for the public and private sectors.

Given the basic time-series data on net output and factor inputs, we need the estimates of relative factor shares to estimate the growth rate of total factor input. We have obtained the required estimates of relative factor shares from a recent study on functional distribution of national income in Indian economy. *¹⁶ These estimates are presented in *Appendix Table 2.1* (for the entire economy) and *Appendix Table 2.2* (for public & private sectors). The index of total factor inputs (TFI) and the index of total factor productivity (TFP), derived from the time-series data on net output, factor inputs and average factor shares, are presented in *Appendix Table 3.1* for the entire economy and *Appendix Table 3.2* for the public & private sectors.

For analysing the underlined trends in the growth of net output and factor inputs in Indian economy, we have divided the entire period under consideration into the following two sub-periods : (a) 1960-61 to 1980-81 representing broadly the pre-liberalization period characterized by what is often referred to as "the Hindu rate of growth"; and (b) 1980-81 to 1993-94 representing the period marked by a noticeable acceleration in the pace of

economic growth. The average annual growth rates of net output and factor inputs for these two sub-periods and also for the period as a whole are shown in *Table 1.1* for the entire economy and *Table 1.2* for the public and private sectors.

It is evident from *Table 1.1* that there has been a significant increase in the average growth rate of NDP originating in every sector of the economy during the post-1980-81 period as compared to the earlier period. For the economy as a whole, the average growth rate shows an increase from 3.2% during pre-1980-81 period to around 5% during the post-1980-81 period. However, there is a marked difference in the pattern of growth of factor inputs across the three broad sectors of the economy. Thus, for instance, the growth rate of labour input shows a significant decline in the primary sector, a marginal decline in the secondary sector and a marginal increase in the tertiary sector. Similarly, the growth rates of capital input and land input show a clear decline in the primary & secondary sectors and a marked increase in the tertiary sector. As a result, the growth of total factor input shows a significant decline in the primary sector, a marginal decline in the secondary sector and a significant increase in the tertiary sector.

It is interesting to observe that notwithstanding such differential patterns of growth of net output and factor inputs in different sectors of the economy, the growth rate of total factor productivity has shown a significant increase in every sector of the economy during the post-1980-81 period as compared to the pre-1980-81 period. Thus, the average growth rate of TFP has increased from 0.28% to 2.12% in the primary sector, from 0.04% to 1.66% in the secondary sector and from 0.97% to 2.19% in the tertiary sector. For the economy as a whole, the increase in the growth rate of TFP has been from 0.74% during the pre-1980-81 period to 2.64% during the post-1980-81 period.

Table 1.1
Growth Rates of Net Output and Factor Inputs : Entire Economy

(Per Cent)			
	1960-61 to 1980-81	1980-81 to 1993-94	1960-61 to 1993-94
<i>Primary Sector</i>			
Labour	1.62	1.01	1.38
Land	0.52	0.17	0.38
Capital	3.60	3.21	3.45
TFI	1.53	1.04	1.34
TFP	0.28	2.12	1.00
NDP	1.81	3.18	2.35
<i>Secondary Sector</i>			
Labour	3.78	3.62	3.72
Land	2.12	1.26	1.78
Capital	5.95	5.10	5.61
TFI	4.37	3.94	4.20
TFP	0.04	1.66	0.67
NDP	4.41	5.67	4.90
<i>Tertiary Sector</i>			
Labour	3.63	3.86	3.72
Land	0.91	1.05	0.96
Capital	3.54	4.42	3.88
TFI	3.46	3.97	3.66
TFP	0.97	2.19	1.45
NDP	4.46	6.25	5.16
<i>All Sectors</i>			
Labour	2.15	1.93	2.07
Land	0.59	0.26	0.46
Capital	4.26	4.44	4.33
TFI	2.43	2.26	2.36
TFP	0.74	2.64	1.48
NDP	3.18	4.96	3.88

Source: Appendix Table 1.1.

Table 1.2 Growth Rates of Net Output and Factor Inputs : Public & Private Sectors			
(Per Cent)			
	1960-61 to 1980-81	1980-81 to 1993-94	1960-61 to 1993-94
<i>Public Sector</i>			
Labour	4.15	1.98	3.29
Land	3.22	1.21	2.43
Capital	6.73	4.88	6.00
TFI	4.32	2.18	3.47
TFP	3.51	5.37	4.24
NDP	7.98	7.67	7.86
<i>Private Sector</i>			
Labour	2.06	1.93	2.01
Land	0.53	0.23	0.41
Capital	3.01	4.10	3.43
TFI	2.02	2.18	2.08
TFP	0.54	2.04	1.13
NDP	2.57	4.26	3.23

Source: Appendix Table 1.2.

A comparison of the growth rates of net output and factor inputs in the public sector and the private sector presented in Table 1.2 reveals contrasting patterns. While the growth rate of NDP in public sector has marginally declined, the growth of NDP in private sector has increased significantly during the post-1980-81 period. Similarly, the growth rate of total factor input has declined significantly in the public sector, while it shows a noticeable increase in the private sector, mainly on account of a significant acceleration in the growth of capital input. However, it is interesting to find that the average growth rate of total factor productivity has shown a significant increase in both the public sector as well as the private sector during the post-1980-81 period.

4. Analysis of the Sources of Growth

Based on the time-series of net output and factor inputs and the estimates of average factor shares, we have derived the estimates of the sources of growth of Indian economy by applying the methodology described in *Section 2* above. Our estimates of the absolute as well as the relative contribution made by each factor input, total factor input and total factor productivity to the observed growth rate of real NDP are presented in *Table 2.1* for the economy as a whole and also for the three broad sectors of the economy.

It is evident from *Table 2.1* that there has been a significant change in the contribution made by different sources of growth during the post-1980-81 period as compared to the earlier period. For the economy as a whole, labour and capital were the major sources of growth during the sixties & the seventies, while total factor productivity has turned out to be the most important source of growth during the post-1980-81 period. The relative contribution of TFP growth to the overall NDP growth has increased sharply from 23% during the pre-1980-81 period to 54% during the post-1980-81 period. It is significant to observe that the contribution of TFP growth has increased considerably both in absolute as well as relative terms in each of the three broad sectors of the economy. Thus, during the post-1980-81 period, TFP growth accounts for more than two-thirds of the growth of primary sector as against only 15% during the earlier period. Similarly, in the secondary sector, TFP growth accounted for less than 1% of the observed sectoral NDP growth during the sixties & the seventies, while it accounts for 30% of the overall growth during the post-1980-81 period.

It is interesting to observe that labour input continues to play a major role in the growth of both the secondary as well as the tertiary sectors during the recent years, though its relative contribution has declined with the passage of time. Similarly, the growth of capital has been found to be an important source of growth in the secondary and the tertiary sectors during the post-1980-81 period as well, though its relative importance as a source of growth has declined over the years. However, in the case of the primary sector, the significance of capital input as a source of growth has declined sharply from around 26% during the pre-1980-81 period to around 13% during the post-1980-81 period. Finally, the contribution of land input has declined in absolute as well as relative terms during the post-1980-81 period as compared to the earlier period in each of the three broad sectors, though it may be noted that land was not a major source of growth even during the earlier period.

Table 2.1 : Sources of Economic Growth - Entire Economy

(Absolute Contribution in Percentage Points & Relative Contribution in Per Cent)

	1960-61 to 1980-81		1980-81 to 1993-94		1960-61 to 1993-94	
	Absolute Contribution	Relative Contribution	Absolute Contribution	Relative Contribution	Absolute Contribution	Relative Contribution
<i>Primary Sector</i>						
Labour	0.89	49.24	0.58	18.24	0.77	32.77
Land	0.17	9.19	0.04	1.26	0.12	5.10
Capital	0.47	25.82	0.43	13.52	0.45	19.15
TFI	1.53	84.25	1.05	33.02	1.34	57.02
TFP	0.28	15.47	2.13	66.98	1.01	42.98
NDP	1.81	100.00	3.18	100.00	2.35	100.00
<i>Secondary Sector</i>						
Labour	2.59	58.78	2.41	42.50	2.52	51.43
Land	0.08	1.83	0.04	0.71	0.06	1.22
Capital	1.70	38.48	1.54	27.16	1.64	33.47
TFI	4.37	99.09	3.99	70.37	4.22	86.12
TFP	0.04	0.91	1.68	29.63	0.68	13.88
NDP	4.41	100.00	5.67	100.00	4.90	100.00
<i>Tertiary Sector</i>						
Labour	2.13	47.74	2.64	42.24	2.31	44.77
Land	0.04	0.87	0.03	0.48	0.04	0.78
Capital	1.32	29.64	1.35	21.60	1.35	26.16
TFI	3.49	78.25	4.02	64.32	3.70	71.71
TFP	0.97	21.75	2.23	35.68	1.46	28.29
NDP	4.46	100.00	6.25	100.00	5.16	100.00
<i>All Sectors</i>						
Labour	1.29	40.49	1.21	24.40	1.26	32.47
Land	0.10	3.21	0.03	0.60	0.07	1.81
Capital	1.05	33.03	1.05	21.17	1.05	27.06
TFI	2.44	76.73	2.29	46.17	2.38	61.34
TFP	0.74	23.27	2.67	53.83	1.50	38.66
NDP	3.18	100.00	4.96	100.00	3.88	100.00

Having analysed the sources of growth for the economy as a whole, it would be interesting to examine the sources of growth of the public sector & the private sector. This analysis is presented in *Table 2.2*.

Table 2.2 Sources of Economic Growth - Public and Private Sectors						
(Absolute Contribution in Percentage Points & Relative Contribution in Per Cent)						
	1960-61 to 1980-81		1980-81 to 1993-94		1960-61 to 1993-94	
	Absolute Contribution	Relative Contribution	Absolute Contribution	Relative Contribution	Absolute Contribution	Relative Contribution
<i>Public Sector</i>						
Labour	3.80	47.56	1.31	17.08	2.63	33.49
Land	0.02	0.26	0.01	0.13	0.02	0.25
Capital	0.58	7.32	0.89	11.60	0.78	9.86
TFI	4.40	55.14	2.21	28.81	3.43	43.60
TFP	3.58	44.86	5.46	71.19	4.32	54.96
NDP	7.98	100.00	7.67	100.00	7.86	100.00
<i>Private Sector</i>						
Labour	1.13	43.96	1.16	27.23	1.14	35.29
Land	0.10	4.00	0.03	0.70	0.07	2.17
Capital	0.80	31.03	1.01	23.71	0.88	27.25
TFI	2.03	78.79	2.20	51.64	2.09	64.71
TFP	0.54	21.01	2.06	48.36	1.14	35.29
NDP	2.57	100.00	4.26	100.00	3.23	100.00

Table 2.2 reveals that the contributions made by different sources to the observed growth of both public sector as well as private sector have undergone significant changes during the post-1980-81 period as compared to the earlier period. Thus, in the case of public sector, the contribution of labour input has declined sharply from around 48% during the pre-

1980-81 period to only 17% during the post-1980-81 period, while the contribution of TFP growth has increased from 45% to 71% during the same period. A similar pattern is also observed in the case of the private sector. However, it is interesting to observe that the absolute contribution made by the capital input to the overall growth shows an increase in both the public sector as well as the private sector. In relative terms, the contributions of capital input as well as labour input are found to be much higher in the private sector as compared to the public sector during the post-1980-81 period, indicating that the growth of factor input continues to play a significant role in the growth of the private sector even in the more recent period.

5. Sources of Growth Acceleration

Since the growth rate of Indian economy accelerated significantly during the eighties & the nineties, it would be interesting to examine the sources of accelerated growth. Table 3 presents a broad analysis of the sources of acceleration for the economy as a whole and also for the public sector and the private sector.

Source	Entire Economy	Public Sector	Private Sector
Labour	-0.08	-2.49	0.03
Land	-0.07	-0.01	-0.07
Capital	0.00	0.31	0.21
TFI	-0.15	-2.19	0.17
TFP	1.93	1.88	1.52
NDP	1.78	-0.31	1.69

The average rate of growth of Indian economy increased from 3.18% during the period 1960-61 to 1980-81 to 4.96% during the period 1980-81 to 1993-94 indicating an acceleration of 1.78 percentage points in the growth rate. It is evident from the analysis

presented in Table 3 that the entire acceleration in the overall growth rate of Indian economy can be attributed to the corresponding acceleration in the growth of total factor productivity. In fact, the growth of total factor input made a marginal negative contribution implying that the overall growth rate of Indian economy would have turned out to be lower during the post-1980-81 period, if there had been no change in the growth of TFP. Thus, the buoyancy in the growth of Indian economy experienced during the eighties and the first half of nineties appears to be mainly on account of the rapid growth of total factor productivity, with the aggregate supply of factor input in the economy growing at more or less the same rate during the post-1980-81 period.

It would be interesting to compare the experience of public sector and private sector with regard to the sources of change in the overall growth rate. The average growth rate of NDP originating in the private sector increased from 2.57% during the pre-1980-81 period to 4.26% during the post-1980-81 period. As against this, the growth rate of public sector marginally declined from 7.98% to 7.67% over the same period. The analysis presented in Table 3 shows that the growth rate of public sector would have actually been higher by 1.88 percentage points, if the supply of factor inputs to the public sector had continued to grow at the same rate during the post-1980-81 period as observed during the earlier period. The marginal deceleration in the growth of public sector is, therefore, entirely on account of the sharp reduction in the growth of total factor inputs, especially the labour input. In fact, it is the accelerated growth of TFP which has largely offset the negative impact of slower growth of factor supply in the public sector.

The significant acceleration in the growth of private sector during the post-1980-81 period is mainly due to the corresponding acceleration in the growth of TFP. Our estimates indicate that growth of total factor input accounts for only 10% of the acceleration in the growth of private sector, while growth of TFP accounts for 90% of the observed growth acceleration. It is interesting to observe that the acceleration in the growth of total factor input in the private sector is largely on account of the accelerated growth of capital input. Thus, the sharp increase in the growth of private sector observed during the post-1980-81 period has been brought about by a significant increase in the growth of factor productivity and also by a considerable increase in the growth of capital invested in the private sector.

References

1. Moses Abramovitz : "Resource and Output Trends in the United States Since 1870". *American Economic Review*, May 1956; and Robert M. Solow : "Technical Change and the Aggregate Production Function", *Review of Economics and Statistics*, Vol. 39, August 1957.
2. Moses Abramovitz : "Resource and Output Trends in the United States Since 1870", *op. cit.*, p. 11.
3. These studies carried out by E.F. Denison are : (i) *The Sources of Economic Growth in the United States and the Alternatives before Us*, (New York : Committee for Economic Development, 1962); (ii) *Why Growth Rates Differ : Post-war Experience in Nine Western Countries*, (Washington : The Brookings Institution, 1967); (iii) *Accounting for Slower Economic Growth : The United States in the 1970s*, (Washington : The Brookings Institution, 1979); and (iv) *Trends in American Economic Growth 1929-1982*, (Washington : The Brookings Institution, 1985).
4. Cf. Bakul H. Dholakia : *The Sources of Economic Growth in India*, (Baroda : Good Companions, 1974).
5. E.F. Denison : *Why Growth Rates Differ*, *op. cit.*, p.7.
6. See (i) Jacob Schmookler : "The Changing Efficiency of the American Economy, 1869-1938", *Review of Economics and Statistics*, August 1952, pp. 214-231; (ii) F.C. Mills : *Productivity and Economic Progress*, NBER Occasional Paper 38, New York, 1952; (iii) Solomon Fabricant : *Basic Facts on Productivity Change*, NBER Occasional Paper 63, 1959; (iv) Moses Abramovitz : *Resource and Output Trends in the United States since 1870*, NBER Occasional Paper 52, New York 1956; and (v) Kendrick : *Productivity Trends in the United States*, Study by the NBER, Princeton 1961.
7. Moses Abramovitz : "Economic Growth in the United States - A Review Article in *The American Economic Review*, Sept. 1962.
8. For a detailed discussion of the neo-classical growth model and its application to the empirical analysis of economic growth, see (i) J.E. Meade : *A Neo-Classical Theory of Economic Growth* (London : George Allen & Unwin Ltd., 1962) Chapters 1 to 4; (ii) E.F. Denison : *Why Growth Rates Differ* (Washington : The Brookings Institution, 1967) Chapter 4; and (iii) Bakul H. Dholakia : *The Sources of Economic Growth in India* (Baroda: Good Companions, 1974), Ch.1.
9. For a rigorous proof of this proposition, see J.E. Meade, *Op. cit.*, Ch. 2. See also, R.G.D. Allen : *Macro-Economic Theory : A Mathematical Treatment* (London : Macmillan, 1968), Ch.3.

10. For a discussion of the relationships among the relative factor shares, the elasticity of substitution and the type of technical progress, see J.R. Hicks : *The Theory of Wages* (London : Macmillan, Second Edition, 1963). See also, J.E. Meade: *Op. cit.*
11. For details, see, (i) E.F. Denison: *Op. cit.*, p. 36; and (ii) Bakul H. Dholakia : *Op. cit.*, p.9 and pp. 204-205.
12. For a discussion of the major limitations of this method, see Bakul H. Dholakia : *Op. cit.*, Ch.1.
13. Central Statistical Organization : *National Accounts Statistics* (various issues from 1976 to 1994) and *Note on Advance Estimates*, January 1995.
14. National Sample Survey : "Key Results of Employment & Unemployment Survey", NSS 43rd Round, *Special Report No. 1*, 1990.
15. Cf. (a) Ministry of Agriculture : *Indian Agriculture in Brief* (Various Issues); and (b) Central Statistical Organization : *Statistical Abstract of the Indian Union* (Various Issues).
16. Bakul H. Dholakia : "Functional Distribution of National Income in Indian Economy", Indian Institute of Management, Ahmedabad, 1995 (Mimeo.).

Appendix Table 1.1 : Time Series of Net Output and Factor Inputs - Entire Economy

Year	Primary Sector				Secondary Sector			
	NDP (Rs. Crores)	Workers (^{'000} Man Years)	Land (^{'000} Ha.)	Capital (Rs. Crores)	NDP (Rs. Crores)	Workers (^{'000} Man Years)	Land (^{'000} Ha.)	Capital (Rs. Crores)
1960-61	31814	145136	187514	36949	10712	17267	5427	40514
1961-62	31828	147833	190158	37898	11504	17898	5532	43527
1962-63	31233	150582	197448	38880	12214	18555	5638	46657
1963-64	31967	153381	197698	40044	13457	19236	5742	50077
1964-65	34835	156234	198737	41379	14393	19938	5875	53598
1965-66	30941	159142	198007	42720	14629	20664	5949	57581
1966-67	30427	162104	199649	44019	14927	21419	6023	62209
1967-68	34995	165122	202293	45412	15154	22197	6100	66553
1968-69	34896	168198	202402	46875	15910	23003	6173	69752
1969-70	37186	171333	205011	48470	17331	23839	6324	72969
1970-71	39738	174526	204454	50068	17601	24705	6629	76852
1971-72	38912	177634	206224	51619	18065	25624	6694	80930
1972-73	36886	180655	204481	53305	18673	26598	6763	84826
1973-74	39505	182687	208719	55122	18965	27692	6831	88855
1974-75	38874	184738	204055	56905	19203	28824	7027	94057
1975-76	44046	186813	208616	58994	20127	29996	7164	99734
1976-77	41363	188911	206978	61882	22103	31206	7296	104450
1977-78	45489	191031	209432	64911	23702	32460	7379	109141
1978-79	46439	194012	210873	68117	25959	33687	7952	115617
1979-80	40221	197044	206911	71728	24756	34952	8092	122966
1980-81	45565	200128	207983	74958	25381	36260	8260	128637
1981-82	48416	203209	209934	77948	27324	37542	8313	135027
1982-83	47814	206283	208603	81613	28415	38793	8365	143630
1983-84	52944	209407	210282	85281	31113	40079	8533	151432
1984-85	52766	209897	207776	88487	32984	42216	8636	158353
1985-86	52847	210359	208459	91777	34413	44397	8680	165951
1986-87	52126	210796	207394	94927	36808	46627	8778	174282
1987-88	52255	211203	207753	97941	39207	48902	8918	183517
1988-89	61228	211556	209555	100821	42731	50704	9057	194825
1989-90	62269	211844	209915	103693	47425	52530	9182	206502
1990-91	64826	215788	210275	106636	50357	53750	9336	217895
1991-92	63135	219803	210636	109154	49099	55002	9462	228031
1992-93	66462	223895	210997	111189	50578	56284	9588	236699
1993-94	68440	228063	212738	112993	52002	57596	9715	245630

Appendix Table 1.1 continued

Appendix Table 1.1 concluded.

Year	Tertiary Sector				All Sectors			
	NDP (Rs. Crores)	Workers ('000 Man Years)	Land ('000 Ha.)	Capital (Rs. Crores)	NDP (Rs. Crores)	Workers ('000 Man Years)	Land ('000 Ha.)	Capital (Rs. Crores)
1960-61	16448	24062	9150	83454	58974	186465	202091	160917
1961-62	17333	24917	9179	86727	60665	190648	204869	168152
1962-63	18289	25797	9208	90025	61736	194934	212294	175562
1963-64	19367	26707	9233	93914	64791	199324	212673	184035
1964-65	20451	27643	9301	97953	69679	203815	213913	192930
1965-66	20948	28609	9273	101719	66518	208415	213229	202020
1966-67	21499	29600	9244	105087	66853	213123	214916	211315
1967-68	22310	30626	9220	108361	72459	217945	217613	220326
1968-69	23375	31682	9190	111275	74181	222883	217765	227902
1969-70	24620	32768	9274	113822	79137	227940	220609	235261
1970-71	25833	33889	9579	117054	83172	233120	220662	243974
1971-72	26756	35088	9594	121241	83733	238346	222512	253790
1972-73	27483	36368	9609	125641	83042	243621	220853	263772
1973-74	28337	37748	9623	130421	86807	248127	225173	274398
1974-75	29451	39166	9817	135227	87528	252728	220899	286189
1975-76	31568	40617	9924	140282	95741	257426	225704	299010
1976-77	33071	42101	10017	145896	96537	262218	224291	312228
1977-78	34795	43625	10044	150644	103986	267116	226855	324696
1978-79	37270	45395	10734	155708	109668	273094	229559	339442
1979-80	37817	47225	10829	161347	102794	279221	225832	356041
1980-81	39394	49115	10961	167245	110340	285503	227204	370840
1981-82	41361	50965	11001	175433	117101	291716	229248	388408
1982-83	44091	52765	11040	183730	120320	297841	228008	408973
1983-84	46339	54618	11232	190532	130396	304104	230047	427245
1984-85	49235	56375	11338	197616	134985	308488	227750	444456
1985-86	52966	58186	11366	206477	140226	312942	228505	464205
1986-87	57044	60043	11464	216389	145978	317466	227636	485598
1987-88	60526	61954	11614	224397	151988	322059	228285	505855
1988-89	65027	67290	11764	233405	168986	329550	230376	529051
1989-90	71229	72844	11928	244220	180923	337218	231025	554415
1990-91	74272	74660	12063	256182	189455	344198	231674	580713
1991-92	78208	76523	12226	268359	190442	351328	232324	605544
1992-93	81793	78436	12389	280695	198833	358615	232974	628583
1993-94	86599	80397	12555	293452	207041	366056	235008	652075

Appendix Table 1.2 : Time Series on Net Output and Factor Inputs - Public & Private Sectors

Year	Public Sector				Private Sector			
	NDP (Rs. Crores)	Workers ('000 Man Years)	Land ('000 Ha.)	Capital (Rs. Crores)	NDP (Rs. Crores)	Workers ('000 Man Years)	Land ('000 Ha.)	Capital (Rs. Crores)
1960-61	4151	6783	3591	42741	54823	179682	198500	118176
1961-62	4632	7235	3714	46591	56033	183413	201155	121561
1962-63	5457	7687	3840	50784	56279	187247	208454	124778
1963-64	5955	8206	3967	55672	58836	191118	208706	128363
1964-65	6424	8707	4115	60944	63255	195108	209798	131986
1965-66	7001	9169	4229	66516	59517	199246	209000	135504
1966-67	7379	9509	4345	71792	59474	203614	210571	139523
1967-68	7837	9720	4466	76541	64622	208225	213147	143785
1968-69	8508	9951	4587	80857	65673	212932	213178	147045
1969-70	9209	10237	4762	84697	69928	217703	215847	150564
1970-71	10093	10554	5046	88883	73079	222566	215616	155091
1971-72	10671	10972	5138	93744	73062	227374	217374	160046
1972-73	11312	11591	5235	99456	71730	232030	215618	164316
1973-74	12547	12227	5334	105624	74260	235900	219839	168774
1974-75	12707	12671	5523	111452	74821	240057	215376	174737
1975-76	13853	13095	5674	118088	81888	244331	220030	180922
1976-77	15365	13547	5826	126236	81172	248671	218465	185992
1977-78	16027	13986	5948	133787	87959	253130	220907	190909
1978-79	17205	14440	6410	141141	92463	258654	223149	198301
1979-80	17829	14879	6580	149494	84965	264342	219252	206547
1980-81	19276	15284	6774	157160	91064	270219	220430	213680
1981-82	19795	15717	6816	165556	97306	275999	222432	222852
1982-83	21900	16205	6857	175969	98420	281636	221151	233004
1983-84	23212	16665	6980	186067	107184	287439	223067	241178
1984-85	25117	17072	7058	196147	109868	291416	220692	248309
1985-86	27622	17479	7096	207080	112604	295463	221409	257125
1986-87	30402	17856	7171	218475	115576	299610	220465	267123
1987-88	32601	18175	7275	229210	119387	303884	221010	276645
1988-89	35669	18385	7378	239340	133317	311165	222998	289711
1989-90	38997	18551	7487	250211	141926	318567	223538	304204
1990-91	40170	18914	7585	261743	149285	325284	224089	318970
1991-92	44135	19180	7694	272584	146307	332148	225956	332960
1992-93	46025	19443	7805	282169	152808	339172	226521	346414
1993-94	50381	19710	7918	291981	156660	346346	227090	360094

Appendix Table 2.1 Average Weights of Factor Inputs : Entire Economy				
Years	Labour	Capital	Land	Total
<i>Primary Sector</i>				
1960-61 to 1965-66	52.72	13.04	34.24	100.00
1965-66 to 1970-71	53.07	13.02	33.91	100.00
1970-71 to 1975-76	53.42	12.99	33.59	100.00
1975-76 to 1980-81	53.50	13.04	33.46	100.00
1980-81 to 1985-86	53.77	13.03	33.20	100.00
1985-86 to 1990-91	54.14	13.00	32.86	100.00
1990-91 to 1993-94	54.24	13.04	32.72	100.00
1960-61 to 1980-81	55.02	12.98	32.00	100.00
1980-81 to 1993-94	59.46	13.84	26.70	100.00
1960-61 to 1993-94	56.75	13.33	29.92	100.00
<i>Secondary Sector</i>				
1960-61 to 1965-66	65.35	29.92	4.73	100.00
1965-66 to 1970-71	65.78	29.65	4.57	100.00
1970-71 to 1975-76	66.75	28.90	4.35	100.00
1975-76 to 1980-81	67.81	28.07	4.12	100.00
1980-81 to 1985-86	68.62	27.47	3.91	100.00
1985-86 to 1990-91	69.61	26.70	3.69	100.00
1990-91 to 1993-94	70.37	26.13	3.50	100.00
1960-61 to 1980-81	67.96	28.27	3.77	100.00
1980-81 to 1993-94	66.93	30.18	2.89	100.00
1960-61 to 1993-94	67.55	29.03	3.42	100.00
Appendix Table 2.1 Continued.				

Appendix Table 2.1 Concluded				
<i>Tertiary Sector</i>				
1960-61 to 1965-66	53.42	41.35	5.23	100.00
1965-66 to 1970-71	53.85	41.06	5.09	100.00
1970-71 to 1975-76	54.21	40.82	4.97	100.00
1975-76 to 1980-81	54.77	40.41	4.82	100.00
1980-81 to 1985-86	55.40	39.93	4.67	100.00
1985-86 to 1990-91	56.52	39.00	4.48	100.00
1990-91 to 1993-94	57.53	38.17	4.30	100.00
1960-61 to 1980-81	58.49	37.24	4.27	100.00
1980-81 to 1993-94	67.23	30.05	2.72	100.00
1960-61 to 1993-94	61.90	34.44	3.66	100.00
<i>All Sectors</i>				
1960-61 to 1965-66	55.48	25.69	18.83	100.00
1965-66 to 1970-71	55.87	25.55	18.58	100.00
1970-71 to 1975-76	56.29	25.20	18.51	100.00
1975-76 to 1980-81	56.67	24.77	18.56	100.00
1980-81 to 1985-86	57.14	24.39	18.47	100.00
1985-86 to 1990-91	57.88	23.95	18.17	100.00
1990-91 to 1993-94	58.42	23.60	17.98	100.00
1960-61 to 1980-81	58.82	24.21	16.97	100.00
1980-81 to 1993-94	64.25	24.03	11.72	100.00
1960-61 to 1993-94	60.94	24.15	14.91	100.00
Source:	Dholakia, Bakul H. (1995), "Functional Distribution of National Income in Indian Economy", Indian Institute of Management, Ahmedabad.			

Appendix Table 2.2: Average Weights of Factor Inputs : Public and Private Sectors				
Years	Labour	Capital	Land	Total
<i>Public Sector</i>				
1960-61 to 1965-66	93.24	6.19	0.57	100.00
1965-66 to 1970-71	92.86	6.56	0.58	100.00
1970-71 to 1975-76	92.83	6.60	0.57	100.00
1975-76 to 1980-81	92.71	6.72	0.57	100.00
1980-81 to 1985-86	92.83	6.62	0.55	100.00
1985-86 to 1990-91	92.58	6.87	0.55	100.00
1990-91 to 1993-94	92.38	7.07	0.55	100.00
1960-61 to 1980-81	90.74	8.61	0.65	100.00
1980-81 to 1993-94	77.41	21.43	1.16	100.00
1960-61 to 1993-94	85.36	13.79	0.85	100.00
<i>Private Sector</i>				
1960-61 to 1965-66	51.47	27.76	20.77	100.00
1965-66 to 1970-71	51.81	27.63	20.56	100.00
1970-71 to 1975-76	52.22	27.27	20.51	100.00
1975-76 to 1980-81	52.59	26.81	20.60	100.00
1980-81 to 1985-86	53.01	26.44	20.55	100.00
1985-86 to 1990-91	53.70	26.01	20.29	100.00
1990-91 to 1993-94	54.19	25.65	20.16	100.00
1960-61 to 1980-81	54.46	26.31	19.23	100.00
1980-81 to 1993-94	60.55	24.69	14.76	100.00
1960-61 to 1993-94	56.87	25.66	17.47	100.00
Source:	Dholakia, Bakul H. (1995), "Functional Distribution of National Income in Indian Economy", Indian Institute of Management, Ahmedabad.			

Appendix Table 3.1 : Indexes of Net Output, Total Factor Input and Total Factor Productivity : Entire Economy

Year	Primary Sector			Secondary Sector		
	NDP	TFI	TFP	NDP	TFI	TFP
1960-61	100.00	100.00	100.00	100.00	100.00	100.00
1961-62	100.04	101.80	98.28	107.39	104.70	102.57
1962-63	98.17	104.47	93.97	114.02	109.60	104.04
1963-64	100.48	105.95	94.84	125.63	114.79	109.44
1964-65	109.50	107.64	101.72	134.36	120.16	111.82
1965-66	97.26	109.04	89.19	136.57	125.92	108.46
1966-67	95.64	110.86	86.27	139.35	132.01	105.56
1967-68	110.00	112.91	97.42	141.47	138.02	102.50
1968-69	109.69	114.53	95.77	148.53	143.40	103.57
1969-70	116.89	116.69	100.17	161.79	148.98	108.60
1970-71	124.91	118.28	105.60	164.31	155.27	105.83
1971-72	122.31	120.23	101.73	168.64	161.57	104.38
1972-73	115.94	121.50	95.43	174.32	168.00	103.76
1973-74	124.17	123.61	100.45	177.04	175.01	101.16
1974-75	122.19	124.00	98.54	179.27	183.00	97.96
1975-76	138.45	126.28	109.64	187.89	191.37	98.18
1976-77	130.02	127.51	101.96	206.34	199.29	103.54
1977-78	142.98	129.62	110.31	221.27	207.33	106.72
1978-79	145.97	131.88	110.68	242.34	216.76	111.80
1979-80	126.43	133.19	94.92	231.11	226.34	102.10
1980-81	143.22	135.42	105.76	236.94	235.24	100.72
1981-82	152.18	137.67	110.55	255.08	244.22	104.45
1982-83	150.29	139.36	107.85	265.26	254.16	104.37
1983-84	166.42	141.72	117.42	290.45	264.00	110.02
1984-85	165.86	142.11	116.71	307.92	277.10	111.12
1985-86	166.11	143.20	116.00	321.26	290.68	110.52
1986-87	163.85	143.76	113.97	343.61	304.86	112.71
1987-88	164.25	144.61	113.59	366.01	319.72	114.48
1988-89	192.46	145.73	132.07	398.91	333.39	119.65
1989-90	195.73	146.50	133.61	442.73	347.33	127.47
1990-91	203.77	148.63	137.10	470.10	358.41	131.16
1991-92	198.45	150.67	131.71	458.36	368.81	124.28
1992-93	208.91	152.65	136.85	472.16	378.72	124.67
1993-94	215.13	154.94	138.84	485.46	388.88	124.83

Appendix Table 3.1 contd..

Appendix Table 3.1 concluded

Year	Tertiary Sector			All Sectors		
	NDP	TFI	TFP	NDP	TFI	TFP
1960-61	100.00	100.00	100.00	100.00	100.00	100.00
1961-62	105.38	103.54	101.78	102.87	102.66	100.20
1962-63	111.19	107.14	103.78	104.68	105.81	98.94
1963-64	117.75	111.10	105.98	109.86	108.50	101.25
1964-65	124.34	115.22	107.91	118.15	111.37	106.09
1965-66	127.36	119.22	106.83	112.79	114.13	98.83
1966-67	130.71	123.04	106.23	113.36	117.08	96.82
1967-68	135.64	126.90	106.88	122.87	120.12	102.28
1968-69	142.11	130.66	108.77	125.79	122.74	102.48
1969-70	149.68	134.37	111.39	134.19	125.64	106.81
1970-71	157.06	138.64	113.28	141.03	128.48	109.77
1971-72	162.67	143.34	113.49	141.98	131.61	107.88
1972-73	167.09	148.31	112.66	140.81	134.39	104.78
1973-74	172.28	153.70	112.09	147.20	137.66	106.92
1974-75	179.06	159.30	112.40	148.42	140.20	105.87
1975-76	191.93	165.04	116.29	162.34	143.87	112.84
1976-77	201.06	171.09	117.52	163.69	146.80	111.51
1977-78	211.55	176.76	119.68	176.33	150.14	117.44
1978-79	226.59	183.66	123.38	185.96	154.11	120.67
1979-80	229.92	190.49	120.70	174.30	157.59	110.61
1980-81	239.51	197.61	121.20	187.10	161.50	115.85
1981-82	251.47	205.63	122.29	198.56	165.65	119.87
1982-83	268.06	213.58	125.51	204.02	169.65	120.26
1983-84	281.73	221.09	127.43	221.11	173.88	127.16
1984-85	299.34	228.43	131.04	228.89	176.82	129.44
1985-86	322.02	236.67	136.06	237.78	180.46	131.76
1986-87	346.81	245.47	141.29	247.53	183.84	134.65
1987-88	367.98	253.58	145.12	257.72	187.35	137.56
1988-89	395.35	270.01	146.42	286.54	192.31	149.00
1989-90	433.06	287.77	150.49	306.78	197.32	155.47
1990-91	451.56	297.42	151.83	321.25	202.20	158.88
1991-92	475.49	307.26	154.75	322.23	206.78	156.17
1992-93	497.28	317.28	156.73	337.15	211.28	159.58
1993-94	526.50	327.60	160.71	351.07	216.08	162.47

Appendix Table 3.2 : Indexes of Net Output, Total Factor Input and Total Factor Productivity : Public & Private Sectors

Year	Public Sector			Private Sector		
	NDP	TFI	TFP	NDP	TFI	TFP
1960-61	100.00	100.00	100.00	100.00	100.00	100.00
1961-62	111.59	106.79	104.49	102.21	102.14	100.06
1962-63	131.46	113.63	115.69	102.66	104.76	97.99
1963-64	143.46	121.49	118.08	107.32	106.74	100.55
1964-65	154.76	129.17	119.81	115.38	108.84	106.00
1965-66	168.66	136.34	123.70	108.56	110.77	98.00
1966-67	177.76	141.77	125.39	108.48	113.11	95.91
1967-68	188.80	145.34	129.90	117.87	115.68	101.89
1968-69	204.96	149.14	137.43	119.79	117.78	101.71
1969-70	221.85	153.63	144.40	127.55	120.24	106.08
1970-71	243.15	158.63	153.28	133.30	122.64	108.70
1971-72	257.07	165.05	155.75	133.27	125.29	106.37
1972-73	272.51	174.38	156.28	130.84	127.35	102.74
1973-74	302.26	183.99	164.28	135.45	129.92	104.26
1974-75	306.12	190.91	160.35	136.48	131.88	103.49
1975-76	333.73	197.63	168.86	149.37	134.98	110.66
1976-77	370.15	204.90	180.65	148.06	137.06	108.03
1977-78	386.10	211.92	182.19	160.44	139.65	114.89
1978-79	414.48	219.19	189.09	168.66	143.01	117.93
1979-80	429.51	226.31	189.79	154.98	145.82	106.28
1980-81	464.37	232.87	199.41	166.11	149.11	111.40
1981-82	476.87	239.83	198.84	177.49	152.77	116.18
1982-83	527.58	247.76	212.94	179.52	156.11	115.00
1983-84	559.19	255.28	219.05	195.51	159.58	122.51
1984-85	605.08	262.04	230.91	200.40	161.73	123.91
1985-86	665.43	268.88	247.48	205.40	164.64	124.75
1986-87	732.40	275.28	266.06	210.82	167.41	125.93
1987-88	785.38	230.80	279.69	217.77	170.35	127.83
1988-89	859.29	234.72	301.80	243.18	175.01	138.95
1989-90	939.46	239.50	324.51	258.88	179.72	144.05
1990-91	967.72	294.29	328.83	272.30	184.27	147.77
1991-92	1063.24	299.00	355.60	266.87	188.76	141.38
1992-93	1108.77	303.57	365.25	278.73	193.00	144.42
1993-94	1213.71	308.21	393.79	285.76	197.33	144.81