

# SOURCES OF INDIA'S ACCELERATED GROWTH AND THE VISION OF INDIAN ECONOMY IN 2020\*

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During the last couple of years, issues relating to the growth of Indian economy have been the subject matter of debate and discussion at home as well as abroad. After the process of economic liberalisation was initiated in mid-eighties, there has been a significant acceleration in the growth rate of Indian economy. The long standing barrier of the so-called “Hindu Rate of Growth” of around 3½% has been comprehensively broken and the Indian economy is now cruising along at the rate of around 6% per annum. It would be interesting to examine the sources of such an impressive acceleration in India’s growth rate. Thirty years ago, I made an initial attempt to estimate the sources of India’s economic growth during the fifties and the sixties while pursuing my doctoral research. I would now like to use this opportunity to revisit this important field of research and make an attempt to throw some light on the sources of significant acceleration in India’s economic growth during the post-1985 period characterised by a large scale economic liberalisation. Moreover, I would also like to make an attempt to analyse the sources of growth at a less aggregated level of broad sectoral categories such as agriculture versus non-agriculture and also by the type of economic organisation, viz., the public sector versus the private sector.

In a developing country like India where rapid economic growth has become a national goal, analysis of 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 macroeconomic strategy and policies that affect the future growth - its rate as well as pattern. I feel that an analysis of the factors leading to the significant acceleration in the growth of Indian economy witnessed during the last fifteen years would be useful in assessing the possibilities of a further acceleration in India’s economic growth over the next two decades. I propose to examine both these aspects and accordingly my address is divided into two parts. In the first part, I will present the estimates and analysis of the sources of India’s economic growth during the period before and after the commencement of economic reforms; while in the second part, I propose to present a broad vision of Indian economy over the next two decades and examine some aspects of the macroeconomic strategy that could be designed to achieve the specific goals associated with such a vision.

## **Part I: The Sources of India’s Economic Growth**

### **1.1. 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 (see Abramoviz, 1956 & Solow, 1957). These findings generated considerable interest among researchers and, as a result, a significant amount of research effort flowed in this direction focussing on quantitative analysis of economic growth in different countries and also on various possible refinements in the methodology for measuring the sources of economic growth. Of the several studies on this subject, the most comprehensive and far-reaching

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studies were those made by Edward Denison (see Denison, 1962, 1967, 1979 & 1985). However, such studies were largely confined to an analysis of the growth experience of the advanced western countries. Little work seems to have been done in this direction for the less developed countries, which would have a much greater concern for rapid economic development. More specifically, the quantitative appraisal of India's economic growth during the eighties and the nineties using the growth accounting framework, has not been attempted so far. I have, therefore, covered the period from 1960-61 to 2000-01 for analysing the sources of India's economic growth.

### 1.2. Methodology

It is customary to define "the sources of economic growth" as "the changes that cause national income to increase from one date to another". 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, popularly known as 'Total Factor Productivity' (TFP). The factor inputs usually include the three classical factors of production, viz., labour, land and capital (including enterprise). If we postulate that the aggregate production function exhibits constant returns to scale, we can show that the functional relationship between the growth rate of national income and the growth rates of factor inputs turns out to be linear with input elasticities of output as the respective slope parameters and the growth of total factor productivity as the constant term (see Dholakia & Dholakia, 1998).

In order to estimate the sources of growth, we require the estimates of growth rates of output and factor inputs and the factor elasticities. Estimation of the growth rates involves the derivation of an appropriate index for each of the four aggregates, viz., output, labour input, capital input and land input. Estimation of the factor elasticities 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. Under these conditions, the factor elasticities of output would be exactly equal to the relative factor shares. 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 upon the degree to which the relative factor shares are insensitive to the changing factor proportions and the changing technology. The highest degree of precision is achieved only when the relative factor shares are completely independent of both. 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. In actual estimation, the bias resulting from any errors involved in the above assumptions can be minimised, first, by dividing the longer period under consideration into a number of sub-periods and, then, by using the average value of relative factor shares within each sub-period as the estimates of the corresponding factor elasticities of output. 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 factor elasticities.

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, this method is widely used in empirical studies on account of 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, my analysis of the sources of India's economic growth is essentially based on the hypothesis that the estimates of relative factor shares provide an adequate basis for an analysis of the contributions made by various factors to the growth of India's GDP. To apply the above methodology to estimate the sources of economic growth in Indian economy, we need basic time-series data on output and factor inputs covering the entire period under consideration. For this purpose, output is measured in terms of gross domestic product at factor cost at 1993-94 prices, capital input is measured in terms of capital stock at 1993-94 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 employed (man-years). I have derived comparable time series data on GDP and factor inputs covering the entire period under consideration after making the necessary adjustments taking into account the changes in the base year and the modifications in the basic methodology for compiling the primary data. I have used the estimates of relative factor shares presented in my recent study on the functional distribution of national income in Indian economy (see Dholakia, 1996).

As I have mentioned earlier, my study covers the period of four decades from 1960-61 to 2000-01. For the purpose of estimating the sources of accelerated growth witnessed during the liberalised regime, I have divided this period into two parts: The pre-liberalisation period which ranges from 1960-61 to 1985-86 and the subsequent period from 1985-86 to 2000-01, which has been characterised by the ongoing process of economic reforms. The process of economic liberalisation in Indian economy started gathering momentum from 1985 onwards with the introduction of several economic policy initiatives in the field of industrial policy, trade policy, exchange rate policy, monetary policy and fiscal policy. Major industrial policy reforms such as a large scale liberalisation of the licensing system to reduce the barriers to entry, facility for automatic expansion and broad-banding of licensed capacity, relaxation of the threshold asset limit under MRTP, etc. were introduced in the new industrial policy of 1985. Moreover, the period from 1985 onwards saw the introduction of several new export incentives such as IPRS, tax exemption for profits from exports under Section 80 HHC, liberalised system of REP licences, etc. A more realistic floating exchange rate policy was also pursued from 1985 onwards and, as a result, the exchange rate, which had remained relatively steady throughout the period from 1966 to 1984, moved from the level of US \$ 1 = Rs. 10.30 in 1984 to the level of US \$ 1 = Rs. 20.50 that prevailed before the July 1991 devaluation. In the field of monetary policy also, the RBI initiated the steps towards a gradual deregulation of the fully administered interest rate regime that prevailed till mid-eighties<sup>1</sup>.

Thus, the pre-1985 period can be viewed as the era of wide ranging controls leading to a highly regulated economy, while the post-1985 period can be viewed as the era of economic liberalisation leading to a market-oriented economy. It is interesting to observe in this connection that a detailed time-series analysis of India's GDP covering the period from 1950-51 to 1998-99 using the switching regression technique shows that there has been a clearly identifiable upward shift in the exponential time path of GDP around mid-eighties. This empirical finding regarding the turning point in India's GDP matches quite well with the proposed demarcation of the pre and the post-liberalisation periods.

### 1.3. Indian Economy Before Liberalisation

After Independence, India adopted the strategy of planned economic development rather than market-oriented development. The strategy which was formulated by the government under the leadership of Nehru, aimed at doubling the average living standards of India's vast population over a period of two decades, which implies the target of 3.5% growth rate of real per capita income. During the first three decades of planned economic development after Independence, the main element of India's development strategy was import substitution led industrialisation with an explicit focus on the public sector. The strategy was implemented by creating the framework of a highly regulated economy that was for all practical purposes insulated from the rest of the world<sup>2</sup>. Various kinds of fairly rigid restrictions were imposed not only on imports but also on the entire range of transactions involving foreign exchange. Within the domestic market, the large scale private sector was subjected to highly restrictive system of licensing and a variety of other discretionary controls which involved case by case disposal. These controls created formidable mobility barriers and eliminated the operational flexibility required by the private enterprises for responding to the changing market conditions and the rapidly changing technology. High rates of protection, inflation, steadily rising rates and coverage of indirect taxation, inefficient scale and lack of competition resulted in moderate

industrial growth characterised by high cost and low productivity. Under such conditions, exporting was always going to be a difficult proposition, but what compounded the problem was the fairly severe and deep-rooted export pessimism which characterised India's macroeconomic strategy during the pre-liberalisation period.

Table 1 : Trends in the Growth Rates of Real GDP

Period	Agriculture	Industry	Services	Non-Agri.	GDP
1950-51 to 1960-61	3.03%	6.18%	4.14%	4.85%	3.85%
1960-61 to 1970-71	2.31%	5.44%	4.62%	4.93%	3.63%
1970-71 to 1980-81	1.50%	4.02%	4.34%	4.22%	3.04%
1950-51 to 1980-81	2.28%	5.21%	4.36%	4.66%	3.50%
1980-81 to 1990-91	3.48%	7.22%	6.50%	6.79%	5.58%
1990-91 to 2000-01	2.79%	6.03%	7.70%	7.06%	5.83%
1980-81 to 2000-01	3.13%	6.62%	7.10%	6.92%	5.71%

the non-agricultural sectors declined considerably during the seventies, which turned out to be the worst decade for both sectors. Under these conditions, the growth and efficiency of private non-agricultural sector would be severely constrained and if the public sector could not deliver, the economy would never attain the desired rate of growth. That is precisely what

Table 2 : Development of Indian Economy During the Post-Independence Period

Indicator	1950-51	1985-86	2000-01	Average Growth Rate	
				1950-1985	1985-2000
GDP (US\$ Bn.at OER)	20.9	175.7	488.2	6.3%	7.1%
GDP (US\$ Bn.at SER)	19.0	125.5	488.2	5.5%	9.5%
Population ( Million )	359	755	1007	2.1%	1.9%
Per Cap.GDP(US \$)	53	166	485	3.3%	7.4%
PC GDP (Rs. at 1993 prices)	5816	6793	12118	1.5%	3.9%
Share of Agri. in GDP	57%	36%	24%	-1.3%	-2.6%
Poverty Ratio	61%	44%	26%	-1.0%	-3.4%
Life Exp. at birth (years)	32	48	64	1.2%	1.9%
Literacy Rate	18%	48%	65%	2.8%	2.1%
Food Prod. (Mn.Tons)	50.8	150.4	199.0	3.1%	1.9%
Electricity Gen. (Bn.Kwh)	5.1	170.0	497.0	10.5%	7.4%
Imports (US \$ Mn.)	1273	16067	62960	7.5%	9.5%
Exports (US \$ Mn.)	1269	8905	44770	5.7%	11.4%
Share in World Exports	2.0%	0.5%	0.7%	-3.9%	2.3%
Foreign Cur.Res.(US \$ Mn.)	1914	5972	39554	3.3%	13.4%
Exchange Rate ( Rs./US \$ )	4.75	12.23	45.61	2.7%	9.2%
Gross Dom. Saving Rate	0%	10%	22%	2.2%	1.2%

It is not surprising, therefore, to find that Indian economy could not achieve an average growth rate of even 4% nor could the non-agricultural sector achieve an average growth rate of 5% during any of the first three decades of planned economic development after Independence (See Table 1). In fact, the performance of both the agricultural as well as the non-agricultural sectors declined considerably during the seventies, which turned out to be the worst decade for both sectors. Under these conditions, the growth and efficiency of private non-agricultural sector would be severely constrained and if the public sector could not deliver, the economy would never attain the desired rate of growth. That is precisely what happened. Against the target of 3.5% rate of growth of real per capita income, the actual growth rate during the pre-liberalisation period (1950-51 to 1985-86) turned out to be just around 1.5%. While low rates of overall growth of the economy during the pre-1985 period made it difficult to achieve a significant reduction in the incidence of poverty, the anti-export bias in the country's industrialisation strategy led to a sharp decline in India's share in world exports (see Table 2).

#### 1.4. Growth Experience in the Liberalised Regime

There was a marked contrast in the growth experience of Indian economy during the post-1985 period. The process of economic liberalisation that was initiated around mid-eighties and pursued more vigorously from 1991 onwards has brought about a significant turnaround in Indian economy. The shift in macroeconomic strategy from import substitution based and public sector led planned economic development to export-oriented and private sector led economic development driven by the market forces has not only resulted in a significant increase in the growth rate of real GDP but also led to a large scale transformation of the economy. During the post-1985 period, the agricultural sector has grown at an average rate of more than 3%, while the non-agricultural sector has grown at more than 7% leading to an overall growth rate of around 6% (see Table 3). Real per capita income has increased at an average rate of around 4% during the 15 year period from 1985 to 2000 and, as a result, the incidence of poverty has declined from around 44% in mid-eighties to around 26%, while the life expectancy at birth has risen significantly from 48 years in 1985 to 64 years in 2000 (see

Table 2). The share of agriculture has dropped to less than a quarter of GDP and the share of service sector has increased significantly. The period from 1985 to 2000 has also been marked by rapid growth of India's exports exceeding 11% per annum as against 8% growth in world exports during the same period. Thus, while the world trade expanded at a significantly rapid rate exceeding 10% per annum during the pre-1985 period, India's exports grew at a much lower rate of less than 6% resulting in a sharp drop in India's share in world exports. This trend has been effectively reversed during the post-1985 period.

### 1.5. Sources of Growth

To examine the linkage between the macroeconomic strategy and the sources of India's economic growth, it is necessary to go beyond the conventional two-sector classification of agriculture versus non-agricultural sector and disaggregate the non-agricultural sector into non-agricultural public sector and non-agricultural private sector. The pre-liberalisation period assigned a significant role to the non-agricultural public sector and simultaneously constrained the operation of the non-agricultural private sector in Indian economy, while the post-liberalisation period envisages a much greater role for the non-agricultural private sector and aims at partially rolling back the non-agricultural public sector. For the purpose of analysing the sources of India's economic growth, I have, therefore, adopted a rather non-conventional three-sector classification of Indian economy, viz., agricultural sector, non-agricultural public sector and non-agricultural private sector.

Table 3 : Growth Rates of Sectoral GDP & Factor Inputs

Sectors/ Variable	1960- 1985	1985- 2000	Change
Agriculture			
Labour Input	2.17%	2.45%	0.28%
Capital Input	3.22%	1.78%	-1.44%
Land Input	0.42%	0.31%	-0.11%
GDP	2.13%	3.16%	1.03%
Non-Agricultural Sector			
Labour Input	3.95%	3.09%	-0.86%
Capital Input	5.32%	5.79%	0.47%
Land Input	1.28%	1.32%	0.04%
GDP	4.89%	7.17%	2.28%
Non-Agriculture – Public Sector			
Labour Input	3.85%	0.76%	-3.09%
Capital Input	8.23%	4.28%	-3.95%
Land Input	2.76%	0.26%	-2.50%
GDP	8.18%	7.07%	-1.11%
Non-Agriculture – Private Sector			
Labour Input	3.97%	3.52%	-0.45%
Capital Input	3.84%	6.88%	3.04%
Land Input	0.90%	1.64%	0.73%
GDP	3.86%	7.22%	3.36%
All Sectors			
Labour Input	2.69%	2.67%	-0.02%
Capital Input	4.83%	5.18%	0.35%
Land Input	0.49%	0.41%	-0.09%
GDP	3.66%	5.95%	2.29%

Table 4 : Estimates of Average Factor Shares

Sector	1960-61 to 1985-86			1985-86 to 2000-01		
	Labour	Capital	Land	Labour	Capital	Land
Agriculture	0.5554	0.1311	0.3135	0.6046	0.1428	0.2526
Non-Agri. Public	0.8848	0.1077	0.0075	0.7306	0.2569	0.0125
Non-Agri. Pvt.	0.5522	0.3896	0.0582	0.6430	0.2820	0.0750
All Sectors	0.5966	0.2411	0.1623	0.6488	0.2457	0.1055

During the pre-liberalisation period under consideration, (1960-61 to 1985-86), real GDP from non-agricultural public sector grew at more than 8% per annum, while the GDP from non-agricultural private sector increased at an annual rate of less than 4% (see Table 3). During the same period, the capital input flowing into the non-agricultural public sector increased rapidly at an annual rate of 8.2%, while the corresponding growth rate of capital input going into the private sector was only 3.8%. As a result, the share of non-agricultural public sector in real GDP increased sharply from around 7% in 1960-61 to about 22% by 1985-86. Within the non-agricultural sector, the share of public sector in GDP increased from less than 16% in 1960-61 to more than 34% in 1985-86. Similarly, the share of public sector in the total capital stock invested in non-agricultural sector increased from 23% to 46%. The

share of public sector in the land input deployed in the non-agricultural sector also increased from 17% to around 25%. However, there was a marked contrast in the case of labour input. The share of public sector in total employment in the non-agricultural sector actually declined from 19% to 18% during the pre-liberalisation period. Thus, while increasing proportion of capital and land was being allocated to the non-agricultural public sector, the corresponding increase in the share of employment did not occur and the private sector continued to play a pre-dominant role in labour absorption within the non-agricultural sector during the pre-liberalisation period.

The post-liberalisation period has been characterised by a significant re-allocation of factor inputs within the non-agricultural sector. The share of private sector in total capital stock invested in the non-agricultural sector has increased from 54% in 1985-86 to 63% in 2000-01, while its share in the case of land input has increased from less than 76% to more than 79% and in the case of labour input from less than 82% to 87%. Increased flow of factor inputs into the private sector has led to a dramatic turnaround in the relative growth rates of GDP within the non-agricultural sector. The growth rate of GDP in non-agricultural private sector jumped from 3.9% in the pre-liberalisation period to 7.2% in the post-liberalisation period, while the

Table 5 : Sources of Growth of the Indian Economy

Sectors/ Variable	Absolute Contribution		Relative Contribution	
	1960 to 1985	1985 to 2000	1960 to 1985	1985 to 2000
Agriculture				
Labour Input	1.22	1.49	57.3%	47.2%
Capital Input	0.42	0.25	19.7%	7.9%
Land Input	0.13	0.08	6.1%	2.5%
TFI	1.77	1.82	83.1%	57.6%
TFP	0.36	1.34	16.9%	42.4%
GDP	2.13	3.16	100.0%	100.0%
Non-Agriculture : Public Sector				
Labour Input	3.48	0.56	42.6%	7.9%
Capital Input	0.91	1.12	11.1%	15.9%
Land Input	0.02	0.01	0.2%	0.1%
TFI	4.41	1.69	53.9%	23.9%
TFP	3.77	5.38	46.1%	76.1%
GDP	8.18	7.07	100.0%	100.0%
Non-Agriculture : Private Sector				
Labour Input	2.20	2.30	57.0%	31.8%
Capital Input	1.50	1.98	38.8%	27.4%
Land Input	0.05	0.12	1.4%	1.7%
TFI	3.75	4.40	97.2%	60.9%
TFP	0.11	2.82	2.8%	39.1%
GDP	3.86	7.22	100.0%	100.0%
Non-Agricultural Sector				
Labour Input	2.42	2.08	49.5%	29.0%
Capital Input	1.78	1.62	36.4%	22.6%
Land Input	0.07	0.08	1.4%	1.1%
TFI	4.27	3.78	87.3%	52.7%
TFP	0.62	3.39	12.7%	47.3%
GDP	4.89	7.17	100.0%	100.0%
All Sectors				
Labour Input	1.62	1.77	44.2%	29.7%
Capital Input	1.17	1.29	32.0%	21.7%
Land Input	0.08	0.04	2.2%	0.7%
TFI	2.87	3.10	78.4%	52.1%
TFP	0.79	2.85	21.6%	47.9%
GDP	3.66	5.95	100.0%	100.0%

corresponding growth rate of public sector declined from 8.2% to 7.1%. Since the degree of acceleration in the growth of private sector GDP during the post-1985 period is much higher than the corresponding acceleration in the growth of factor inputs, it is evident that the accelerated growth of private non-agricultural sector has resulted from the accelerated growth of total factor productivity as well as factor inputs. To find out the exact contribution of these factors, let us turn to a detailed analysis of the sources of growth of GDP.

During the pre-liberalisation period, the main sources of growth of Indian economy were the growth of labour input which accounted for 44% and capital input which accounted for 32% of the overall GDP growth rate of 3.66% per annum. Growth of total factor productivity contributed only 0.79 percentage points or less than 22% of the overall growth rate during the pre-1985 period (see Table 5). In the case of agriculture, growth of factor inputs accounted for more than 83% while total factor productivity growth contributed less than 17% of the GDP growth rate of 2.13% during the pre-liberalisation period. In the non-agricultural sector also, TFP growth accounted for less than 13% of GDP growth rate during the same period, while labour and capital inputs accounted for bulk of the observed output growth. Within the non-agricultural sector, there was a sharp contrast between the public sector and the private sector. TFP of public sector grew at an average rate of 3.8% which accounted for 46% of the observed GDP growth of 8.2% during the pre-1985 period. As against this, TFP of private sector hardly grew during the pre-liberalisation period, the average TFP growth being only 0.11 percentage points which contributed less than 3% of the observed private non-agricultural sector GDP growth of 3.86%. Thus, the growth of private sector during the pre-1985 period was almost entirely due to the growth of factor inputs. Significant shift in resource allocation in favour of non-agricultural public sector in an overall environment of resource scarcity, therefore, imposed a severe constraint on the growth of

private sector and the failure of total factor productivity to grow substantially compounded this effect during the pre-liberalisation period.

The process of economic liberalisation initiated in mid-eighties has completely transformed the pace and composition of growth in the non-agricultural private sector. Not only has the growth rate of private sector doubled during the post-1985 period, but almost 40% of this growth has resulted from the growth of TFP. It is interesting to find that in the non-agricultural private sector TFP, which remained almost stagnant and did not make any contribution to the growth of GDP during the pre-liberalisation period, has now emerged as the largest source of growth accounting for 2.82 percentage points out of the growth of 7.22% achieved during the post-1985 period. Thus, economic reforms have succeeded in creating a business environment in which the overall efficiency of private non-agricultural sector has improved significantly. There has also been a marked shift in the pattern of resource allocation between public and

Table 6 : Sources of Growth Acceleration in Indian Economy  
During the Post-1985 Period  
(Figures in Percentage Points Per Annum)

Sector / Source	Absolute Contribution	Relative Contribution
Agriculture		
Labour Input	0.27	26.2%
Capital Input	-0.17	-16.5%
Land Input	-0.05	-4.9%
Total Factor Input	0.05	4.8%
Total Factor Productivity	0.98	95.2%
GDP	1.03	100.0%
Non-Agriculture : Public Sector		
Labour Input	-2.92	263.1%
Capital Input	0.21	-18.9%
Land Input	-0.01	0.9%
Total Factor Input	-2.72	245.0%
Total Factor Productivity	1.61	-145.0%
GDP	-1.11	100.0%
Non-Agriculture : Private Sector		
Labour Input	0.10	3.0%
Capital Input	0.48	14.3%
Land Input	0.07	2.1%
Total Factor Input	0.65	19.4%
Total Factor Productivity	2.71	80.6%
GDP	3.36	100.0%
Non-Agricultural Sector		
Labour Input	-0.34	-14.9%
Capital Input	-0.16	-7.0%
Land Input	0.01	0.4%
Total Factor Input	-0.49	-21.5%
Total Factor Productivity	2.77	121.5%
GDP	2.28	100.0%
All Sectors		
Labour Input	0.15	6.6%
Capital Input	0.12	5.2%
Land Input	-0.04	-1.8%
Total Factor Input	0.23	10.0%
Total Factor Productivity	2.06	90.0%
GDP	2.29	100.0%

private sectors with the non-agricultural sector as evident from the significant changes in the absolute contributions made by the growth of various factor inputs to the growth of GDP during the post-1985 period. The contribution made by total factor input to the growth of GDP in public sector has declined sharply from 4.4 percentage points during the pre-liberalisation period, whereas in the case of private sector the contribution of total factor input has increased from 3.7 percentage points to 4.4 percentage points over the same period. Thus, after the introduction of economic reforms, there has been a considerable increase in the flow of resources into the private non-agricultural sector and, what is more important to note, the overall efficiency of this increasing flow of factor inputs has started rising at a remarkable rate.

While the private non-agricultural sector has experienced the most pronounced impact of economic liberalisation on the sources of growth, the other two segments of the economy, viz., agricultural and non-agricultural public sector has also experienced a positive impact. The contribution of TFP growth has increased from less than 0.4 to more than 1.3 percentage points in the case of agriculture and from 3.8 to 5.4 percentage points in the case of non-agricultural public sector. Thus, there has been an all round increase in the efficiency of factor input employed in every major sector of Indian economy during the post-liberalisation period. As a result, the total TFP growth in the economy as a whole has

### 1.6. Sources of Growth Acceleration

To examine the sources of growth acceleration observed during the post-liberalisation period, we measure the difference between the contributions made by different factors to the growth rate of GDP during the pre-1985 and the post-1985 periods. Among the three major

sectors of Indian economy, the growth rate of agriculture accelerated by 1.03 percentage points and the growth rate of non-agricultural private sector accelerated by 3.36 percentage points, while the growth rate of non-agricultural public sector actually declined by 1.11 percentage points during the post-1985 period. It is interesting to observe that 95% of the accelerated growth of GDP in agricultural sector has resulted from accelerated growth of total factor productivity and the remaining 5% has been contributed by increased growth of total factor input (see *Table 6*). I have already examined various aspects of the growth of total factor productivity in Indian agriculture in my earlier studies (see Dholakia & Dholakia, 1991 & 1993 and Dholakia, 1997). I would, therefore, prefer to focus on the growth of total factor productivity in the non-agricultural sector in this presentation.

In the case of non-agricultural private sector, 81% of the accelerated growth has been contributed by the acceleration in the growth of total factor productivity, while the remaining 19% has been contributed by the increased growth of total factor input out of which nearly three-fourths or 14% has been contributed by the increased growth of capital input alone. As against this, in the case of non-agricultural public sector there has been a sharp decline of 2.72 percentage points in the contribution made by the growth of total factor input, which has been partially off-set by the acceleration of 1.61 percentage points in the growth of TFP leading to an overall decline in the public sector GDP growth by just over 1%. Had the TFP growth remained unchanged, the growth of non-agricultural public sector GDP would have declined sharply by 2.7% during the post-1985 period. If we consider non-agricultural sector as a whole, the growth rate of GDP has increased by 2.28%, while the growth of TFP has increased by 2.77% and the growth of total factor input has declined by 0.49%. Thus, accelerated growth of TFP accounts for the entire acceleration in non-agricultural GDP growth during the post-1985 period.

### 1.7. Economic Liberalisation and TFP Growth

From a theoretical perspective there are several *a priori* reasons why economic liberalisation should lead to an improved total factor productivity growth in the non-agricultural sector. Some of the reasons are as follows : Economic liberalisation is expected to provide enhanced and cheaper access to imported capital goods, global technology and global capital to the enterprises in the non-agricultural sector, which would enable them to improve their productivity. Moreover, the pressure of increased competition in the domestic market in a liberalised regime would force the domestic firms to improve the efficiency of various resources through organisational restructuring, improved managerial efficiency, and better capacity utilisation. The removal of entry barriers and relaxation of various constraints on technology choices, input use pattern, mergers, acquisitions & strategic alliances and investment decisions in a liberalised regime would create an environment that would be conducive to rapid productivity growth. Economic liberalisation would also lead to an improvement in the factor productivity in non-agricultural sector on account of the removal of anti-export bias resulting from reduced levels of protection coupled with a more realistic exchange rate policy. Thus, the basic hypothesis that emerges from theoretical considerations is that the process of economic liberalisation should lead to a significant improvement in the total factor productivity growth in the non-agricultural sector. My findings lend support to this hypothesis.

Although no major studies focussing on the growth of TFP in the non-agricultural sector as a whole have been carried out so far, fairly extensive empirical work has appeared in the recent literature on TFP growth in the registered manufacturing sector in India covering the period of eighties and early nineties. Some of these studies<sup>3</sup> have questioned the findings relating to accelerated TFP growth in the registered manufacturing sector after the introduction of economic liberalisation. The debate on this important subject has essentially centered around the following issues : (a) Whether the productivity measurement should be based on the gross output function or the value added function, (b) Whether the estimates of real value added should be based on single deflation method or double deflation method, (c) The base

year for the deflators, (d) Construction of an appropriate input price deflator, (e) Conceptually appropriate measurement of weights to be assigned to the labour input, the capital input and the material input, etc. Till this date the debate on such methodological issues involved in the measurement of TFP has remained inconclusive. My position as an active participant in this interesting debate has been to argue in favour of the value added function, single deflation method to derive real value added, construction of price indices with a most recent base year, weights of factor inputs derived from the distribution of net value added at current prices, and using quinquennial averages for the weights rather than regression estimates<sup>4</sup>. In this context, I would like to point out that the specific choices and methodological refinements considered in this ongoing debate are feasible only when we are deriving the estimates for the registered manufacturing sector. However, if we are dealing with the estimation of TFP growth at a higher level of aggregation such as the non-agricultural sector or the economy as a whole, such methodological choices simply do not exist under the current state of macroeconomic information system in Indian economy. My choice of methodology has, therefore, rested on the basic premise of operational feasibility within the context of theoretical acceptability.

### **1.8. Contribution of TFPG in Non-Agricultural Private Sector**

The overall growth rate of Indian economy has accelerated by 2.29 percentage points during the period from 1985 to 2000. Accelerated growth of TFP has contributed 2.06 percentage points or 90% of this growth acceleration, while accelerated growth of total factor input has contributed the remaining 10% comprising of moderate contributions from both labour input and capital input. While TFP growth has accelerated in all the three major sectors of the economy, it should be noted that the degree of acceleration in TFP growth in non-agricultural private sector is significantly higher as compared to the other two sectors. In fact, the accelerated growth of TFP in the non-agricultural private sector has been the largest source of accelerated growth of Indian economy during the post-1985 period. This conclusion assumes special significance when we recognise that the same factor turned out to be an insignificant contributor to the growth of Indian economy during the pre-liberalisation period. If the absolute contribution of TFP growth in the non-agricultural private sector had remained the same during the post-1985 period as observed during the pre-liberalisation period, the overall growth rate of Indian economy would have turned out to be only 4.7% as against the actual rate of 5.95% achieved during the period from 1985 to 2000 and India's real GDP in the year 2000-01 would have been lower by one-sixth. Thus, accelerated growth of TFP in non-agricultural private sector by itself has contributed more than half of the overall growth acceleration in Indian economy during the post-1985 period.

### **1.9. Sensitivity Analysis of TFP Growth**

Measurement of the growth of TFP by its very nature picks up whatever errors get associated with the specification and measurement the growth of factor inputs and factor shares. Since the macroeconomic information system in India is still not fully developed and the required data base is likely to have several gaps, doubts could arise about the reliability of these findings. In such a situation, it would be useful to carry out a broad sensitivity analysis of the estimated TFP growth by tracing the effect of a specified margin of error, say one-tenth, in each of the major estimates involved in deriving the final estimate of TFP growth. What I have attempted, therefore, is to examine the impact of a 10% error in the growth rate in each of the factor inputs and also a 10% error in the estimation of relative factor shares on the estimated value of TFP growth in each sector in both periods.

Table 7 : Sensitivity Analysis of Estimated TFP Growth  
(Estimates of TFPG under given alternatives)

Period / Factor	1960-61 to 1985-86		1985-86 to 2000-01	
	Agriculture	Non-Ag-Public	Non-Ag-Private	All Sectors
Original Estimate of TFPG	0.36	3.77	0.11	0.79
(a) 10% Increase in Growth Rate of Factor Inputs	0.20	3.29	-0.25	0.50
(b) 10% Decrease in Share of Labour	0.41	3.44	0.15	0.77
(c) Combined Effect of (a) & (b)	0.25	2.96	-0.21	0.48
Original Estimate of TFPG	1.34	5.38	2.82	2.85
(a) 10% Increase in Growth Rate of Factor Inputs	1.16	5.19	2.38	2.54
(b) 10% Decrease in Share of Labour	1.43	5.18	2.67	2.78
(c) Combined Effect of (a) & (b)	1.25	4.99	2.23	2.47

The findings of this broad sensitivity analysis reveal that if the growth rates of all factor inputs were 10% higher than our actual estimates for both periods, the estimated TFP growth in the economy as a whole would have been 2.54 percentage points instead of 2.85 during the post 1985 period (see *Table 7*). However, since the growth of TFP during the pre-liberalisation period would have also turned out to be lower at 0.50 percentage points rather than 0.79 as originally estimated, my estimate of the degree of acceleration in overall TFP growth in Indian economy during the post-1985 period would remain more or less the same. Similarly, the effect of a 10% increase in the growth rates of all factor inputs in non-agricultural private sector would be

to bring the estimated TFP growth down to 2.38 percentage points from the original level of 2.82 points in the post-1985 period, indicating a 15% reduction. But if the same situation prevailed in the pre-liberalisation period, the TFP growth in non-agricultural private sector would have been negative implying a decline in the level of overall factor productivity of the private sector in the era of a highly regulated economy. As a result, my finding relating to a significant acceleration in TFP growth in private sector would in effect become stronger. A similar conclusion emerges if we examine the impact of a 10% change in relative factor shares or the combined effect of 10% change in both relative factor shares as well as growth rates of factor inputs. Thus, the broad sensitivity analysis of my estimates of TFP growth in Indian economy reinforces the basic pattern of estimates derived earlier and thereby enhances our comfort level with regard to the conclusions based on my earlier analysis.

### 1.10. Components of TFP Growth

In view of the significant role of TFP growth as a source of India's accelerated growth, it is necessary to probe into the main components of TFPG. Since the growth rate of TFP is estimated as that part of the observed growth rate of aggregate output which is not accounted for by the growth of conventional factor inputs, it essentially represents some sort of a catch-all and includes the effects of several factors. The major components of TFP growth include a wide range of factors such as improvements in the quality of labour resulting from the changing skill-mix of working force, non-constant returns to scale, changes in the intensity of resource utilisation, structural change as reflected by the inter-sectoral shifts in factor inputs, advances of knowledge consisting of technological as well as managerial knowledge, changes in the time lag in application of knowledge and errors in the specification, measurement and aggregation of the basic variables involved in the estimation of TFP growth. I have made an attempt to examine the main components of the TFP growth for the economy as a whole by classifying these factors into the following three broad categories : (a) Change in the intensity of resource utilisation consisting of the changes in the overall capacity utilisation rates within each sectoral category; (b) Structural change consisting of inter-sectoral shifts of factor inputs; and (c) The residual factor consisting of technical progress and the combined net effect of all other factors influencing TFPG.

Table 8 : Estimates of the Residual Factor in Sectoral TFPG

Period / Sector	Measured TFP	Change in Capacity Utilisation	The Residual Factor
	1960-61 to 1985-86		
Agriculture	0.36%	-0.26%	0.62%
Non-Agri.- Public Sector	3.77%	0.94%	2.83%
Non-Agri.- Private Sector	0.11%	0.37%	-0.26%
	1985-86 to 2000-01		
Agriculture	1.34%	-0.28%	1.62%
Non-Agri.- Public Sector	5.38%	0.69%	4.69%
Non-Agri.- Private Sector	2.82%	0.23%	2.59%

estimates so derived show that there has been a significant improvement in the overall capacity utilisation rate in non-agricultural public as well as private sectors, while there is a decline in the capacity utilisation rate in agriculture. Thus, change in capacity utilisation rate turns out to be a significant component of TFP growth in each of the three broad sectors, making a positive contribution of 0.69 percentage points in non-agricultural public sector and 0.23 points in private sector and a negative contribution of 0.28 percentage points in agriculture during the post-1985 period (see *Table 8*). It is interesting to observe that changes in capacity utilisation accounted for more than 25% of TFP growth in the non-agricultural public sector and more than the entire TFP growth in non-agricultural private sector during the pre-liberalisation period. In fact, in the case of non-agricultural private sector, the residual factor actually turns out to be negative during the pre-liberalisation period indicating a decline in the overall efficiency of resources employed in non-agricultural private sector during the pre-1985 period. As against this, the residual factor accounts for more than 90% of the measured TFP growth in non-agricultural private sector during the post-1985 period indicating a significant improvement in the overall efficiency of resources in a liberalised regime.

Table 9 : Components of Overall TFP Growth

	1960 to 1985	1985 to 2000
	Change in Capacity Utilisation	0.17%
Structural Change	0.24%	0.14%
The Residual Factor	0.38%	2.53%
Measured TFP Growth	0.79%	2.85%

structural change as a component of the TFP growth is measured as the difference between the estimated growth rate of constant structure GDP and the actual growth rate of GDP. The estimates of the contributions made by different components to the overall TFP growth in Indian economy indicate that both major components, viz., the structural change and the change in capacity utilisation rate have made a positive absolute contribution to TFP growth in both periods (see *Table 9*). However, there is a significant difference in their relative contributions during the two broad periods. In the pre-liberalisation period, these two components account for almost half of the estimated TFP growth, while their contribution turns out to be less than 10% during the post-1985 period. Thus, more than 90% of the measured growth of TFP during the period of economic liberalisation is contributed by the residual factor which indicates the impact of an improvement in the overall efficiency of factor inputs or technical progress.

The residual factor in India's economic growth has increased from less than 0.38 percentage points in the pre-liberalisation period to 2.53 percentage points in the post-1985 period. Thus, increase in the contribution of the residual factor accounts for 2.15 percentage points out of 2.29 percentage points of overall growth acceleration in Indian economy. Our ability to sustain the residual factor through a continued process of further improvements in the efficiency of resource utilisation, therefore, holds the key to our success in achieving higher

Since direct information on capacity utilisation rates in the three broad sectors of Indian economy is not available, I have used the smoothed time-series data for the period 1960-61 to 2000-01 to estimate the growth rate of potential output. The impact of changes in overall capacity utilisation rates is then estimated as the difference between the estimated growth rate of potential output and the measured growth rate of GDP in each sector. The

To estimate the impact of structural change on TFP growth in the economy as a whole, I have derived the estimates of average productivity of each factor input using constant sectoral weights of the base period and obtained aggregate weighted averages to estimate GDP under constant base period structure. The impact of

rates of growth of Indian economy in future. As I mentioned at the outset, I propose to examine the vision of India's future growth and the strategy required to fulfil this vision in the second part of my address.

## Part II: Indian Economy in 2020: Vision and Strategy

### 2.1. Vision of Indian Economy in 2020

After more than five decades of Independence, India stands at the cross-roads of history in the initial years of the new millennium. During the last five decades we have achieved self-sufficiency in food, created a strong and diversified industrial base and developed a high degree of resilience that could effectively withstand the onslaught of the East Asian crisis in 1997 & 1998, the Kargil War in 1999 and the oil shocks in 1999 & 2000. None of these could push India into an economic crisis of the kind we faced in 1991.<sup>5</sup> However, there are major weaknesses that still persist as we prepare ourselves for entering the new millennium. More than a quarter of India's population lives in abject poverty, around 50% of the urban population lives in slums in unhygienic conditions and just under half of our vast population is illiterate. At this rate, by the year 2010 we may perhaps earn the dubious distinction of having half of the whole world's illiterate population, which shows that India is a country of spectacular paradoxes. We are the largest global supplier of highly skilled manpower and still we could be the reservoir of the world's largest mass of illiterates. The vision for Indian economy in the year 2020 needs to be viewed in this context.

My vision for Indian economy is that India emerges as a formidable global economic power with every Indian enjoying a decent living standard by 2020 while maintaining the broad federal democratic structure of the nation as it has evolved over the last five decades. This vision sounds very ambitious but it is attainable if we can put our act together and pursue the goal relentlessly through well-coordinated hard work, total commitment and complete dedication. Basic ingredients of this broad vision would include demographic, economic and social aspects of national development strategy over the next two decades.

Table 10 : Changes in the Ranking of Current Top 20 Countries by GDP

Country	(GDP at current prices in US \$ Million)					
	GDP in 1999		GDP in 1985		GDP in 1960	
	GDP	Rank	GDP	Rank	GDP	Rank
USA	8708870	1	3946600	1	505300	1
Japan	4395083	2	1327900	2	44000	6
Germany	2081202	3	624970	3	72100	3
France	1410262	4	510320	4	60060	5
UK	1373612	5	454300	5	71440	4
Italy	1149958	6	358670	7	37190	9
China	991203	7	265530	9	42770	7
Brazil	760345	8	188250	10	14540	12
Canada	612049	9	346030	8	39930	8
Spain	562245	10	164250	13	11430	17
Mexico	474951	11	177360	11	12040	15
India	459765	12	175710	12	29550	10
Korea (Rep.)	406940	13	86180	18	3810	20
Australia	389691	14	162490	14	16370	11
Netherlands	384766	15	124970	15	11580	16
Russian Fed.	375345	16	407680	6	182000	2
Argentina	281942	17	65920	20	12170	14
Switzerland	260299	18	92690	17	8550	19
Belgium	245706	19	79080	19	11280	18
Sweden	226388	20	100250	16	13950	13

(World Bank, 2001). Among the 20 largest economies in the world, India's growth rate of population has been the highest and if this trend continues over the next two decades, it could spell disaster for any ambitious vision that the nation may try to evolve. Hence, it is necessary that we have an explicit demographic vision of attaining less than half per cent annual growth rate of population by the end of the next decade. The social dimension of this vision would

### 2.2. Population Growth

One of the main reasons why India has still remained a less-developed country with very low levels of per capita income in spite of being quite large in the global context in terms of physical volumes of output in both agriculture as well as industry is our failure to control the rapid growth of population during the last five decades. Today, the absolute size of GDP is large enough to make India the 12th largest economy in the world (see *Table 10*). However, our rank in terms of per capita living standards is way below at 162 out of 206 economies and even if we consider per capita GNP at purchasing power parity, India's rank in 1999 turns out to be 153

involve significant upgradation of the status of women in the society and attainment of almost 100% literacy among adult females. Any vision of a fast developing progressive nation cannot be complete without involving the vision of cent per cent literacy level. If during the last five decades India's population growth rate had been half of what it actually turned out to be, even with much lower growth rates of GDP during the pre-liberalisation period, India's per capita income today would have been 62% higher than what we actually have and our rank in terms of living standards in the global context would have been 143 and still higher at PPP. Our national vision must necessarily focus on ensuring that this part of history does not repeat over the next two decades.

If the current growth rate of population continues, India's population would reach 1470 million by 2020. But if we can reduce the growth rate of population in a phased manner to 0.5% by 2010 and maintain it at that level thereafter, India's population would not exceed 1170 million by 2020, i.e., the country would succeed in avoiding a further addition of 300 million to our population over the next two decades. This by itself would increase the per capita living standard of the remaining population by 26%. Moreover, the scarce national resources required to bring up 300 million additional people could then be deployed productively to further enhance the living standards of the rest. We must recognize that the past trend by itself does not represent destiny. Conscious and persistent efforts could always reverse the past trends. What is required for evolving a people-centered population control programme is a fierce determination to succeed through a complete paradigm shift in our approach to managing population growth. The mind-set of not giving sufficient importance to the issue of population control needs to be radically changed. We must also recognise that population control is one of the most powerful means of reducing the incidence of poverty.

### **2.3. Vision of GDP Growth**

The national vision of becoming a major global economic power by 2020 can be accomplished only if we achieve a real GDP growth rate of more than 8% per annum consistently over the next two decades. Achieving further acceleration in economic growth and sustaining the accelerated growth performance over a fairly long time horizon are the main elements of this vision. Sustaining the high growth rate of more than 8% over two decades is a Herculean task but it is definitely well within our potential. Real GDP growth of around 8.5% per annum will enable us to emerge as the tenth largest economy in the world by the year 2020 with a more than seven-fold increase in our GNP, which would translate into a per capita income of around 2500 US dollars. It should be remembered, however, that our ranking in terms of average living standards would still remain significantly lower. But the per capita income in excess of around 2500 US dollars, which would imply more than 7000 US dollars in terms of purchasing power parity would have enabled us to effectively and comprehensively remove mass poverty.

Visions of sectoral growth commensurate with the overall vision of 8.5% growth rate involve growth rates of 5% for agriculture, 9% for industry and 9.5% to 10% for services. In relation to the average growth rates observed during the last 15 years, the growth rates envisaged in the above vision of India's GDP growth over the next two decades imply an acceleration in the growth rates by 1.8 percentage points in agriculture, 2.5 percentage points in industry, 2 percentage points in services and 2.55 percentage points for the economy as a whole. A detailed projection of the sources of future growth of Indian economy based on my analysis of the sources of accelerated growth during the post-1985 period reveals the possibility of augmenting the contribution of total factor input by 0.65 percentage points over the next two decades. A significant part of the higher growth of total factor input would be contributed by a faster growth of capital input resulting from an increase in the domestic saving rate from the current level of 23.5% to around 28.5% by 2020. While the decline in the growth rate of population envisaged in the demographic vision would lead to some reduction in the growth of labour input measured in terms of man-years especially after 2015, such a decline is likely to

be more than off-set by a significant improvement in the quality of labour resulting from major changes in the skill composition of working force. Thus, the vision of 8.5% GDP growth over the next two decades requires acceleration in the TFP growth by 1.9 percentage points. Since improvement in capacity utilisation and structural change are not likely to contribute more than 0.2 percentage points to the accelerated TFP growth, the residual factor, which is a surrogate for technical progress indicating the improvement in the overall efficiency of resource utilisation in the economy, will have to increase significantly from the level of 2.5 percentage points during 1985-2000 to around 4.2 percentage points during the next two decades. Achieving such a massive increase in the overall efficiency of factor inputs is a formidable task and it would require a highly focussed strategy and a large scale effort in every sector of the economy. Let me make an attempt to highlight some aspects of the sectoral strategies required for accelerating the growth of agriculture and industry.

#### 2.4. Vision of Indian Agriculture in 2020

Higher growth of agricultural sector can be achieved only through a significant increase in the productivity levels through modernisation of the agricultural sector. Despite our low productivity levels, we have a distinct competitive advantage in several agricultural commodities. We are among the top three producers in the world for several agricultural commodities, but our share of world exports in agricultural commodities is barely 1%. Traditionally the basic mission of India's agricultural development has been to achieve self-sufficiency in foodgrains and also in major non-food crops. With rapidly changing global economic environment, it is now necessary to shift the focus from self-sufficiency to export orientation. My vision of the Indian Agriculture in the year 2020 is as follows : Agriculture will be the driving force behind the growth engine of Indian economy through contribution in our export earnings, absorbing a large part of our less skilled workforce, providing good quality raw materials for our industries at competitive rates, generating demand for industrial goods and services, and above all generating income, saving and investment in Indian economy. Indian agriculture should generate exportable surplus of foodgrains and non-foodgrains after meeting the domestic demand at the world prices. Labour productivity in agriculture should rise sharply to offset any increases in the cost of inputs including wages. Fulfillment of this vision would ensure that India will emerge as a major exporter of foodgrains by 2020 with around 7% share of the world exports. Total foodgrains production is envisaged to touch 500 mn. tonnes by 2020, which would not only ensure sufficient exportable surplus but would also be instrumental almost totally eliminating poverty defined as calorie deficiency on account of unaffordability.<sup>6</sup> The main factors which have created bottlenecks in our efforts to accelerate agricultural development during the last two decades are: a) Inefficient water management; b) Poor supply-chain management arising on account of inadequacy of rural roads; c) Market infrastructure & transportation facilities; d) Inefficient rural credit delivery system; e) Lack of proper education at the operating level; f) barriers to agricultural trade; and g) Lack of focus on value addition.

In order to accomplish the vision and achieve the targets set for Indian agriculture by the year 2020, a carefully designed strategy of increasing total factor productivity growth in agriculture and simultaneously raising the growth of factor supplies to agriculture should be followed. The critical elements of the proposed agricultural strategy would include:

- ❖ High rate of technological progress in agriculture;
- ❖ High rates of public and private investment in agriculture;
- ❖ Significant growth in total cropped area, which can be achieved by increasing the area under irrigation; &
- ❖ Increasing the effective application of high yielding variety of seeds in dry-land farming.

The policy initiatives required for this purpose should focus on the utilisation of the created irrigation capacity by putting in place a comprehensive irrigation management system. The policy initiatives required to implement the strategy to increase the yield rates would consist of

encouraging regional specialisation in crops, developing most appropriate high yielding variety seeds for different regions, and various incentives to make modern farm inputs more viable to Indian farmers. In addition to these initiatives, there is an urgent need to involve the corporate sector formally in the cultivation of high value, capital intensive and modern technology based crops with potential for exports. Corporatisation of farming will not only facilitate technological upgradation, but would also ensure rapid growth of private investment in Indian agriculture. Corporatisation of the farm sector would also result in a significant quality upgradation and growth of value added products and, in the process, it would significantly enhance the export orientation of Indian agricultural sector.

## 2.5. Vision of Indian Industry

Having discussed various aspects of the vision of Indian agriculture, let me now turn to the industrial sector. My vision for the industrial sector is to achieve sustained annual growth of around 9% in real terms through international benchmarking of the productivity levels and attaining global competitive advantage in a large range of industrial products. India has already developed a strong industrial base and Indian industry is by now quite prepared to face the challenge of international competition. The radical changes in economic environment during the last decade have propelled Indian industry to bring about a major restructuring of its operations leading to mergers, amalgamations, joint ventures, strategic alliances and significant technological upgradation. Indian corporates have now learnt to focus more on enhancing core competencies instead of diversifying in unrelated areas. The transformation phase of Indian industry is nearing its completion. What is now required is to create the enabling conditions through a series of comprehensive second generation economic reforms to provide a strong fillip for rapid industrial growth. The major obstacles to accelerated industrial growth are: a) the high incidence of domestic taxes; b) outdated labour laws; c) difficulties involved in dealing with industrial sickness; d) continued existence of inefficient public sector enterprises; and e) relatively rigid factor markets operating in India. The major policy initiatives to accomplish our vision for the industrial sector would include the following measures:

- Comprehensive reform of the existing indirect tax structure including excise, customs, sales tax and local taxes to ensure that the domestic firms in India carry the same overall tax burden as their global counterparts in the respective industries.
- Adoption of new comprehensive labour legislation that would reflect the main characteristic features of best labour legislations observed globally.
- Enactment of the bankruptcy law to facilitate closure of inefficient and non-viable units.
- Effective divestment of government stakes in non-strategic public sector enterprises and utilisation of the proceeds of divestment to restore the country's fiscal health.
- Government business partnership to aggressively promote *Made-in-India* brand with a proper timeframe and benchmarks of progress achieved in that direction.

The Union Budget presented by the Finance Minister on February 28, 2001 contained some initiatives in this direction, but these were essentially in the form of a comprehensive statement of good intentions with serious doubts arising in the minds of many about the viability of the required action plan. The events during the post-budget period (March to August 2001) have significantly increased the prevailing uncertainty over any concrete action that could materialise in the near future, especially under the present political environment.

## 2.6. Vision of India as a Leading Exporter

A significant weakness of our process of economic liberalisation during the last decade has been the high degree of inconsistency in our export performance. During the period 1985 to 1999, the growth rate of exports has fluctuated widely from less than 0% to more than 20%. This phenomenon is perhaps indicative of the high vulnerability of our exports to external shocks as well as internal constraints and bottlenecks. Failure to sustain high growth of

exports is one of the main reasons why we have not been able to achieve high rates of economic growth in the past. Our failure to sustain the high rates of economic growth achieved during the mid-nineties could also be attributed at least partly to our failure on the export front since 1996.

Global vision of Indian economy has to focus on massive export thrust during the next two decades. During the period 1990 to 1998 India's commodity exports have increased from 18 bn. dollars representing around 0.5% of world exports to 34 bn. dollars representing around 0.6% of world exports. Currently, the top 20 products that we are exporting account for more than 70% of our exports and their share in the world exports is 1.2%, while our share of world exports for the remaining products which account for less than 30% of our exports, is only 0.3%. During the period 1990 to 1996, the average growth rate of our exports of top 20 products has been around 12% as against the world export growth of 8% for these commodities, while the average growth rate of exports of other products has been around 8% as against 7% growth of world exports for this category. If we ignore the experience of 1997 & 1998 as more of an aberration and apply the pre-1996 trends to the post-1998 period, India's commodity exports would turn out to be around 345 bn. dollars by the year 2020 accounting for about 1.3% of the world exports. This shows that even if we can replicate what we achieved on the export front in mid-nineties in a sustained manner over the next two decades, India could still achieve a ten-fold increase in exports with a more than doubling of its share in world exports by 2020. Global vision of Indian economy should actually aim at doing better than this.

Hence, my vision of India as a leading exporter is to achieve at least 2% share of world exports by the year 2020. Based on the past trends in world trade and new developments in global economic scenario envisaged over the next few years, aggregate world exports are likely to cross 25000 billion dollars by 2020. India's exports should, therefore, exceed 500 billion dollars to accomplish this vision. To many, this target might appear to be too ambitious to achieve and one might dismiss it as an exercise in wishful thinking. However, while formulating this vision, let us not be guided by undue conservatism or pessimism. Let us not under-estimate the great export potential of our agricultural sector as well as our service sector. It should not be surprising if our IT exports alone cross 150 billion dollar mark by the year 2020. What is required is to formulate a highly focussed strategy and its rigorous implementation to achieve the desired export thrust. Currently, India exports more than 7000 products through more than 300 thousand exporters both big and small. While the range of products as well as the exporter base could be expanded further, there is an urgent need for a focussed approach which involves selective intervention and targeting in specific sectors and product groups. The experience of several newly industrialising economies clearly shows that a focussed strategy for exports enables the country to carve out a significant niche in the global market. Our success on the export front will depend critically on our ability to control inflation and pursue a market-oriented exchange rate policy. The vision of export growth requires that the average rate of inflation over the next two decades is kept below 4% per annum which would help in restricting the average rate of currency depreciation to around 2% per annum and also in maintaining a relatively stable interest rate regime. Fulfillment of our export vision will raise India's export GDP ratio to around 20% over the next two decades.

### **2.7. Infrastructure**

Infrastructure is a crucial factor in the overall development of economy. In India, a comprehensive policy framework for infrastructure development has been lacking. As a result, private investment in the infrastructure sector has not taken off as per our expectations. My vision for the infrastructure sector is to ensure ready availability of basic infrastructure facilities at the lowest possible costs with standards of service comparable to those observed in the newly industrialised economies. To accomplish this vision, it is necessary to evolve a framework that would integrate macro-level policy issues, regulatory aspects and managerial aspects of infrastructure development in the field of power, roads, railways, ports and telecom.

## 2.8. Vision of India's Education Sector

The 21<sup>st</sup> century will herald a powerful era of knowledge revolution. Vision for India's education sector should be not only to achieve and sustain 100% literacy, but also to refocus our higher education to nurture centres of excellence that would acquire global standing and international recognition. The main source of competitive advantage in the 21<sup>st</sup> century is going to be knowledge rather than wealth per se. The focus should, therefore, be on more equitable distribution of knowledge to empower the people of India to create wealth. The key to success in India's vision of dominating the knowledge industry lies in the ability of higher education system to quickly refocus and reorient itself to become a globally efficient provider of knowledge. One of the preconditions for achieving this goal is to significantly increase the public expenditure on the education sector to the level of at least 5% of GDP. Highly skilled manpower with a rare combination of hard work, sincerity, commitment and capability is our major strength. We must capitalise on this strength through a complete revamp of our education system to emerge as the most competitive force in the field of information technology, financial services and entertainment industry.

## 2.9. Emergence of New Areas of Economic Activity

The 20th Century has witnessed three distinct shifts in the basic forces driving global economic activity. Economic growth during the first half of the 20th Century was driven by industrial sector involving mass production of manufactured goods. As against this, the period from 1960 to 1990 has been marked by the emergence of what can be called the 'era of services'. The rapid growth of the service sector has turned out to be the main engine of growth in the high and middle income countries during this period. Finally, the last decade of the 20<sup>th</sup> century has witnessed the emergence of information age with emphasis on knowledge- based industries, which has proved to be the prime engine of growth during the post-1995 period. The 21<sup>st</sup> century would, therefore, witness the emergence of new drivers of growth. A recent study by Graham Molitor argues that by the end of the next decade leisure time will dominate the total individual life-time activity in high income countries.<sup>7</sup> As a result, the business activity focussing on leisure time pursuits will emerge as the fastest growing business segment. According to Molitor's estimates, leisure time businesses will account for almost 50% of American GNP before the end of 2020. Determining the size of leisure time business essentially depends on what is included in this business segment. Leisure time entrepreneurial activities in the orbit of this next wave of economic activity include : recreation, hospitality, entertainment, gambling, travel, tourism, pleasure cruises, adventure seeking, reading, hobbies, sports, exercising, games, computer games, outdoor activities, cultural pursuits, theatre, drama, arts, poetry, opera, symphony, disco & bands, night clubs, bars and taverns, country clubs, retreats, bird watching, gardening, movies & cinema, theatres, television & other broadcast media, visiting and socialising (with family, friends and neighbours), audio & video recordings (including production, distribution, retailing, sales, rentals, etc.) internet and on-line activities, etc. As we add up the income generating potential of these individual segments, the overall potential of the leisure time industry would assume staggering proportions. As society progressed through each of the previous great eras of economic activity, leisure time has increased. Leisure time, which continues to steadily increase, will very soon account for over 50% of lifetime activities in advanced countries. This offers big growth opportunities for India.

## 2.10. Foreign Investment

Achieving 8.5% growth of real GDP would require aggregate investment rate of around 30-32% of GDP depending on the magnitude of efficiency gains achieved by the economy in terms of TFP growth leading to a corresponding decline in incremental capital output ratio. Currently, our incremental capital output ratio is around 4. As a result of the process of structural change envisaged in our overall vision, the share of services in our economy is

expected to increase from 48% in 1998 to 58% by 2020. This phenomenon coupled with technological improvements in agriculture and industry should lead to a reduction in the overall incremental capital output ratio to 3.6 over the next two decades. Our resource needs to achieve 8.5% growth rate could then be restricted to 30.5% of GDP of which around 28% to 28.5% could be contributed by the increased flow of domestic savings. The gap of around 2% to 2.5% of GDP that would remain could then be easily financed by attracting foreign investment. The aggregate flow of foreign investment required to finance our ambitious GDP growth target would be around 60 bn. dollars by the year 2020. Given the recent experience of East Asian countries, we should not aim at a rate of foreign investment of more than 3% of GDP and should try to finance it by attracting foreign investment rather than external commercial borrowing. If we implement the second generation reforms and the macroeconomic scenario gathers enough strength and momentum, attracting 60 bn. dollars of foreign investment per annum should not be a difficult proposition by the year 2020.

### 2.11. Critical success factors

Before I conclude, I would like to emphasise that effective translation of the broad macro-level strategy and specific policy initiatives into tangible results at the micro-level leading to the fulfillment of the proposed vision for Indian economy in 2020 depends on several critical factors. Some of these critical success factors are :

- Long term political commitment to the proposed vision and specific goals on the part of the Union Government;
- Shared vision and cooperation from all State Governments in this national endeavour;
- Sensitive technically well informed and administratively competent bureaucracy dealing with this Herculean task;
- Effective and efficient coordination among various levels of government departments, agencies and institutions involved in the implementation of various policy initiatives;
- Overall environment of mutual trust and respect between the government, the bureaucracy and the private sector; and finally
- Organizational effectiveness and adaptability of the Indian corporate sector.

It would be necessary to strengthen and cultivate these factors during the course of our long journey to economic prosperity over the next two decades.

### 2.12. Conclusion

Since we are a large diverse federal democracy, the formulation as well as the implementation of the broad strategy to fulfil the proposed vision of Indian economy in 2020, requires a strong consensus and quick action on the part of not only the Government but also various segments of trade and industry. Our past experience shows that such a consensus has been extremely difficult to achieve under the existing political and socio-economic environment in India. Moreover, there is a basic inertia and a natural tendency for delaying action on several aspects which are crucial for an effective management of Indian economy. In the process we have already lost precious time and we cannot afford to continue in this fashion in future. Growth acceleration achieved during the last 15 years has created the conditions for India's take-off into the orbit of high growth. India has the potential to emerge as another roaring Asian tiger, provided we can decisively put our act together. Let us hope and pray that our collective wisdom and effort would enable us to capitalise on this great opportunity in the first two decades of the 21<sup>st</sup> century and restore the leading position that our great nation used to occupy in the global arena many centuries ago.

### NOTES

1. For a detailed discussion and analysis of India's economic reforms, see Bhagwati & Srinivasan (1993), Cassen & Joshi (1995) Joshi & Little (1996), Bimal Jalan (1996), Ahluwalia & Little (1998) and C. Rangarajan (1998).

2. For a critical review of India's development strategy during the pre-liberalisation period, see Joshi & Little (1994) and Ahluwalia & Little (1998).
3. See Goldar (2000) and Srivastava (2000) for a review of the literature on productivity growth in Indian industry.
4. For further details, see Dholakia & Dholakia (Dec. 1994) and Dholakia & Dholakia (July 1995).
5. For a discussion of India's economic crisis of 1991, see Dholakia (1991) and for a discussion of the East Asian Crisis, see Dholakia (1998).
6. For further details of this vision of Indian agriculture in 2020, see Dholakia & Dholakia (1998).
7. For details, see the edited work of Kurian & Molitor (1998)

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