

**GROWTH AND EMPLOYMENT IN INDIA SINCE INDEPENDENCE:
AN INTERSECTORAL ANALYSIS**

*Dissertation submitted in partial fulfilment
of the requirements for the degree of
Master of Philosophy
in Applied Economics of the
Jawaharlal Nehru University, New Delhi.*

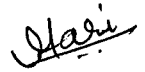
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June, 30, 2000

I, hereby affirm that the research for this dissertation titled "***Growth and Employment in India Since Independence: An Intersectoral Analysis***" being submitted to Jawaharlal Nehru University for the award of the Degree of Master of Philosophy in Applied Economics, was carried out entirely by me at the Centre for Development Studies, Thiruvananthapuram.

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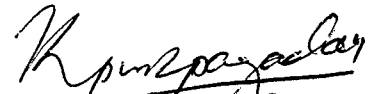
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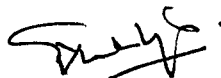
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CONTENTS

List of Tables

List of Graphs

Chapter		Page No.
I	Introduction	1
II	Objectives and Strategies of Planning in India: An Overview	22
III	Trends and Patterns of GDP Growth	36
IV	Trends and Patterns in Employment Growth	73
V	Summary and Conclusions	95
	<i>Bibliography</i>	100
	<i>Appendix</i>	113

LIST OF TABLES

No.	Title	Page No.
2.1	Overall Outlays During Different Five Year Plans.	27
2.2	Public Sector Outlay During the Five Year Plans	28
2.3	Targets and Achievements Under Different Five Year Plans.	29
2.4	Employment Generation and Unemployment Over Plan Periods.	34
3.1	Gross Domestic Savings as a Percentage of GDP Over Plan Periods.	38
3.2	Share of Sectors in the Mobilisation of Gross Domestic Savings	38
3.3	Gross Capital Formation as a Percentage of GDP over Plan Periods	39
3.4	Sources of Gross Capital Formation	40
3.5	Sectoral Distribution of Gross Capital Formation.	41
3.6	Sub-Sectoral Distribution of Gross Capital Formation.	42
3.7	Gross Incremental Capital Output Ratio.	43
3.8	Relation between Gross Capital Formation, Incremental Capital Output Ratio and Gross Domestic Product.	44
3.9	Growth Rates of Sectoral GDP Under Plan Periods.	50
3.10	Decadal Growth Rates of Sectoral GDP.	50
3.11	Sectoral Contribution to the GDP Growth over the Plan Periods.	52
3.12	Sectoral Contribution to GDP Growth Over Decades.	52
3.13	Growth Rates of GDP at the Sub-Sectoral level over plan periods.	54
3.14	Decadal Growth rates of GDP at Sub-Sectoral level.	54
3.15	Trends in Openness, Export orientation and Import intensity (as % of GDP)	67
3.16	Exports of Major Commodities as a Percentage of Total Exports.	68
3.17	Imports of Major Commodities as a Percentage of Total Imports.	70
4.1	Worker Population Ratio by Sex, All India, Rural and Urban Areas.	76
4.2	Broad Sectoral Distribution of Workers (in terms of Usual Status) by sex, All India.	77
4.3	Broad Sectoral Distribution of Workers (in terms of Usual Status) by sex, Rural India.	78
4.4	Broad sectoral Distribution of Workers (in terms of Usual Status) by sex, Urban India.	79

4.5	Percentage Distribution of Workers by Sex, Among Different Sub-Sectors, All India.	81
4.6	Industrial Distribution of Workers in Rural India	83
4.7	Industrial Distribution of Workers in Urban India	84
4.8	Ranking of Sub-Sectors according to Percentage distribution of Male Workers.	85
4.9	Ranking of Sub-Sectors According to Percentage Distribution of Female Workers.	86
4.10	Employment Growth in Different Industries, 1972-73 to 1993-94.	88
4.11	Employment Growth and Labour Force Growth.	91
4.12	Trends in Employment Elasticity.	92

LIST OF FIGURES

No.	Title	Page No.
3.1	Trends in GDP Levels	47
3.2	Trends in Growth Rate of GDP	48
3.3	Trends in Primary, Secondary and Tertiary Sector GDP Levels.	49

Chapter I

INTRODUCTION

1.1 Overview

The macro-economic questions of GDP growth and employment generation and consequent upon their strategies, the structural changes that have occurred in different sectors of the economy is of great concern for the economic development of a country like India. This is because of the consequences that the disparities in income and employment could create between different sectors of the economy.

A rapid growth in national income was generally recognised as an important answer to the problem of development at the time of independence as development was conceived as growth plus structural change. Though the economy was characterised to be a mixed one, it was felt that systematic planning of the economy with the state having an active role in generating the incentives for growth and sustainability was necessary. The various Five Year Plans in India were designed with the objective of achieving a high overall growth rate. Despite the history of 50 years of development planning, the pace of growth and the sectoral structure of the growth of income and employment had been a major concern for economists. This is because of the kind of structural changes that have occurred in the Indian economy over the past five decades. In the earlier stages of planning we adopted a policy of import substitution and inward orientation. Industrial sector was highly protected and was assigned the key role as the stimulator of economic growth. However, over the last 15 years or so, the economy has been opened up with liberalisation and privatisation and this has led to changes in the sources of GDP and also in the employment patterns.

In light of the structural transformations in the economy the present study attempts to analyse the income growth and the extent of employment generation along with the changes in its composition. The study is an attempt to correlate the structural changes in production to employment pattern by mapping out the changes in both these variables. Prior to this attempt we provide the theoretical premises of the study, which is the concern of the present chapter.

India's strategies for enhancing economic growth and development were guided by the theories, which directly or indirectly dealt with these questions. Reviews of these theoretical issues are

therefore important in understanding the plan models and choice of techniques as adopted with regard to the improvement in income and employment. The following section deals with some of these issues.

1.2.Theoretical Paradigms

The objective of this section is to present a brief review of the development paradigms with special reference to the Indian situation. In this section, first we do a review of the growth theories of different schools of economic thought. This will be followed by an attempt to see whether Indian development experience, especially in the fields of income growth and employment generation could be explained with the help of any one or of a combination of the paradigms of growth and development. The idea of economic growth is very old. The Classical school is credited with the first among the economists to analyse the process of economic growth.

Classical Idea on Economic Growth

The idea of economic growth was there in the writings of the classical economists like Adam Smith, Ricardo, Karl Marx, Marshall and Schumpeter. The primary concern of Adam Smith was the dynamic question of growth and development. He attempted to determine, what factors were responsible for economic progress and what policy measures could be undertaken to create an environment favorable for rapid growth. Capital accumulation is the key variable, which determines income growth in this model. Economic development will be a cumulative process. It will process at an accelerated pace, until the economy's capital stock is so large that the rate of profits drops. Then the economy will have attained its full employment riches and a stationary state sets in.

Unlike Adam Smith's economy, which grows at an accelerated pace, Ricardo's economy develops at a progressively slower historical pace. According to Ricardo, manufacturing is subject to increasing returns, whereas agriculture is subject to diminishing returns. The normal progress of the economy towards the stationary state is punctuated by periods of temporary equilibrium, during which wages are at the subsistence level and population is stationary. However, since during these periods, the economy's net income is positive and the rate of return

on investment is above the interest rate; this temporary equilibrium cannot persist. New investment is taking place, which raises the demand for labour, driving wages above subsistence. As a result, population increases. When the supply of labour was finally caught up to its demand, a new equilibrium position is attained.

Karl Marx had his own view in the development process of a capitalist economy. To Marx any particular socio-economic formation should not be viewed as an eternal category. Marx defined capital as a fund of values that brings contractual free labour to a situation of subordination towards the capitalist, who advances him subsistence. Marx also considered profit as the source of saving and accumulation. In Marxian system incentives are not required for saving and capital formation. Growth is an inbuilt feature of the capitalist system. Steady growth under capitalism is unlikely to prevail, because of certain proportions need to be maintained between two departments of production. The anarchic character of the capitalist production often leads to disproportionate developments. Ultimately the inner contradictions within the capitalism leads to the down fall of the system and its replacement by another system. Thus in the marxian view the historical role of capitalism is the creation of the huge productive capacity in the economy, ultimately this increase in the forces of production lead to the down fall of the system.

Marshallian views on growth are also important to consider. In his view growth in a system occurs from two basic causes, growth in importance of education as a form of investment in people, and a general desire to leave wealth to one's heirs, which help to counteract fondness for present consumption. The growth emanating from technological progress is considered autonomous. Further, Marshall talked about the use of an aggregate production function involving factor substitution, which included time as a parameter. In this respect, he clearly anticipated the neo classical models of Solow (1958) and others.

Schumpeter also had his own view on the development process of the economy. AS a first step, Schumpeter hypothesised a primitive concept, which he called 'circular flow of economic life, an idea taken over from Quesnay. Circular flow is interpreted as a process, which repeated itself on the same level from economic unit period to another. Development consists in rupture of circular flow. There are three reasons for such a rupture (a) exogenous factors (b) quantitative growth of population and (c) innovation. According to Schumpeter, development means growth along with qualitative changes. He therefore directed all his attention to the third factor, innovations, which

occupy an important role in his theoretical literature. The credit system helps the expansion of the economic activity arising from innovation. Schumpeter emphasised the new process typically require different assortments of capital goods, which makes it misleading to talk about accumulation in the sense of increase of capital perhead as the key to sustained growth.

The idea of economic growth, which the classical economists putforwarded was developed in to a growth model by Harrod and Domar. Their model explains the longrun equilibrium growth path of the capitalist economies.

Harrod Domar Model (1936,1949)

According to this model the rate of growth of output depends upon the proportion of total investment to national income divided by the capital output ratio, i.e. $G=I/V$

Where, G =rate of growth of output

I = rate of investment

V = capital-output ratio.

HarrodBDomar model assumes capital output and capital labour ratio remains constant in the absence of technological progress. According to this, at equilibrium rate of growth, the following relation would hold

$$G=I/V= \Delta L/ L+t$$

Where

$\Delta L/L$ =rate of growth of labour force

t =rate of technological progress.

I/V represents what Harrod calls the warranted rate of growth and $(\Delta L/L+t)$ represents what he calls the natural rate of growth. Now when there does not occur any technological progress, the rate of growth of labour employment $(\Delta L/L)$ will equal rate of growth output (I/V) . To the extent that the technological progress takes place, the rate of growth of labour employment will be smaller than the rate of growth of output. Thus, in the absence of technological progress, increase in both output and employment. Therefore, this model suggests that the rate of growth of output and employment is determined by the rate of growth of capital stock. Thus according to this model, the solution to the problem of surplus labour lies in sufficient increase in the rate of investment and capital accumulation.

Some of the postulates in this model are relevant in analysing the pattern of income growth in India because, this model had find applicability in the initial stage of Indian Planning. The First Five Year Plan was based on this model of economic growth. Accordingly India had given much importance to the mobilisation of savings and capital formation as an important tool to rapid growth of the economy as advanced by the model.

Development Economics Paradigm

Development economics as a separate branch was developed in the early 1950's mainly in the context of underdeveloped countries efforts to achieve rapid growth and development after liberation from the colonial rule. These models were basically concerned with the analysing the factor, which would lead to growth and structural transformation in underdeveloped countries. The development models identified the two important components of economic transformation as accumulation and sectoral composition. Both had policy implication, the former at the aggregate level and the latter by its nature, at a diaggregated level but in an economy wide framework. Accelerating and sustaining economic growth required increasing the rates of accumulation and maintaining sectoral balance to prevent disequilibrium in the product markets or to overcome disequilibrium in product markets, or to overcome disequilibrium prevailing in factor markets.

Lewis's Growth with Unlimited Supply of Labour

Lewis had made use of the Classical concepts to explain the growth path of underdeveloped countries. By transferring relatively low productive laboropts from agriculture to non- agriculture, which is assumed to have a higher level of labour productivity, an important slack in the economy can be taken up. W.A. Lewis (1954) first pointed this out in a model of a two-sector economy. One sector was a 'traditional' mainly agricultural sector, where the marginal product of labor is zero or close to zero and the average product is close to subsistence minimum. The other sector is an enclave of modern industries, including plantation agriculture, which is referred to as 'capitalist Sector', where labor is employed up to the point where it's marginal product equals the wage rate. The non- agricultural wage rate is assumed constant in real terms at a level slightly higher than the average product in the traditional agriculture, the difference providing the incentive for migration of labor from agriculture to industry.

According to Lewis "the central problem in the theory of economic development is to understand the process by which, a community which was previously saving and investing 4 or 5 percent of its national income or less, converts it self in to an economy where the voluntary saving is running to about 12 to 15 percent of national income or more"(Lewis 1954 P.155) In Lewis' model, growth proceeds with the continuous re-investment of the capitalist sector profits or surpluses. With each round of re-investment, a part of surplus labour from the traditional sector is absorbed in the capitalist sector, according to the profit maximising principle of equalising the wage rate with marginal product. As this capital accumulation proceeds, the rising share of industrial production results in a raising share of profits in national income, with real wage remaining constant. The transfer of labour also benefits agriculture, which experience an improved land labour ratio. The amount of labour that can be transferred will depend on the amount of capital stock that is available in industry, the industrial capital labour ratio and the amount of surplus labour in agriculture. The rate of transfer will depend on the rate of growth of industrial profits. This phase of economic growth will come to an end when the entire pool of surplus labour in agriculture is absorbed by the modern sector. Thereafter, the level of real wage will rise, as the supply elasticity of labour from agriculture to non- agriculture no longer is infinite and agriculture will start competing with industry for more labour. Beyond this turning point, the labour supply curve slopes upward, wages are determined by conditions of labour demand and supply and capital labour- substitution becomes important. Lewis model is closed by fixing the real wage of industrial labour in terms of a consumption basket. A share of non-labour income in industry is saved and investment adjusts to exhaust savings, which permits the economy to grow at a steady pace. This steady state is supply constrained and had a predetermined income distribution. With low wages in terms of food, unchanged terms of trade and an upward moving marginal productivity of labour function based on the accumulation of industrial capital, Lewis argue that economic growth consist in the fact that a low saving economy is transferred in to a high saving economy.

This model finds empirical validity in the Indian context. Chakravarty (1977) had used this model to explain the growth experience of the Indian economy. He admits that some of the assumptions of the model are not valid in the Indian context. The deficiency of this model lies i assuming that the modern sector is self sufficient with respect to food, either through trade with the rest of the world or through the appropriate planning of investment among the different components of the moderns sector itself. The food bottleneck, which occurred in the Indian

context in the sixties, questions the validity of this assumption. A major assumption of the Lewis model is the constancy of real wage in the agricultural sector. But in the Indian context, the agricultural wages were not remained constant, but show an increasing trend (Jose 1988).

Still the Lewis model had got empirical relevance in the Indian context, because some of the basic ideas of the model suit to the India condition. In India agricultural sector still provides employment to more than 60 percent of the workers. There is underemployment in the agricultural sector. The industrial sector is not able to absorb the agricultural workers.

A basic condition to be satisfied in order to obtain higher growth in the Lewis model is the increased saving and capital formation. The Planning process in the economy had given importance to this aspect. The savings and investment of the economy had increased from below 10 percent to above 20 percent of the GDP. Still the expected transfer of the surplus labour is not taking place in the Indian situation. To explain these phenomena the use of Lewisian framework is helpful.

Fei & Ranis Model

Formal presentation of Lewis' work started with Gustav Ranis and John Fei (1961,64), whose model has two turning points: when food supply begins to decline as labour is withdrawn from agriculture and when the marginal product of agricultural labour rises to the institutionally fixed non- agricultural wage rate.

Following Lewis, they assume that the land area is fixed and subject to diminishing returns to scale as the labour land ratio rises and the agricultural labour is paid an institutionally determined wage rate. In these circumstances, in the early phases of growth, a part of agricultural labour can be transferred to industry without resulting decline in agricultural production. Because in the early phase, the internal surplus of the agricultural sectors as relatively small, net savings of the agricultural sector constitute the principal source of industrial accumulation. The first stage of economic growth is characterised by an infinitely elastic supply of labour to industry as long as the agricultural surplus persists. Fei & Ranis assume a constant institutionally determined wage rate in agriculture, arguing that as long as surplus labour continues to exist in the agricultural sector, there is no reason to assume that this wage income

assumed to be consumed and a constant fraction of profits saved, growth takes place through the reinvestment of profits in industry and the transfer of labour with zero or near zero marginal productivity from agriculture. This transfer is completed when surplus labour in agriculture is exhausted and the marginal product of its labour begins to rise. This is the second phase of economic growth in which industrial wage remains higher than both average and marginal product in agricultural production. Since marginal product from agriculture is positive opportunity cost of labour transfer from agriculture to industry are also positive. Hence, beyond the point where the marginal product of agricultural labour starts to increase, the fund of agricultural wages goods available for the industrial workers begin to fall. As a result, the relative price of food will rise and consequently, the supply curve of industrial labour ceases to be completely elastic and begins to rise. Investment and the rate of economic growth will tend to fall. The economy will enter its third and final stage of full commercialisation when the marginal product of agricultural labour becomes equal to industrial wage. At this stage, continued economic growth becomes conditional on technological progress in agriculture required to raise agricultural productivity and offset the fall in agricultural surplus due to transfer of labour to industry.

Balanced Growth Paradigm

The balanced growth paradigm developed by Rodan (1943), Nurkse (1952) and Khan (1973) argued that the balanced growth of both the industrial and agricultural sector is necessary to avoid stagnation of the overall rate of economic growth. Balanced growth has two dimensions. On the output side, it means that each sector provides a market for the other sectors product and that each must grow in such a way that the terms of trade do not turn against either, thus affecting relative investment incentive. On the input side, the agricultural sector will provide workers for the growing industrial sector. Balanced growth implies that the two sectors grow in such a way that the industrial sector is able to absorb the precise number of new workers freed by the agricultural sector at a constant real wage, set by the average product in agriculture plus a constant margin.

Rosenstien Rodan (1943) first developed this argument. In a low-income economy, the expansion of the industrial sector may be constrained more by the weak incentive to invest due to limited demand than by limited capital supply. Although the expansion of employment and

income in one sector will certainly lead to rise in demand the individual investor will rightly expect that this increase in demand is not only for her product, since individuals tend to be generalists in consumption and accordingly may not want to expand production capacity. However, if there was a simultaneous expansion of several sectors, the expansion of production, employment and income in different sectors would create demand for all the sectors, finding markets for all the goods and all investment worthwhile.

Nurkse (1953) and Kahn (1972) developed Rosenstein Rodan's argument further. Emphasising the savings potential contained in disguised unemployment particularly in agriculture, both Nurkse and Kahn proposed to effect the required big push in investment through redeploying unemployed and underemployed labour to the production of capital while at the same time redistributing consumption goods from agriculture to newly employed.

The balanced growth strategy had given a clue to the planning for balance growth and development in the Indian economy. But the investment pattern in the Indian economy had shown that it had given much importance to the industrial sector of the economy and the growth pattern of the economy had shown an unbalanced pattern. The agricultural sector had remained stable over the period, with higher growth in the secondary and tertiary sectors of the economy. Thus the objective of the balanced growth, which was envisaged in the planning, as a result of the influence of these theories were not successful in attaining the goal of balanced growth among sectors and regions.

Unbalanced Growth Paradigm

Hirschman (1958) advocated the strategy of judiciously planned unbalanced growth. According to him, low rate of capital formation and economic growth in the less developed countries is neither due to the lack of resources, nor due to the small size of the market. What is lacking in the less developed countries is 'the ability to bring resources in to play', which include ability to decide and undertake investment. He divided the productive activities in to two broad categories: directly productive and Social overhead capital. According to him, the balanced growth of directly productive activities and social overhead capital is neither attainable nor desirable. It is unattainable because in the less developed countries there is limited ability to utilize resources, and it is undesirable because the balanced growth approach would not avail of the external economies or what he calls backward or forward linkage effects which flow in good amount

from concentrating investment resources in a few strategic industries. The rate of economic growth would be faster with unbalanced growth because of the induced investment decisions resulting from the incentives and pressure it sets up.

Kalecki: The Threat of Wage Goods Constraint

Michal Kalecki (1976)'s main concern was with the possible macro economic consequences of growth in a low-income economy in which capital is in short supply and labour is underutilised. In so doing, he distinguishes between a fix price manufacturing sector in which the price is determined as a mark up over prime costs and output is determined by demand and a flex price agricultural sector with output given in the short run. In manufacturing, prices are set by the producers, the profit margin depending on the degree of monopoly prevailing in the industry.

Kalecki also makes a clear distinction between the saving and spending pattern out of different categories of income, notably wage income and markup income. Wages will be fully spent as they are received, while profits will be partially spent and partially saved. Kalecki was one of the first to emphasise that finance has to be available before investment begins, while savings come afterwards. He asserted that a rise in the rate of investment will increase the flow of wages, which will be spent, and if the accompanying rise in profits causes an increase in spending out of dividends, profits will rise by so much more. Thus there is an increase in spending out of dividends; profits will rise by so much more. Thus there is an increase in retained profits equal to the increased outlay on investment. In Kalecki's model, sectoral investment levels are commonly given in the short run and independent from the level of savings in the long run.

According to Kalecki, three major obstacles may hinder capital accumulation. They are (i) inadequate incentives to the private sector to increase investments at a desirable level, (ii) lack of physical resources to produce more investment goods, and (iii) inadequate supply of necessary wage goods to meet the demand increases resulting from the rise in employment.

Much of the Kalecki's work deals with the third obstacle of inadequate supply of wage goods. He argued that this obstacle can in principle be overcome by balance growth, which implies that for any rate of growth of real income, there must be a corresponding rate of growth in the supply of necessities. The growth rate of the food supply must be at least such that it can feed the

additional population at old level and also to meet the extra food demand arising from increasing percapita income. This is the food balance, which was formulated by Kalecki (1960) in terms of a minimum unique rate of growth of agricultural needed to sustain a pre determined growth rate of the economy as a whole. If agricultural growth falls below this minimum rate it becomes an effective constraint to the overall growth. Kalecki thus regarded the demand problem to be an integral part of the supply constraints traditionally argued to be operating in a low-income economy.

So far the countries like India are concerned Kalecki's analysis has stood up well. Industrialisation even when well diversified has not succeeded in phasing the country to high enough growth path despite adhering to the Mahalnobis strategy in the initial years. The wage good constraint actually happened in the economy in the mid sixties and early seventies. A major explanation given for the industrial stagnation since the mid sixties is the Wage good constraint¹. In the Indian context the Wage good constraint was elaborated by Vakil and Brahmananda (1974,78)². Sen (1975) advocated the idea that a crucial bottleneck in the way of expanding opportunities for wage employment in less developed countries arises from the deficiency of wage good supply. He points out that it is not the lack of demand as visualised in various studies based on the input output model of employment, but the availability of sufficient wage goods, which prevents the generation of adequate amount of employment.

Sectoral Paradigm

Modern analysis of sectoral transformation originated with Fisher (1935, 39) and Clark (1940) and dealt with sectoral shift in the composition of labour force (Syrquin 1988). They were the first deal with the process of reallocation during the epoch of modern economic growth, and to use the form of sectoral division (Primary- Secondary- tertiary), which in one way or another, is still with us today.

¹ Raj (1979)

² Vakil and Brahmananda (1974,1978) critised the strategy of second and third five year plan on the wage good argument. They call the difference between the required magnitude of wage goods and the actually available supply of wage goods as the " wage goods gap" open and disguised unemployment in the less developed countries is due to the wage goods constraint in less developed countries like India.

Theories of development of the 1950's stressed sectoral differences. In Lewis model, sectoral differences appear as traditional versus modern Sectors and in Nurkse (1953) and Rosenstien Rodan (1943, 61), as a requirement for balance growth.

These approaches share some views of the functioning of the less developed countries, like labour surplus in agriculture, low mobility of factors, price inelastic demands, export pessimism and a general distrust in the market. These were the hallmark of what Little (1982) calls the structuralist view.

On the empirical side, studies of the long run transformation are best represented by Kuznet hypothesis (1957) of modern economic growth in a series of seminal papers. Kuznet established the stylized facts of structural transformation. He first empirically studied the long run transformation of the economies in a series of seminal papers. He did not develop a theory of development. But his analysis was concerned with the pattern of growth, which were followed in the developed countries at that time. According to his study, in the long run, the share of the agricultural sector in the total product would decline and the share of manufacturing would increase. No definite expectations were entertained concerning long-term trends in the share of service sector and its major subdivisions (except transport and communication, whose share would expect to rise). According to him, they might remain constant or they might rise in some countries and decline in some other countries. As regarding the distribution of the labour force, his study showed that the share of agriculture sector in the labour force to decline, and the share of manufacturing and service sectors to rise. The relative rise of labour force in the service sector to be more moderate than the relative rise in the share of manufacturing sector or the relative decline in the share of agricultural sector. Within the service sector, the relative rise in the share of other services to be more moderate than that in the shares of services like trade, banking and insurance etc.

An important school of thought lead by Schumacher (1965, 73), Singer (1969) and Myrdal (1968) attributes the mounting problem of unemployment and underemployment in developing countries to the use of capital-intensive technology. It has been observed that while industrial output in developing countries has increased at a reasonably good rate, growth of employment has lagged far behind. And this it is said to be due to the use of capital-intensive technology. Thus according to this school of thought, the creation of meager amount of employment opportunities due to the use

of capital intensive technology on the one hand and the growth of population at an alarming rate on the other hand has resulted in the huge magnitude of surplus labour.

The Neo Classical Approach

Mainly in reaction to the classical approach, neo classical oriented economists have argued the marginal product of agricultural labour is not zero and that disguised unemployment and surplus labour do not exist. These criticisms were based on the efficient but poor view of the traditional agriculture associated with T.W. Schultz (1964) and others. D.W. Jorgenson (1961) first elaborated the neo-classical theory of economic growth in a dual economy consisting of agriculture and industry

Jorgenson (1961, 1967) modified the original Lewis model to allow for the neo-classical determination of the real wage rate. He considered an economy in which agriculture produces with given land and labour endowments under diminishing returns to scale and industry produces with acumable capital according to constant returns to scale. In the manufacturing sector, capitalists hire labour to produce in order to maximise profits. All profits are saved and invested. Jorgenson further assumed exogenously given rate of technological change for both sectors, a constant rate of population growth and zero income and price elasticity of the demand for food. The growth rate of agricultural production is dependent on agricultural labour productivity, technical progress and population growth.

In Jorgenson's model, the necessary and sufficient condition for the emergence of a positive and growing agricultural surplus and therefore a necessary and sufficient condition for sustained economic growth are that the rate of growth of percapita agricultural output is positive. This in turn requires that the rate of technical progress in agriculture exceed the exogenously- determined rate of population growth multiplied by the elasticity of output with respect to land. An industrial labour force comes in to being when agricultural output perhead attains a certain critical value that is when agricultural output attains the minimum level necessary for population to grow at its maximum rate. The non-agricultural sector is economically viable only if there is a positive and growing agricultural surplus. The terms of trade plays a passive role; they adjust to equate the income per head in the two sectors. Hence the neo-classical model of Jorgenson points out that economic growth may be constrained by the rate of release of labour from agriculture. This conclusion is of course,

diametrically opposed to Lewis views in which the transfer of surplus labour to the non- agricultural sector is limited by the demand for labour, which in turn is limited by the rate of industrial capital accumulation.

It is worth while to note here that the modern industries using capital intensive technology not only create a few opportunities of employment but also to destroy employment in high rate of growth of employment therein would yielded employment in the traditional household industries. This unfavorable impact of modern sector on the traditional employment in what Myrdal calls backwash effect³. According to this school of thought⁴, modern manufacturing enterprises using capital intensive technology produce goods on a mass scale which drive out the products of traditional household industries from the market. As a result a good number of people engaged in these industries are displaced. They either add to open or disguised unemployment in agriculture.

Solow's Model

The Solow's model was developed to answer the knife-edge equilibrium path in the Harrod-Domar model. In attempting to improve the Harrod-Domar model Solow replaced the constant capital-output (and labour-output) ratio with a richer and more realistic representation of technology. Solow (1956) introduced the use of a neo classical production function in analysing the growth. Long run economic growth is determined by population growth and technical progress, with no impact of saving rate on the long run growth rate.

Solow's model losses its momentum if capital is growing fast relative to labour. The reason is diminishing returns to capital, which creates a downward movement in the capital labour ratio as capital is accumulated faster than labour. The lower output- capital labour ratio then brings down the growth of capital in line with the growth of labour. In the long run, total output grows particularly at the rate of population and technical progress and the saving rate has no longrun effect on the rate of growth.

³See Myrdal (1957)

⁴Mainly Schumacher (1965, 1973), Singer 1969) and Myrdal (1968)

Solow's views were the cornerstone of further refinements in the neoclassical approach. A plethora of models delving into the issue of growth came up as an offshoot of this⁵. These models have focussed on tracking the growth path, identifying the constraints for achieving higher growth and sustaining the trajectory of growth. Recent times witnessed a revival in the interest in growth with the emergence of New Growth Theory. The new growth theory explains the longrun growth process through endogenous forces such as productivity growth, human capital, knowledge spillover and the information technology.

The origins of the concept of new growth theory can be traced back to Arrow (1961). Arrow developed the argument that there would be an endogenous productivity growth in the system in the process of economic growth as a result of human capital formation. Productivity increases as a result of the accumulation of experience by the labour force. Arrow measures the index of experience by the value of cumulative gross investment at any point of time. Technical change is in the nature of an intertemporal externality generated by the process of capital accumulation. Thus it had an embodied form and is inevitable in the process of growth. Equilibrium rate of growth is strongly influenced by the rate of growth of efficient labour force.

Romer (1990) proposed a model of endogenous technological change that arises from international investment decisions made by the profit maximising agents. This model suggests that an economy with a larger stock of human capital will experience faster growth. According to this model, the opening up for international trade can also help to speed the process of growth. Romer also explains the importance of research and development (R&D) in the process of economic growth. He considers R&D like any other production activity, which converts the inputs into outputs. In the case of R&D the output is increased knowledge.

Lucas (1988,1993) also gave importance to the growth of human capital for rapid growth of countries. He putforward the idea that learning spillover yields a strong connection between rapid productivity growth and openness in trade. Thus countries, opening would take advantage of scale economies according to the learning spill over theory and this process will make their production grow more rapidly than those who are limited to producing traditional goods with no

⁵ A review of these models is purposefully avoided here.

spill over effects. Lucas argues for openness of trade. Import substitution policies will not succeed in stimulating growth at a sustained level. In this model, given the endogenous human capital formation along with accumulation of physical capital, the growth rate of the system is endogenously determined by the parameters of preference function and the level of technology.

The rate of savings has a role to play in determining the equilibrium rate of growth. There are two ways in which savings occur in Lucas's model. First, it has the form of physical capital accumulation. This saving does not have any effect on the rate of growth. But allocating labour away from the production of final goods for the sake of human capital accumulation also constitutes the savings. It is this form of savings that determines the economic growth. These neo-classical models do not have much relevance in explaining the growth pattern of the Indian economy.

Sectoral Approach of Different Paradigms

The paradigm describe above are basically developed around a two sector concept of agriculture and industry. In the classical theories, economies of scale or economies of specialisation view manufacturing as the engine of economic growth. Given the strategic role of manufacturing, government's role should be to direct resources in to that sector, at a rate well above that indicated by the market rate of return on industrial investment, which would have materialised without public intervention. Policy instruments, which can be used to this end, include intersectoral terms of trade, which can be manipulated against agriculture, keeping effective protection low or negative for agriculture because of high nominal industrial protection, and direct taxation of agricultural income. Classical were well aware of the fact that manipulation of terms of trade against agriculture may negatively affect market surplus to the extent that the wage goods constraint on industrial investment becomes operative. According to Fei and Rains this situation may be avoided by a process of balance growth through technological change and capital accumulation in both sectors, pushing upwards the demand curve for labour in the industrial sector. This will sustain investment incentives in both sectors, by leaving unchanged intersectoral terms of trade, and by ensuring that agriculture will supply enough labour to satisfy the expansion of industry at a constant real wage.

Post-Keynesians regarded industries role in economic development as pre eminent, but nevertheless think that agriculture was a binding constraint.

The works of Fisher, Clark and Kuznets have developed the idea of structural division of the economy, and also they empirically studied the changes in the importance of various sectors in the process of economic growth and development. Thus the structuralist view elaborated the division of the economy into sectors namely, primary, secondary and tertiary and the interdependence among the sectors in terms of products and employment. The dual economy models developed in the 1950's elaborated this idea of structural interdependence in the process of economic growth.

A Critical Evaluation of the Development Paradigms

Having explained the well-known development strategies, let us now try to evaluate them in the context of economic growth of India. All these strategies have some merit each one of them identifies as factors that help to generate growth and employment. It is worth while to note that most of the strategies described above, especially those which emphasises the role of capital accumulation regard the modern sector as being capable of absorbing not only the openly unemployed but also the disgustedly unemployed persons from agriculture. However the actual experience belies the hopes of generating employment opportunities.

The Harrod- Domar model, which found the basis for the Indian planning had given importance to the saving and capital formation in the economy for achieving higher growth of the economy. But the development experience of the Indian economy had show that even with above 20 percent saving and capital formation, the economy is able to achieve a growth rate of only 5 to 6 percent per annum. Raj (1984) argued that the inefficient use of the resources, which lead to increased incremental capital output ratio was the major reason for the shortfall in the growth rate.

The Lewis model also explained the importance of the capital formation in the process of the economic development, which model is also relevant in explaining the growth process of the Indian economy. The model also explained the growth path through which, the surplus labour in the agricultural sector is got transferred into the traditional sector. The empirical validity of this model is also important in the Indian context, because, still above 60 percent of the workers are employed in the agricultural sector. The availability of the workers at the minimum subsistence wage level is a questionable assumption in the Indian case.

The balanced growth strategy of Rosenstien Rodan, Nurkse and Khan also gets relevance in the Indian context because the major objective of economic planning is the balanced growth of the economy among different regions and sectors. The wage good constraint as elaborated by Kalecki also finds relevance in the Indian context, the food shortage actually leads to the crisis on the Industrial sector. This shows that a combination of the dual economy model and the structuralist models can be used for studying the growth performance of the Indian economy.

The structuralist models and the dual economy models stands as the theoretical frame for this study, because the Indian economy being an agrarian one in the initial stage of development required the type of development, which these studies analysed.

1.3.Importance of the Study

The developing economies are expected to be primarily agrarian structurally with primary sector as the major source of income as well as employment. The income growth and employment generation in these economies is mainly agrarian in nature. In the process of economic growth and development of such economies, theoretical postulation suggests a diminishing role of agrarian dominance and the faster growth of secondary and tertiary sector. In addition to this, the surplus labour, which is available in the agriculture sector is expected to be absorbed in the industrial sector in such economies.

Indian economy has been a primary sector driven economy at the time of independence. The characteristics of underdevelopment were the features of the economy. But the economy has undergone a lot of structural changes in the past 50 years. Though the public and private mixed character is sustained over the years, the focus of sectoral priorities of development has been under change in these years. The reforms and liberalisation process of the economy which started in the late eighties have thoroughly changed the perceptions of development and the traditional agriculture-industry dichotomic focus of sectoral analysis were forced to accommodate the tertiary sector which is growing world wide. In the wake of such transformations, the relevance of the present study is to enable a critical analysis of the growth of income and employment over the years and whether the changing paradigms of the fifty years enabled the achievement of the plan goals.

Most of the studies the macro economic performance of the Indian economy⁶ were done under for a period of inward oriented development strategy. But in recent years there is a shift in the development strategy. This new development strategy gives importance to external sector and trade is considered as the engine of growth. International evidence too suggest that economic growth in the late seventies and early nineties had given much importance to trade as a stimulator of economic growth⁷.

The aggregate growth of the economy is a basic question, which should be answered first, before going in to the structural transformation. Theoretically the structural transformation takes place only if the aggregate growth rate of the economy is very high. The Indian experience shows that till the late seventies the growth rates were only around 3 percent per annum. It was only in the eighties that the growth in the economy had picked up momentum. So the analysis of the aggregate growth performance should precede that of the structural transformation.

As we noticed, theoretically an important outcome should follow from the structural change in income, which is the change in employment structure. But whether the liberalisation policies affect the employment growth of the country is an important question raised in Indian context. The industrial sector, which is supposed to absorb more labour had registered higher growth in output during the eighties, but there is not much employment generation in this sector. Whether the new developments are creating a 'puzzle of jobless growth in India' is a debated issue now.

The theoretical paradigms Fisher (1935,1939) Clark (1940), Lewis (1954), Kuznets (1957) Fei & Ranis (1961,1964), showed that with economic growth there would be a structural transformation of the economies from the agrarian structure to that of the industrial sector and tertiary sector in terms of income growth and employment pattern. In the India context, these models become relevant, because through planning process, India also aimed at a structural transformation of the economy. Thus, the focus on sectoral dimensions of the growth and employment is required due to the shifts in strategies for development, which is made on the basis of sectoral priorities.

⁶ The studies of Raj (1965,1984), Rudra (1965), Charkravarty (1977), Ahluwalia (1985), Nagaraj (1990) being the notable ones.

⁷ See Michaely (1977), Balassa (1978) for earlier evidence on this and Harrison (1994) for some recent evidence.

So the questions we address are two fold in nature: (1) Whether the income and employment of the economy have grown over the years; how it has grown etc and (2) Whether the growth of income and employment were uniform/balanced across sectors; how far the contributions differed across sectors etc.

1.4. Objectives of the Study

Theoretically, a structural shift in the economy is expected with the growth of the economy from primary to secondary and tertiary sector. The industrial sector is supposed to be the prime mover of the economy to come out of its agrarian structure. The mechanism of the growth in backward economies like India was expected to be at first a shift from the primary sector to the secondary sector in terms of growth and then employment, and in the third stage there will be increase in the service sector activity. We ponder on issues as to whether the Indian growth performance had followed the traditional growth pattern, the industrial sector along with trade acted as the engine of growth and was there was an expected shift in the employment in the economy.

The specific objectives of the study are:

- To analyse the trends and patterns of GDP growth at the aggregate level and at the sectoral level of the Indian economy.
- To examine the shifts in sectoral growth and its contribution to GDP growth.
- To look at the trends and patterns in the employment generated in the Indian economy at the aggregate level and sectoral level

1.5. Data Source and Methodology

The data on GDP at factor cost and the sectoral shares were collected from the National Accounts Statistics (1980-81 prices), published by the Central Statistical Organisation. The data on Gross Domestic Savings and Gross Capital Formation were collected from the same source. The data on export and import were collected from the Handbook of Statistics on Indian

Economy, Published by the Reserve Bank of India. The data on employment were collected from the Five Quinquennial Surveys and the various annual surveys on Household Consumption Expenditure and Employment situation in India published by the National Sample Survey organisation. A note on the concepts used in the study is provided in the appendix.

In order to analyse these specific objectives we first examine the process of development planning in India. We then move on to an analysis of the growth of output the aggregate, sectoral and subsectoral level. In this process we test for breaks in the trend growth along with acceleration and deceleration in growth. The shift in the policy regime and its impact is assessed in terms of the relationship between openness, exports and growth. Regarding employment we analyse the sectoral, sub sectoral, rural and urban trends.

1.6. Chapter Scheme

After presenting the theoretical premises of the study in this chapter in the second chapter, we have tried to analyse the strategies and policies adopted by Indian planning for growth and structural change. Based on the experiences of Indian planning process, the development strategies used by our planners is critically analysed and policy implications are drawn for the further analysis.

In the third chapter, performance of economic growth in terms of the trends and patterns of GDP growth, for the economy and for various sectors are made. The contribution of each sector growth to the overall growth of GDP is analysed. The contribution of trade to the domestic economic growth is analysed in the final section of the chapter. In the fourth chapter, we analyse the trends and patterns in the employment growth in the economy. The fifth chapter provides the conclusions drawn from the study.

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Chapter II

OBJECTIVES AND STRATEGIES OF PLANNING IN INDIA: AN OVERVIEW

2.1. Introduction

An analysis of the development strategies pursued in Indian economy since independence is presented in this chapter. The chapter looks at the strategies and priorities of India's Five Year plans with respect to GDP and employment growth. As the study focuses on the levels of the growth of output and employment in different sectors of the economy, an understanding of the policies pursued for different sectors helps us to examine whether the trends and patterns in the GDP and employment growth were in accordance with the policies pursued. First we review the strategies adopted in various Five Year Plans with respect to income and employment growth. This is followed by an analysis of the investment patterns at the sectoral level and its composition. This is carried out to facilitate the understanding of the sectoral analysis of GDP growth, which is undertaken in the next chapter. Thirdly we undertake a critical examination of the target growth rates set for GDP, agriculture and industry and the realisation of them under various Five Year Plans. Finally, we examine the employment scenario during the planning era.

2.2. Plan Strategies and Priorities

Drawing insights from the theoretical apparatus provided in the previous chapter we present a synoptic view of the strategies adopted for achieving the targeted growth. These strategies were intended to bring about structural changes in a dual economy. Historically it is believed that the colonial rule prevented India from building a strong economic base. There are a few studies, which examined the growth pattern of the economy during the pre-independence period¹. The conditions prevailed clearly indicates the backward nature of the economy². Thus planning process was embarked upon and targets were spelt out to bring about structural transformations.

¹ These studies, historical in nature examine the economic conditions in parts of the colonial empire. For an exposition of the colonial legacy, see Chandra (1992).

² The economy had been more or less in a stagnant condition over a long period prior to Indian Independence when it totally failed to meet the demands of a rapidly growing population, which increased by about 52 percent between 1901 to 1951. Besides, there was very little change in the occupational structure over this period and nearly 70 percent of the people depended on agriculture for employment.

After independence the country adopted a strategy of planning to overcome the then prevailing backward conditions, with a long run perspective implementing the five-year plans from the 1950s. When planning process was initiated differences existed between a set of mainstream theorists and their critics. The debate centred around the role of the market system in bringing about the desired quantum leap in the volume of accumulation and its distribution between sectors³. However, both accepted the importance of accelerating the growth of the economy and lowering the unemployment rates along with a reduction of income inequalities. Thus, the plan policies were designed with the broad objectives; i) to boost production and thereby to achieve higher national and per capita income, ii) to achieve full employment, and iii) to reduce inequality.

The planning policies were consistent with the then prevailing mainstream economic and political thought, dominated by arguments for an import-substituting regime. The planners subscribed to a supply side view⁴. It was widely believed that resource mobilisation coupled with an active state investment policy would provide the 'critical minimum' to foster higher utilisation of the productive resources. In what follows, we discuss the objectives and achievements of different five-year plans avoiding the specificities, concentrating on strategies for employment generation and output growth.

The First Five-Year Plan (1951-52 to 1955-56) initiated a process of all around balanced growth. The aim was to ensure a rising national income and a steady improvement in the living standards over a period of time⁵. Significant importance was, however, given to investment in infrastructure and agriculture with a view to enhance the productivity and to ensure food security. The plan emphasised that the problem of unemployment in a developing country could be treated differently from the case of developed economy due to the existence of surplus labour⁶. It was felt that a programme of full employment could be implemented only by removing some of the structural deficiencies in the economy. Accordingly, the strategy was

³ See Chakravarty (1987).

⁴ The argument that domestic demand can possibly be a constraint on the growth process was not mentioned even as hypothesis that needed to be rejected. See Chakravarty (1987) for a detailed review.

⁵ The goals were rather modest because there were other problems, which had to be urgently attended to, as for instance those arising out of war and partition as spelt out in the approach to the first five year plan. See Raj (1951).

⁶ There was little Keynesian-type unemployment in India in the early fifties as noted by Chakravarty (1987).

based on the hypotheses that employment generation, poverty reductions etc. are synonymous. The growth of the economy and generation of employment are thus correlated in such a way that the growth-oriented development strategy would take care of unemployment *per se*.

The Second Five Year Plan (1956-57 to 1960-61), heavily influenced by the work of Mahalanobis, was a variant of Soviet planning model⁷. The plan emphasised the need for creating a strong capital goods base in the country as the starting point to tackle the problems of unemployment and poverty. Accordingly greater attention was paid to 'build ahead of demand' in the capital goods industry emphasising on rapid industrialisation with a stress on the development of basic and heavy industries. It was viewed that the development of capital goods sector would lead to the diversification of the export basket in the direction of manufactured products, including machinery and equipment. The increase in employment, leading to an expanded demand for consumer goods, on the other hand, would be met by pursuing 'capital-light' methods of production. The plan endorsed the importance of agriculture in the context of employment. However, since the sector had already absorbed a major chunk of labour force, there was little scope for substantial absorption. Therefore, the need for area-based employment generation in the small urban areas and the development of small-scale industrial sector were initiated.

By the beginning of the Third Five Year Plan (1961-62 to 1965-66), Indian planners felt that the economy had entered the 'take off Stage', and that the first two plans had generated the institutional framework needed for rapid economic development. Consequently, the third plan set as its goal the establishment of a self-reliant economy. For employment creation, the plan adopted the strategy of "sectoral priorities", placing emphasis on agriculture as the main employment generator. Besides agriculture, employment in the rural sector was planned to be supplemented by the growth of rural based industries. The plan raised one of the key issues of development planning of the possible trade-offs between the different plan objectives, like the choice of technique⁸ - either more employment or higher productivity. In this context, it emphasised the need for re-examining some of the original construction projects to see the scope for increasing the use of manpower and to give more preference to labour intensive methods.

⁷ To quote Mahalanobis "A model of exactly this type was developed by Feldman in 1928 in the U.S.S.R.... The Indian work, however was done completely independently of Feldman's findings..." Mahalanobis (1955 p.257).

⁸ An issue discussed in Sen (1960).

After the third Five-Year Plan there was a break for three years in five-year planning due to external reasons like war and domestic political reasons. In the Years 1966-67, 1967-68 and 1968-69, the country adopted annual planning. Since there were no significant developments that affected the long run planning process, these periods were not analysed in the study.

The Fourth Five Year Plan (1969-70 to 1973-74) set before itself the two principal objectives 'growth with stability' and progressive achievement of self reliance. In choosing sectoral priorities keeping employment in view, the plan emphasised the importance of the tertiary sector for the first time. Also it pinpointed the importance of public sector investments in industry for generating employment, especially in transport, communications and power. In its desegregated approach to employment it emphasised for the first time, the importance of employment generation among weaker sections of the society.

In line with earlier plans, the Fifth Five Year Plan (1974-75 to 1978-79) also aimed at achieving the twin objectives of poverty eradication and attainment of self-reliance, through the promotion of higher growth of output and employment. Regarding employment, the plan put forward the need for making a difference between wage employment and self-employment and recommended a different approach to these two types of employment. While endorsing most of the measures initiated during the fourth plan for increasing self-employment, the plan ruled out the possibility of a large-scale transfer of labour force from agriculture to non-agriculture. Eventhough, it emphasised the need for providing jobs for the growing labour force in the rural economy mainly by the self-employment process the plan's investment outlay still remained in favour of industry. It was justified on the ground that in the absence of such investments in industries, it would not be possible to step up employment, even in many labour intensive areas.

The Sixth Five-Year Plan (1980-81 to 1984-85) reconciled the objectives of higher production with those of higher employment. The plan continued with the basic employment strategies of the earlier plan, but emphasised more on the importance of reducing underemployment in the economy. Thus the employment policy was designed to increase the rate of growth of the gainfully employed persons under certain specified programmes. More importantly, reducing unemployment on the basis of usual status by a faster growth of the economy focusing on the rural based employment generation activities⁹.

⁹ The strategy was more precise on the choice of techniques favoring the labour intensive one, without affecting the productivity and growth.

By the time of the Seventh Five-Year Plan (1985-86 to 1989-90), though the basic strategy remained the same as that of the sixth plan, the emphasis shifted to accelerate the growth of agriculture by enhancing productivity and employment creation. It gave special emphasis to the wage rates and their relation to productivity and acknowledged the lack of inter-regional mobility of labour and its effects on wage rates and availability of labour supply. However, the strategy of enhancement of efficiency, modernisation, and competitive position of industry invited scepticism on the employment generation in the industrial sector¹⁰.

The Eighth Five-Year Plan (1992-93 to 1996-97) reoriented the earlier development paradigms to achieve its objectives of higher growth of income and employment. The new paradigm redefined the role of public sector with the ushering in of the liberalisation policies. In the light of new policy initiatives the plan had the objective of creation of adequate employment to achieve near full employment level by the turn of the century. Growth and diversification of the agricultural sector to achieve self-sufficiency in food and generate surplus for exports were intended by liberalising trade in agriculture.

The above review of the various plans brings out the evolution of various strategies towards growth and employment generation in the economy. Even though there is a departure from some of the strategies, the structure of production and employment prevailing can be traced as an offshoot of these strategies. For a better analysis of the plan strategies one has to examine the objectives along with the outlays. This is undertaken in the next section.

2.3. Sectoral Outlays in the Five-Year Plans

The importance of investments in fuelling growth needs no overemphasis¹¹. Developing economies in the initial stages of planning are often confronted with resource constraints which forces smaller volumes of outlay and a prioritisation in allocation¹². Planning process in India too was faced with the problems of resource constraints as the economy was characterised by low level of savings. We examine the trends and patterns of plan outlays for different sectors to understand the relative importance accorded to these sectors.

¹⁰ This, it was argued, brought growth without employment generation in the industrial sector, a proposition we examine further in the subsequent chapters.

¹¹ A plethora of growth models of different generations have emphasised the importance of investments in achieving growth. This is evident from the 'old growth theory' of Solow as well as 'new growth theory' of Romer and Lucas.

¹² The two-gap models of Chenery and Bruno (1962) highlight these resource constraints.

Table 2.1 Overall Outlays During Different Five Year Plans (Rs. Crores)

Plan	Public Sector Outlay	Private Sector Outlay	Total Outlay	Ratio of Public to Private Outlay
I	1960	1800	3750	53:47
II	4672	3100	7772	61:39
III	8577	4100	12677	65:35
IV	15898	8980	24878	64:36
V	39426	27048	66474	69:31
VI	97500	74710	172210	61:39
VII	154218	168148	322366	48:52
VIII	342000	450000	792000	45:55

Source: Government of India Planning Commission, Various Plan documents.

Note: I Plan period =1951-52 to 1955-56,II= 1956-57 to 1960-61

III= 1961-62 to 1965-66,IV = 1969-70 to 1973-74,V=1974-75 to 1978-79, VI=1980-81 to 1984-85, VII=1985-86 to 1989-90, VIII=1992-93 to 1996-97.

Table 2.1 clearly reveals the quantum of growth in the total outlay over different plans. This was facilitated by the increases in savings and capital formation in the economy¹³. This indirectly brings out the extent of financial deepening and intermediation, which tapped and translated the savings into investments. It can also be noted that while over the plans public sector outlay showed a steady increase in the initial plans, its share started declining from the sixth plan onwards. The private sector outlay apart from registering an impressive increase surpassed the public sector outlay by the seventh plan coinciding with the onset of liberalisation policies.

The total outlay in the first plan was quite modest and was shared equally by public and private sectors. The outlay doubled in the second plan reinforcing the faith in planning process initiated in the first plan. However, due to resource constraints and foreign exchange shortage, the third plan outlay was only 50 per cent more than that of second plan. The subsequent plans, however, registered notable increase in plan outlays¹⁴.

Total outlay is shared by private and public sectors both being of equal importance in a mixed economy framework. However, the public sector outlay was higher in the earlier plans due to the

¹³ The savings rate in 1950-51 was 10.4 percent of GDP and increased to 24.4 percent in 1996-7. Similarly the capital formation increased from 11 percent in 1950-1 to 23.1 percent 1996-7

¹⁴ The plan outlays presented in the table are in current prices.

commanding heights' accorded to this sector in the planning process. The reversal of roles can be seen in the changes in the ratio of public to private sector outlay. While in the first plan the allocation was more or less shared equally by both the sectors, the second plan onwards public sector outlay increased rapidly. The role of public sector, however, began to shrink since the seventh plan. Thus it can be seen that on lines with the changes in the macro economic policies, the priorities accorded to the public and private sectors varied.

Table 2.2 Public Sectoral Outlays during the plans (% Share)

Plan	Agri.& Irrigation	Power	Industry	Transport & Communication	Social Services
I	31	13	6	27	22
II	20	10	24	28	18
III	21	14	23	25	17
IV	24	15	23	20	18
V	22	19	26	18	17
VI	24	28	16	16	16
VII	23	29	14	17	17
VIII	15	31	12	21	21

Source: Government of India, Planning Commission, various plan documents

The patterns in allocation of public sector outlays show that outlays for the services were the highest in the first plan mainly because of the investments in socio-economic infrastructure (Tables 2.2). However, the share in the outlays increased for the secondary sector with every consecutive plan. This is mainly due to the increase in the outlay for the industrial sector. The decline in the outlay for secondary sector from the seventh plan onwards may be attributable to the emergence of private sector and the diminishing importance attached to public sector. In the eighth plan, the tertiary sector received the maximum outlays. The changes in the plan outlay over the years reflect the changes in the objectives with respect to varying significance attached to sectors in increasing the overall growth of the economy. An analysis of the growth of these sectors is taken up in the next section.

2.3. Growth Under Five Year Plans

In order to assess the outcomes of the strategies implemented with regard to plans' targets we present the growth of GDP in terms of the plan achievements. This is to facilitate our analysis of GDP growth rate in the next chapter.

Table 2.3 Targets and Achievements Under Different Five Year Plans

PLAN	GDP		AGRICULTURE		INDUSTRY	
	Targets	Achieved	Targets	Achieved	Target	Achieved
I	2.1	3.3(+1.2)	2.4	2.8(+0.4)	2.6	3.4(+0.8)
II	4.6	4.1(-0.5)	3.4	2.0(-1.4)	8.0	6.0(-2.0)
III	5.6	2.6(-3.0)	4.6	-1.0(-5.6)	12.7	10.2(-2.5)
IV	5.7	3.4(-2.3)	4.9	2.9(-2.0)	7.7	4.5(-3.2)
V	4.4	5.3(+0.9)	3.3	3.7(+0.4)	6.5	6.0(-0.5)
VI	5.2	5.2(=)	3.8	4.3(+0.5)	6.9	3.4(-3.5)
VII	5.6	6.0(+0.4)	2.5	3.4(+0.9)	5.5	7.7(+2.2)
VIII	5.6	6.8(+1.2)	3.1	3.8(+0.7)	7.3	9.2(+1.9)

Note: Figure in the parenthesis indicates the difference between realised and targeted growth.

Source: Government of India Planning Commission, Various plan documents.

It can be discerned from table 2.3 that barring the First Five-Year Plan, the period until the mid-seventies characterised a short fall of the achievements in relation to the targets set. The First Five Year Plan, however, realised its objectives to a large extent. Domestic production increased surpassing the targeted growth rate of 2.1 percent triggered by impressive growth in agricultural and industrial sectors, both exceeding the target rates. While the agricultural sector registered a growth of 2.8 percent against a targeted growth of 2.4 percent largely due to good monsoon, the growth of industrial sector was even higher at 3.4 percent against the target of 2.6 percent. Spurred by the success of the first plan, second plan set before itself ambitious targets meeting little success in the end. The growth rate of GDP of 4.1 percent fell short of the targeted 4.6 percent rate of growth. Needless to add, both the agricultural and industrial sectors failed to generate the envisaged rate of growth.

The story of actuals falling behind targets repeated itself in the ensuing plans. The growth rate of the economy was only 2.6 percent as against the target of 5.6 percent during the third plan. While agricultural sector registered a negative growth rate, industrial production, though grew at

a moderately good rate, was well below the targets. The main reasons cited for the poor performance were financial difficulties, foreign exchange crisis, adverse weather, Chinese aggression and Indo-Pak war¹⁵. The fourth plan also failed to attain its targets. This was attributed to the adverse situations like Indo-Pak war in Dec 1971, huge influx of refugees from Bangladesh, widespread drought, and power breakdown, suspension of foreign aid, run away inflation etc¹⁶.

By the time of the fifth plan, the planners from the earlier experience realised the folly of setting ambitious targets, which could not be achieved in reality. Thus the fifth plan envisaged an expected growth rate below that of fourth plan. In spite of the problems like oil crisis due to fourfold rise in crude oil prices and severe food shortage the targets were fulfilled. The actual growth rate of 5.3 percent as against the target of 4.4 percent pulled the economy out of the 'Hindu equilibrium' that heralded the economy for decades. This turn around in performance was largely due to the superior growth rate of 3.7 percent achieved by the agricultural sector as against the target of 3.3 percent.

The sixth plan just about managed to achieve the targeted rate of 5.2 percent per annum. This was made possible by high growth rate in the agricultural sector in spite of the severe drought in 1979-80. However, the industrial sector exhibited worst ever performance of 3.4 percent much below the targeted 6.9 percent. This is attributed to the high rate of inflation and deterioration in the terms of trade caused by an increase in the prices of imported oil. The industrial sector witnessed a turn around achieving the targeted level of growth in the seventh plan¹⁷. The agricultural sector too reached the targeted growth despite the drought in 1987-88, thus pushing the GDP growth once again beyond the targeted rate. The eighth Plan retained the target set for the seventh plan of 5.6 percent growth in GDP. The primary sector was expected to achieve a modest annual growth rate of 3.1 percent and the secondary sector was set a target of 7.3 percent growth. The plan turned out to be remarkably successful in generating greater than expected output growth in agriculture and industry. While the GDP grew by 6.8 percent, agriculture and industry registered growth rates of 3.8 and 9.2 percent respectively.

¹⁵ See S.P.Gupta (1989)

¹⁶ See Planning Commission Fifth Plan document.

¹⁷ For a discussion of the turn around in the industrial sector see Ahluwalia (1985).

From the preceding discussion on the targets and achievements of eight five-year plans we can conclude that the second, third and fourth five year plans failed to attain the targeted growth rates. From the fifth plan onwards, the planners began to set realistic targets¹⁸ taking in to account the resource constraints of the economy. Thus for some plans output growth was set even below the achieved rates in the preceding plan¹⁹. Consequently subsequent plans were successful in achieving targets. Eventhough realisation of these targets put the economy on a higher growth path, breaking the 'Hindu growth' jinx, the employment implications were of paramount importance as the unemployment acted as a drag. We examine the employment growth during the plans in the next section.

2.4. Growth Employment Trade-off

Creation of additional employment opportunities was a major objective of the Indian Five-Year Plans. In this section the major strategies, policies and their achievements for employment generation were discussed.

The First Five-Year Plan:- A major objective of the First Five Year Plan was to increase employment opportunities and to raise the standard of living of the masses. The growth thirst was expected mainly from agriculture, by an extension of irrigation an adoption of more intensive agricultural practices. This was supplemented by the growth of cottage and small-scale industries, mainly to supply jobs to the labour force during the slack seasons in agriculture. No quantitative measurement of the extent of unemployment and its backlog was attempted.

The Second Five-Year Plan:- Starting with the legacy of heavy unemployment, the second plan emphasised the need for measuring unemployment and underemployment to formulate relevant plan programs. The total additional persons to be provided employment was accordingly estimated at 15.3 million by the end of the second plan, as against this the additional employment likely to be generated was estimated at 7.9 million. The major area identified was manufacturing industries.

Third Five-Year Plan:- The increase in the labour force during the Third Plan was roughly estimated to be around 17 million. The backlog of unemployment at the end of second plan

¹⁸ An input-output matrix was used to find out the targeted levels of growth for the first time for this plan.

¹⁹ For instance a target of 2.5 percent growth was set for agriculture for the seventh plan inspite of a substantially high growth of 4.3 realised in the previous plan.

was 9 million. The plan however proposed to provide additional employment only of about 3.5 million persons in the agriculture sector and 10.33 million in the non-agricultural sector. The plan failed to find additional employment opportunities for nearly 3 million persons. For this purpose, the plan proposed to approach the problem along two directions:(1) fairly large program of rural industrialisation and (2) rural work programs to provide work for 100 days in the year for a maximum of 2.5 million persons. The plan also raised the issue of the possible trade-off between the different plan objectives, like choice of technique giving either more employment or high productivity. The plan gave much importance to the labour intensive techniques of production.

The Fourth Five-Year Plan:- The Fourth plan had emphasised the importance of the service sector in the creation of employment opportunities. In its disaggregated approach to employment, the plan emphasised the importance of employment generation among the weaker section of the society. More labour intensive works were proposed to be undertaken in the rural areas. Regarding the choice of technique the plan continued with the strategy of earlier plans. The addition to the labour force during the fourth plan was estimated at 23 million and the employment potential 18.5 million to 19 million.

The Fifth Five Year Plan:- The self-employment programs were given much importance during the fifth plan. Apart from the generation of additional employment by irrigation and land reclamation, special emphasis was placed on dry farming, programs for drought prone areas, the development of animal husbandry, fisheries, sericulture and small and marginal farming.

The Sixth Five-Year Plan:- During the sixth plan the employment policy was designed to cover two major goals; (1) reducing underemployment by the IRDP and other related programs and (2) reducing unemployment on the basis of usual status by providing for a faster growth of the economy. In respect to the second objective, the major employment generation activities have been found in agriculture, rural development, village and small-scale industries, construction and other services. The NSSO conducted two quinquennial surveys on employment and unemployment was done during this period. Based on the results of these surveys the employment targets were formulated.

The Seventh Five-Year Plan:- The Seventh Five-Year Plan had given importance to the industrial sector for the creation of more employment opportunities. The non-agricultural employment was expected to increase at nearly 4.5 percent per year, which should lead to some shift in the labour force out of agriculture. The public sector units were persuaded to sponsor ancillary industries in collaboration with state level agencies to promote employment growth. In the agricultural sector, the subsidiary activities other than crop cultivation were given priority. Women's employment was encouraged in the subsidiary activities of agriculture. The estimated employment during the seventh plan period was 186.70 million. There was an additional employment generation of 40.35 million during the seventh plan period.

The Eighth Five-Year Plan:- The main elements of strategy, policies and programs towards the expansion of employment opportunities during the eighth plan may be summarised as follows.

- 1) A faster and geographically diversified growth of agriculture, so that the hitherto lagging regions have a larger share in agricultural growth.
- 2) Development of infrastructure and marketing arrangements for agro based activities and more employment generation in these types of activities.
- 3) Development of an appropriate support and policy framework for the growth of non-agricultural, particularly manufacturing activities, in rural areas, including rural towns.
- 4) Greater attention to the needs of the small and decentralised manufacturing sector as a major source of industrial growth, particularly in production and consumption goods and manufactured exports.
- 5) Large scale programs of construction of infrastructure and residential accommodation.
- 6) Strengthening of basic health and education facilities, particularly in rural areas.
- 7) Facilities for faster growth of the services and informal activities through greater ease of entry and suitable support system.
- 8) Greater flexibility in special employment programs and their integration with sectoral development with a view to ensuring their contribution to growth and sustainable employment.
- 9) Revamping training systems to introduce greater flexibility and responsiveness to labour market trends.

These measures were expected to contribute to the faster growth of the overall employment in the economy. It is assessed that the relatively faster growth of sectors can raise the employment elasticity close to 0.5. The expected employment growth was 2.6 to 2.8 percent.

An analysis of the strategies for employment generation in the plans reveals that in light of the trade off between employment growth and output growth, we seemed to have cast the dice in favour of the latter. However, there exists a certain inevitable feedback between employment growth and output growth. Due to this a slow growth of one would come in for adverse performance of the other. While employment growth resulting from output growth is a function of labour intensity, employment growth can also give varying rates of output growth depending on the product mix chosen and the levels of productivity. But the feedback does not operate with equal strength both ways.

High employment targets could prevent the adoption of capital-intensive techniques with high productivity. On the contrary, working primarily with output targets, in a framework where it happens to be the main indicator of development, there would be a tardy pace of employment generation, which restrains market widening. The output growth working through market deepening and weak employment stimulus may taper off the positive feed back on employment generation. This is particular to direct employment generation and manpower planning which addresses itself to the task of taking care of the backlog of ineffective employment and additions to the work force.

Table 2.4. Employment Generation and Unemployment over plan periods

Plan	Additional Employment generated (In million)	Unemployment at the end of Plan (In million)
I	7.0	5.3
II	10.0	7.1
III	14.5	9.6
IV	18.0	26.6
V	32.0	38.6
VI	35.6	12.02*
VII	40.35	9.20*
VIII	45.82	7.0*

Note: * indicates based on usual status.

Source: Adapted from S.P Gutta (1989).

The table 2.4 shows an increase in the additional employment created over the plan periods. Employment generated during each plan though shows a growing trend there had been a similar trend in the unemployment also till the sixth plan. This may suggest that the creation of new employment grew at a slower rate compared to the growth in labour force. However since the sixth plan there is a decline in the unemployment measured in terms of usual status. A review of the targets and achievements in employment generation too indicates that during most of the plans the achievements consistently short fell of the targets. A detailed analysis of the employment growth is don in the chapter 4.

The analysis of the strategies, objectives and achievements had given us a background for the analysis of the growth of income and employment in the economy over the years. In the next chapter the GDP growth of the economy at the aggregate level and sectoral level are done to understand whether the growth of income was in accordance with the policies persuaded.

Chapter III

TRENDS AND PATTERNS OF GDP GROWTH

Introduction

In this chapter, changes in the structure of the Indian economy are analysed with respect to the 'stylised facts' in the Kuznet's paradigm. Growth performance of the economy is analysed, in terms of GDP growth, at the aggregate level and at the sectoral and sub-sectoral level for the period 1950-51 to 1996-97. An analysis of the growth performance of the economy will help us to understand the shift in the structural composition and the contribution of the various sectors. In doing this, we also analyse the savings and investment pattern, the key macroeconomic variables, as it enables us to identify some of the theoretically postulated causal relationships.

The chapter is organised into six sections. In the first section, we shall analyse the trends and patterns in the gross capital formation in the economy in different sectors and sub-sectors. In the second section, the levels and growth trends of the economy's GDP is looked into. The third section deals with the sectoral analysis of the GDP growth rates and estimate the contribution of different sectors to the overall GDP growth rates. An analysis of the sub-sector GDP growth rates is carried out in the next section followed statistical testing for acceleration of growth to enable us to identify the lag and lead sectors in the growth process. We conclude with an examination of the role of trade and exports in particular export in the growth process.

A caveat needs to be added in the context of the analysis of growth undertaken in this chapter. Studies on growth have generally focused on two aspects i) to quantify the extent of growth and identify the factors leading to growth using growth accounting¹, and ii) to identify the constraints to growth. We do not attempt both here. Our analysis is confined only to a sketching of the growth path of Indian economy, as the objective is to trace the structural transformations taking place in the economy.

¹ Syrquin (1988) discusses these issues at length and identifies both demand and supply factors which contribute to growth. A demand side decomposition gives the effect of domestic demand expansion, export expansion, import substitution and changes in input output coefficients. Supply side decomposition of the sources of growth identifies the effect of factor accumulation and productivity growth.

3.1 Trends and Patterns in Savings and Capital Formation

Interrelationship between the key macro economic variables determines the trajectory of growth. This, well documented in the classical growth theory finds a place even in the later reformulations². The basic requisites in the two sector as well as multi sector growth models are optimum levels of savings and investments. Thus any analysis of growth should be preceded by an examination of the levels of savings and investments in the economy.

Studies on savings and investment behaviour in India have focused mainly on two aspects a) on the low levels of savings and the failure to increase the savings rate during the plan periods and b) on the issue of demand constraints as a result of excess savings among sections accentuated income inequalities³. We examine some of these arguments while discussing the growth of overall GDP.

Apart from the arguments of low savings and investments studies have also focused on the variations in capital output ratios, an indicator of the efficiency of investments. Raj (1984) argued that the low growth rate of the economy was not due to low saving in the economy, but due to high incremental capital output ratio in the economy over the years. Panchamukhi (1986) argued that the capital output ratio, for the economy as a whole and for manufacturing in particular have risen. For the economy as a whole Chitale (1986) shows a clearly rising trend in capital output ratio for about 2.5 percent to 4.5 percent. Efficiency of investments was also examined in terms of rate of return on investments, which showed that the rate of return on public investment was less than that of private investments⁴. In light of these findings we examine the levels of savings and capital formation.

Trends in the Gross Domestic Saving

The trends in the savings are analysed in terms of savings as a percentage of GDP. The gross domestic saving as a percentage of GDP is given in the table 3.1.

² As discussed in the initial chapter.

³ Bagchi (1970) explains the failure of the plan targets in terms of too little saving which is further supported by Mitra (1971). Chakravarty (1979), on the other hand, explains excess saving emerging from the increasing income inequalities as the reason for low capital formation. Rao (1980) also supported the arguments of Chakravarty. The saving and capital formation since the liberalisation period was analysed by Athukorala and Sen (1995). The study shows that there was a decline in the overall capital formation in the economy since liberalisation.

⁴ See Joshi and Little (1994). According to them the real rate of return on investments in public sector manufacturing was around 0.1 to 2.1 percent for the period 1960-61 to 75-76, and that of private sector manufacturing was between 7.7 and 11.1 for the corresponding period. For the period 1976-77 to 86-87 the comparable figures were 3.1 to 5.2 and 16.7 to 22.6 respectively.

Table 3.1. Gross Domestic Savings (GDS) as Percentage of GDP over the Plan Periods.

Plan	GDS
I	10.3
II	11.7
III	13.2
IV	16.1
V	20.4
VI	19.4
VII	20.6
VIII	24.3

Source: Government of India, National Accounts Statistics.

The table 3.1 shows that there was an increasing trend in the savings of the economy throughout the Five-Year Plans. The savings rate, which was 10.3 percent of GDP during the first five-year plan, had increased to 24.3 percent of GDP during the eighth five-year plan.

The three main sources of domestic savings are household sector, private corporate sector and the public sector. The percentage contribution of each sector to the aggregate savings is given in the table 3.2

Table 3.2. Share of Sectors in the Mobilisation of Gross Domestic Savings

Plan	Household Sector	Private Sector	Public Sector
I	73.75	10.00	16.23
II	72.89	10.48	16.62
III	63.60	12.68	23.70
IV	73.48	9.58	16.92
V	71.37	7.36	21.62
VI	72.75	8.43	18.81
VII	79.22	9.98	10.78
VIII	78.13	14.98	6.87

Source: Government of India, National Accounts Statistics.

The table 3.2 shows that the household sector is the major source of savings in the Indian economy. The household sector savings contributed 73.75 percent of the aggregate savings during the First Five Year Plan. The share had shown a decline up to the Sixth Plan, the share was 72.75 percent during the sixth plan. During the seventh and eighth Plan the share had again shown an increase. The contribution of the household sector was 78.13 percent of the total Gross domestic savings during this Plan. The contribution of the private corporate sector to the domestic savings had shown an increasing trend during the first three plans. During the fourth Plan there was a decline in the private sector contribution to the aggregate savings. The share

had declined from 12.68 percent to 9.58 percent. This declining trend continued up to the seventh plan. In the seventh and eighth plan there was a revival in the private sectors contribution to the gross domestic savings. This sector had contributed 14.98 percent of the aggregate savings during the eighth plan. The public sector is the other major source of savings in the Indian economy. This sectors share had shown an increasing trend during the first three plans. During the fourth plan the share had declined from 23.70 percent to 16.92 percent. In the Fifth plan the sector contributed 21.62 percent of gross domestic savings. During the last three Plan periods there was a decline in the public sector savings. The sector had contributed only 6.87 percent of aggregate savings during the eighth Five-Year Plan.

Trends In Gross Capital Formation

Having analysed the trends in the savings, we should now analyse the trends in the capital formation in the economy. Capital formation is regarded as the fuel for the growth of any economy. An analysis of GDP, therefore, requires an understanding of the investment patterns in the economy. This is more so when we think of the structural pattern of the economy and the relative importance of them in the economy's growth. Often the investments could be made in such a way that one of the sectors gets more resources to grow fast compared to others. Accordingly we analyse the share of gross capital formation (GCF) as a percentage of GDP over different five-year plans. The table 3.3 gives the GCF as a percentage of GDP over the Five-Year Plans.

Table 3.3. GCF as percentage of GDP Over Plan Periods

Plan	GCF
I	10.60
II	19.70
II	16.42
IV	17.40
V	20.72
VI	21.89
VII	23.67
VIII	24.57

Source: Government of India, National Accounts Statistics.

The table 3.3 indicates that GCF as a percentage of GDP has been showing an increasing trends over the plan periods. The GCF was 10.64 percent of GDP during the First Five Year Plan period, it rose to 24.57 percent during the eighth plan period. This shows that the level of investment in the economy is showing an increasing tendency over the plan periods.

Sources of Gross Capital Formation (GCF)

The investment in the economy is done by three sectors of the economy, namely, private, public and household. The mobilisations of investment by these three sectors are given in the table.3.4.

Table 3.4. Sources of Gross Capital Formation

Plan	Public	Private	Household
I	33	11.92	55.08
II	42.37	17.33	40.3
III	47.14	21.44	31.41
IV	39.25	13.77	46.98
V	43.34	12.19	44.46
VI	46.58	19.56	33.86
VII	44.6	19.14	36.26
VIII	34.3	29.97	35.73

Source: Government of India, National Accounts Statistics.

The table 3.4. Shows that the share of both public sector and household sector in the total investment is showing a declining tendency over the plan periods. The share of the private sector, on the other hand, shows an increasing tendency over the plan periods. The public sectors share was 33 percent during the first five-year plan. It increased to 47.14 percent during the third plan.

In the first Five-Year Plan the public sector had contributed 33 per cent of GCF and household sector 55.08 percent. The private sectors share was only 11.92 percent and it rose to 29.7 percent during the eighth plan. The share of the household sector had declined from 55.08 percent during the first plan to 35.73 percent in the eighth plan.

The table 3.4 shows that in the initial Five Year Plans household sector had contributed more than 50 percent of the gross capital formation. By the eighth plan three sectors are contributing more or less equally towards the GCF.

Sectoral Distribution of Gross Capital Formation (GCF)

The sectoral distribution of the gross capital formation in the economy is analysed in order to understand the changes in the investment pattern of the economy over the years. The sectoral break-up of investment in the economy over the plan periods is given in the table 3.5.

Table 3.5. Sectoral Distribution of GCF

Plan	Primary	Secondary	Tertiary
I	24.67	27.6	47.72
II	16.66	34.47	48.86
III	15.75	39.63	44.42
IV	18	40.67	41.32
V	17.77	43.36	38.76
VI	15.41	44.73	39.86
VII	11.49	48.99	39.52
VIII	10.37	50.03	40.47

Source: Government of India, National Accounts Statistics.

Table 3.5 shows that there was a steady decline in the share of primary sector over the plan periods except Fourth Five-year plan. The share of the primary sector, which was 24.67 per cent during the first five-year plan had declined to 10.37 per cent during the eighth five-year plan

The secondary sector's share in the total investment is showing an increasing trend. The percentage of gross capital formation in the secondary sector was 27.6 percent during the first five-year plan. It has increased to 39.63 percent during the third plan and again to 50.03 percentage during the eighth plans period. The table 3.5 shows that from the fifth plan onwards the secondary sector gets more shares in total investment compared to the other two sectors.

In the initial five-year Plans the tertiary sector received major share of the investment. The share of the tertiary sector in the total investment was 47.72 percent during the First Five Year Plan. From the third plan onwards the share of the total investment in the tertiary sector is showing a declining tendency. The sectors share had declined to 40.47 percent during the eighth plan period.

From the table 3.5 it is clear that the share of the primary and tertiary sectors in the total capital formation is showing a declining trend. The rate of decline was higher in the primary sector. This decline was compensated by an increase in the secondary sector share.

Table 3.6 Sub Sectoral Distribution of GCF

Plan	Agri. & Allied	M & Q	Manu.	EGW	Construction	Trade & Hotel	Transport, Storage & communication	Finance, insurance	Community, personnel Services
I	24.67	1.26	19.85	4.44	2.04	4.31	11.1	22.5	9.81
II	16.66	0.79	26.15	5.37	2.14	4.31	14.89	16.1	13.52
III	15.94	1.87	26.28	8.89	2.57	2.42	16.76	13.5	11.72
IV	18	1.91	27.59	9.04	2.11	6.63	11.96	11.8	10.89
V	17.77	3.89	27.99	9.34	2.23	9.58	10.4	11	7.72
VI	15.41	6.04	23.73	12.25	2.69	7.97	11.09	11.12	9.67
VII	11.48	6.57	26.91	13.59	1.91	7.39	12.01	11.2	8.95
VIII	10.37	4.43	33.54	10.42	1.62	6.43	12.65	13.9	7.33

Note: M & Q = Mining and Quarrying, Man.=Manufacturing, EGW=Electricity, Gas and Water Supply,
Source: Government of India, National Accounts Statistics.

The table 3.6 shows that among the sub sectors manufacturing is the sector, which gets larger share of investment over the plan periods. The share of investment in the agricultural sector is showing a declining tendency over the five-year plans, except for the fourth five-year plan. The percentage share had declined from 24.67 percent during the first plan to 10.37 percent during the eighth plan. This means that the decline in the primary sector share was mainly due to the decline in the agricultural sector investment. The share of mining and quarrying sector is showing an increasing trend up to the seventh plan. The share had increased from 1.26 percent during the first plan to 6.47 percent during the seventh plan. The share had slightly declined during the eighth plan.

The manufacturing sectors share in total investment is showing an increasing tendency over the plan periods, except the eighth plan. It had increased from 19.85 percent during the first plan to 33.54 percent during the eighth plan. The share of the electricity, gas and water supply is also showing an increasing trend except the eighth plan. It had increased from 4.44 percent to 13.5 percent during the seventh plan. The share had declined to 10.4 percent during the eighth plan. The share of the construction sector had remained more or less constant over the plan periods.

The share of Trade, Hotel and Restaurant had slightly increased over the plan periods. The share had increased from 4.31 percent during the first plan to 6.43 percent during the eighth plan. The share of the transport sector had shown a declining tendency over the plan periods. The share had declined from 22.5 percent during the first plan to 11.12 percent during the seventh plan. During the eighth plan, it had slightly shown an increase to 13.91 percent. The investment in the Personnel, Community services show some fluctuations over the period. The share had increased from 9.81 percent during the first plan to 13.52 percent during the second plan and again to 7.22 percent during the fifth plan. The investment had slightly increased to 9.67 percent during the seventh plan. The share had again declined to 7.33 percent during the eighth plan.

Incremental Capital Output Ratio (ICOR)

Growth is conceptualised to be dependent not only on investment but also on the productivity of investment. The incremental capital output ratio refers to the amount of capital required to produce an additional unit of output. It is measured by dividing the investment made in a given period by the incremental output produced during that period. The incremental capital output ratio in the economy is given in table 3.7.

Table.3.7 Gross Incremental Capital Output Ratio (ICOR)

Plan	ICOR
I	2.59
II	3.71
III	4.91
IV	8.40
V	3.89
VI	4.20
VII	3.65
VII	3.53

Source: Government of India, National Accounts Statistics.

The ICOR had shown an increase during the first three five year plans. It had increased from 2.59 percent during the first plan to 3.71 percent during the second plan. In the third plan, the ICOR had again increased to 4.91 percent during the third five-year plan. The ICOR had reached an all time high of 8.40 percent during the fourth plan. In the fifth plan, the ICOR had declined to 3.89 percent. It again increased to 4.20 percent during the sixth plan. During the last three plans, it remained more or less constant around four percent.

The Relation between ICOR and Economic Growth

The relation between investment, ICOR and GDP growth is given in table 3.8.

Table 3.8. Relation between GCF, ICOR and GDP

Plan	GCF as % of GDP	ICOR	GDP Growth
I	10.60	2.59	4.08
II	19.70	3.71	3.96
III	16.42	4.91	3.34
IV	17.40	8.40	2.07
V	20.72	3.89	5.32
VI	21.89	4.20	5.21
VII	23.67	3.65	6.47
VIII	24.57	3.53	6.95

The table 3.8 shows that during the periods of high capital out output ratio, the growth rate was low. The increase in ICOR is an explanation for reduction in productivity and growth. During the fourth plan, the investment rate had increased to 17.40 percent, but due to high ICOR of 8.40 percent, the GDP growth rate was only 2.07. Since the fourth plan there was a decline in the ICOR and it helped in achieving higher economic growth.

3.2. Trends in GDP growth

The long-term growth rate of India's gross domestic product (GDP) has been a widely debated issue. We shall examine some of the dominant views¹ that existed about the GDP growth rate and on the basis of some hypotheses drawn from the suppositions, we try to analyse the growth of the economy.

Analysing the growth performance till then Raj (1964) argued that a 7 percent annual growth rate of income is within the reach of the country in a few years. This was criticised by Rudra (1965) inviting attention to the effects of agricultural price fluctuations⁵. The debate on GDP

⁵ According to him, a growth rate of 7 percent within a few years was difficult to achieve. Raj (1965), however, based on his observation that a growth rate of 5 percent in the agricultural sector is a must to achieve a higher growth rate in the economy, hold on his arguments.

growth in the 1970's was centred around the so called 'Hindu rate of growth'. This idea was brought by Rajkrishna (1973)⁶ to describe the Indian economic growth, which for a long time remained around 2 to 3 per cent.

Chakravarty (1977) analysed the growth performance of the economy in a theoretical framework using the ideas developed by Lewis (1954). He concluded that the Indian economy was too complex to be subsumed under a simple theoretical scheme, nonetheless, some essential contours of the growth process can be much better comprehended through adopting a classical way of looking at the things. Analysing the growth performance during seventies Bagchi (1977) attributes the low growth rate of the economy to the insufficient saving⁷. Contrasting this view Chakravarty (1979) highlights the deficiency of domestic demand, which acts as a major constraint on the economic growth, especially the industrial growth. This, according to him, is largely due to the excess saving in the economy. However, Rao (1980) supported the saving constraint argument as an explanation for the low growth of the economy, which is further favoured by Shetty and Menon (1980). They observed that the saving constraint resulted in low capital formation leading to structural retrogression in the economy.

While the dominant view of till the eighties was of a more or less constant growth rate of about 3.5 percent per annum, with considerable year-to-year fluctuations around the trend, there was a strong argument of an improvement in the growth rate since mid or late 1970s. It was Raj (1984), who for the first time explicitly stated this proposition. To quote him, " I would venture to place it now at not less than 4 to 4.5 percent per annum, certainly much above the so called 'Hindu' rate of growth⁸.

Commenting on the revival of the economy in the eighties Ahluwalia (1988) argued that the average growth rate over the past ten years was about 4.5 percent and this was accelerating. According to her the underlying growth rate of the economy in the mid 1980s was near 5 percent per year, which was attributed to the industrial growth unleashed from liberal policies pursued.

Besides the differences in the perception on the overall performance of the economy,

⁶ Eventhough the idea originated with RajKrishana, it gained popularity in the subsequent works on Indian economy.

⁷ It was on the belief that the official figures show overestimated figures of saving and capital formation in the economy. See Bagchi (1977).

⁸ Raj (1984)

considerable concern has been expressed over the perceptible change in the composition of domestic output in favour of the tertiary sector in general and within it, in favour of public administration and defence in particular. Mitra (1988) is of the opinion that "there is seeming disproportionality in the recent shift in the composition of India's national income. The explosion in service activities cannot be readily attributed to any impulse transmitted by the sectors engaged in material production. In this context, the fact that within service sector the highest rate of growth being registered in Public Administration and Defence, that is in the area of government activity is of considerable significance"⁹.

While these discussions focused on sectoral growth. Dhar (1988) considers the development of agricultural sector as one of the major achievements of the development planning while the industrial sector is considered as the shadow side¹⁰. Bhargava and Joshi (1990) analysed the changes in the GDP growth rate at the aggregate and the broad sectoral as well as sub sectoral level. The study suggested that the contribution of the private sector in overall growth was high. They also suggested that a combination of stability of public investment and economic liberalisation as the key factors for improved growth performance. In an analysis of the growth performance spanning nearly four decades Nagaraj (1990) identified acceleration in the growth rate of GDP over the period 1950-51 to 1987-88. There was significant break in the growth rate in the eighties. Nagaraj (1991) has further analysed the argument developed by Bhargava and Joshi. He concluded that the proposition of an increase in the trend growth rate of manufacturing GDP originated in the private sector cannot be rejected, but there is no statistically valid evidence to indicate a decrease in the trend growth rate of manufacturing GDP originating in the public sector.

Thus varied opinions have come up to describe the Indian economy's growth behaviour. The views are primarily centred around the debate of acceleration/deceleration of the growth of GDP. This is further varied at the sectoral level. The authors have focussed on low levels of investments, inefficiency of investments, efficacy of the regulatory apparatus and constraints of inward looking development strategy. The changes in policy regime in recent times and the

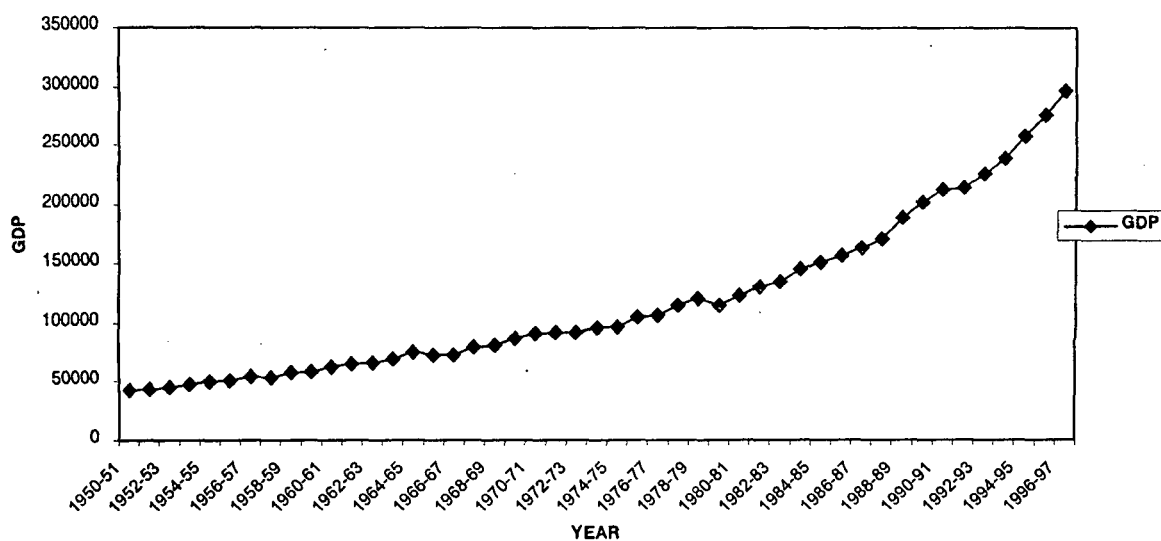
⁹ Mitra (1988)

¹⁰ The study analyzed the macro economic performance of the economy from 1951-52 to 1984-85. The most important achievements of the economy, according to the study, are in the field of agriculture, in rising the domestic saving and in the creation of large pool of skilled manpower. The dark side of the development process, on the other hand, is the failure of the industrial sector to achieve higher growth rate and employment generation.

emphasis on outward orientation thus necessitates a fresh look in an open economy perspective. We take up this in detail in the following sections.

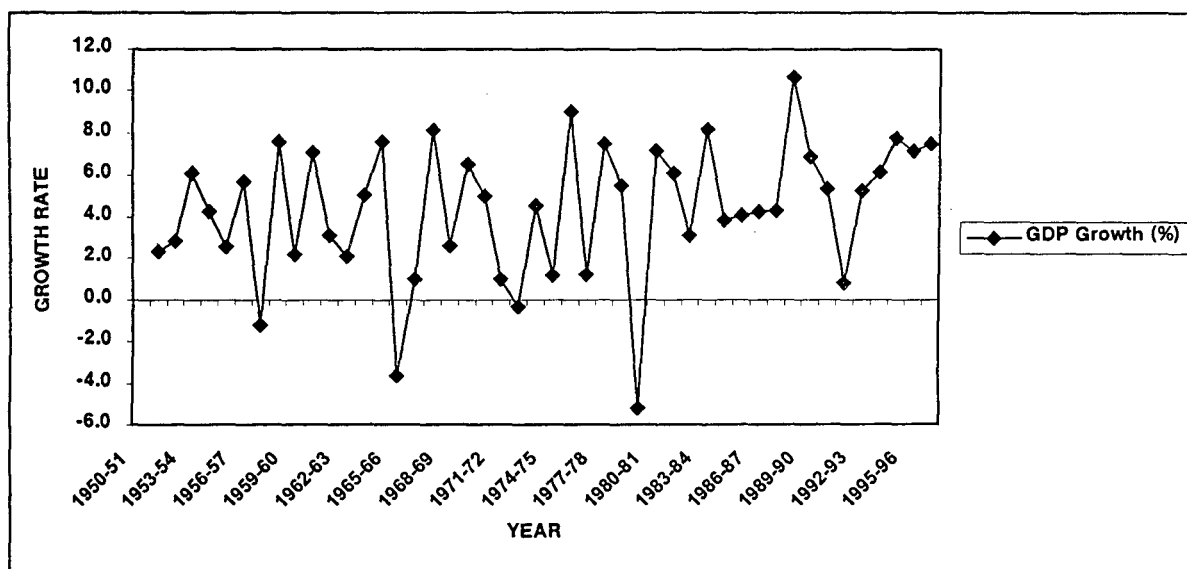
An analysis of the behaviour of GDP growth requires an analysis of its trend over the years. The trend in the levels of aggregate GDP over the years would indicate the magnitude in which it increased from 1950-51 to 1996-97. Figure 3.1 shows the trends in GDP (1980-81 prices) levels at crores of rupees over the years.

Figure 3.1. Trends In GDP Levels (1980-81 Prices)



The figure 3.1 depicts three phases in the movement of GDP. Low levels of GDP in the initial years, especially up to 1979-80 after which there is an increase due to acceleration of GDP growth even pace of which continues till 1990-91. From this period onwards there is another spurt in growth whose magnitude is higher compared to that of the previous period, which propel the GDP to a higher growth path. The annual average of the growth of GDP shows uneven growth rates in the pre-1979-80 period, with lots of variations in the growth in the successive years.

Figure 3.2. Growth Rates of GDP



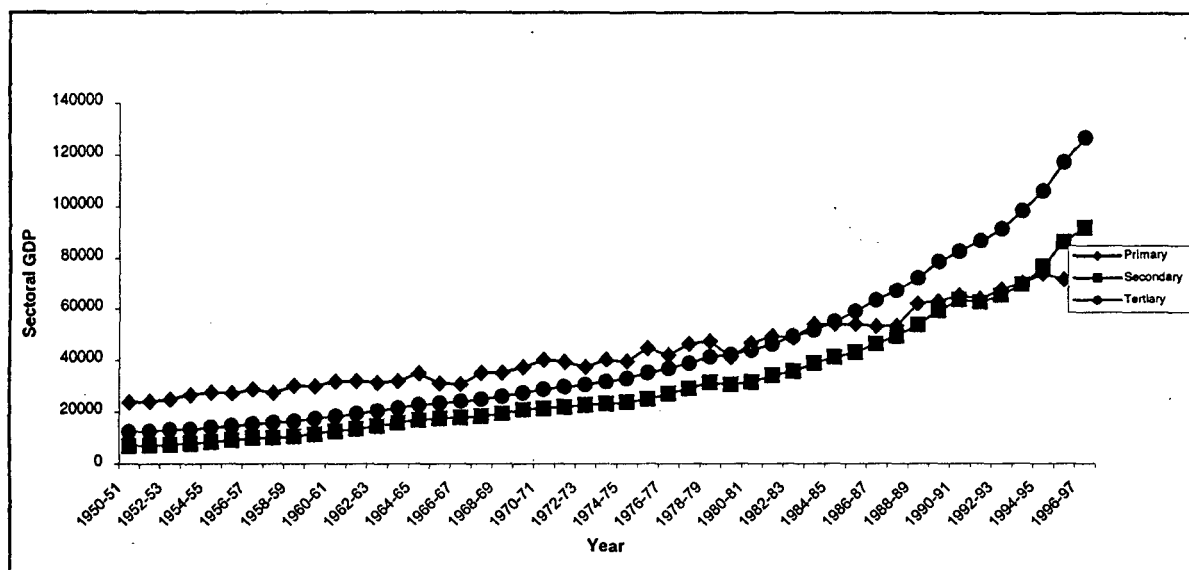
The figure 3.2 shows that the growth rate of the GDP exhibits wide fluctuations up to the year 1979-80. In most of the years the growth rate was below 3 percent reinforcing the argument of Hindu rate of growth. There was a significant decline in the GDP growth in the year 1979-80. After that a growth rate around 5 percent is visible. In the year 1990-91, there was again a significant decline in the growth rate, which later turned out to be the rationale for launching the economic reforms. The growth rate is more than 5.5 percent after the 1990-91 crisis getting back to the levels of the eighties.

As the aggregate analysis fails to capture the changes at the sectoral level we examine the growth of sectoral GDP.

3.3.1 Trends in Sectoral GDP Growth

In order to understand the long-term trends in the GDP growth rates across sectors, we estimate growth rates for the different sectors, primary secondary and tertiary sectors, of the economy over successive decades. The following aspects of the sectoral GDP growth come out from the figure 3.3. The GDP of the three sectors are rising at different levels. Till around the 1980s, the GDP levels of agriculture were the highest compared to the other two sectors. After this, GDP of agriculture started showing a near stagnation.

Figure 3.3. GDP at the Primary, Secondary and Tertiary Levels



Till 1980s, the secondary and tertiary sector GDP levels showed a uniform movement, that is, the difference between them remained more or less the same. However, towards the late 1970s, though the levels of both sectors GDP rose upwardly, the difference in their levels started growing, though at a minimal level. This could be attributed to the higher growth pace of the tertiary sector compared to the secondary sector, which we shall show in the next section.

After 1980, GDP levels of tertiary sector rose above the levels of agriculture sector and after 1990, the GDP levels of secondary sector also rose above the agriculture GDP levels¹¹. The pace at which the acceleration of GDP level took place was visibly high for the services sector, followed by secondary sector and at a stable level for the agriculture sector. The breaks in the period of acceleration for the GDP levels which we saw in the previous section, in the two years of early eighties and early nineties is reflected by the above analysis of sectoral GDP levels. From this, we can hypothesise that the trend breaks in GDP could be due to the patterns of sectoral trends.

The growth rates and share of GDP of different sectors would throw some light on the structural changes that have occurred in the output composition during the plan periods. This is brought out in table 3.9 and 3.10.

¹¹ This in turn validates the famous Kuznet's hypothesis.

Table 3.9 Growth Rates of Sectoral GDP Under the Planning Periods*

PLAN	Growth rate				Sectoral share of GDP (%)		
	P	S	T	GDP	P	S	T
I	3.54	6.20	3.84	4.08	54.9	16.8	28.3
II	2.96	5.94	4.47	3.96	51.8	19.1	29.1
III	0.59	6.77	4.96	3.34	46.6	22.5	30.9
IV	0.64	2.61	3.53	2.07	42.9	24.4	32.7
V	3.96	7.25	5.54	5.32	40.6	25.2	34.2
VI	3.85	6.59	5.58	5.21	37.2	26.7	36.1
VII	4.63	7.85	7.03	6.47	32.6	28.6	38.8
VIII	2.82	9.01	8.24	6.95	28.0	30.0	42.0

Note : P= Primary Sector, S = Secondary Sector, T= Tertiary Sector.

Source: Government of India, National Accounts Statistics

Table 3.10 Decadal Growth rates of sectoral GDP

Decades	P	S	T	GDP
1950-51 to 1959-60	2.67	5.85	3.98	3.61
1960-61 to 1969-70	1.49	5.32	4.33	3.23
1970-71 to 1979-80	1.72	4.55	4.50	3.39
1980-81 to 1989-90	2.89	6.65	6.44	5.26
1990-91 to 1996-97	2.91	6.84	7.25	5.89

Note : P= Primary Sector, S = Secondary Sector, T= Tertiary Sector

Source: Government of India, National Accounts Statistics

The growth of the three sectors at different levels led to changes in the composition of GDP in the three sectors. The higher growth rates of tertiary and secondary sectors are in turn reflected in their contribution to the GDP. While the primary sector has shown a marginal decline in the growth rate in the 1990s, compared to the 1980s, the secondary and tertiary sectors have witnessed a steady increase in its growth rate over the successive decades. However, it is interesting to note, contrary to the widely held view, that in the 1980s the secondary sector has grown at a faster rate (6.65 percent), than the tertiary sector¹² (6.44 percent). But in the 1990s, the tertiary sector is showing higher growth rate compared to the secondary sector.

¹² See Nagaraj (1990) for an elaboration of this argument.

* Growth rates are estimated using the logarithmic function $\log Y = a + bt + ct^2$

3.3.2 Sectoral Contribution to the GDP

The growth rates of the various sectors considered separately however are not very helpful in explaining the overall rate of growth. A sector's contribution to overall growth depends not only on its growth rate, but also on its relative size. Thus, even a fast growing sector may not contribute much to overall growth if it is small in size, while a slow growing sector may make a bigger contribution if it is large. Therefore, it is useful to consider the contributions of the various sectors to overall growth.

Thus, to put more insight into the structural change and composition of GDP, an analysis of the contribution to the GDP growth by sector is needed. This will show which sector has contributed to the growth of GDP aggregate and at what levels. During the structural transformation of the economy, growth occurs at an uneven rate from sector to sector. So an analysis of growth rate by desegregated levels would give more dynamic information than aggregate growth rate.

Chenery and Syrquin (1986a) had shown that the relation between the aggregate and the sectoral growth can be derived by differentiating with respect to time the definition of total output (the sum of sectoral output), $V = \sum V_i$, and expressing the result in growth rate terms:

$$g_V = \sum \beta_i g_{V_i} \quad (1)$$

where g_{V_i} and g_V are the growth rates of V_i and the V respectively, and the weights are the sectoral output shares, $\beta_i = V_i/V$. By definition, $\beta_i g_{V_i}$ is the contribution of i^{th} sector to the overall growth¹³. We follow the methodology advocated by Chenery and Syrquin.

The above decomposition provides information on two aspects. First, on how much sectoral growth rate could affect the aggregate output growth (growth rate of individual sectors). Second, as to how much the aggregate growth rate is sensitive to each sector's growth rate, that is, which sector has more weight in determining the aggregate growth rate (share of individual sectors). According to the equation (1) each sector's contribution to the overall growth rate, the value of term $\beta_i g_{V_i}$, is given in table 3.11.

¹³ See Chenery and Syrquin (1986) and Syrquin (1986) for more details.

Table 3.11. Sectoral Contribution of the GDP over the Plan Periods.

Plan period	GDP growth rate	Sectoral Contributions to GDP growth			Share of sectors in the growth of GDP		
		P	S	T	P	S	T
I	4.08	1.94	1.05	1.09	47.61	25.76	26.62
II	3.96	1.53	1.12	1.30	38.73	28.41	32.86
III	3.34	0.28	1.52	1.53	8.53	45.59	45.88
IV	2.07	0.27	0.64	1.15	13.29	30.83	55.88
V	5.32	1.61	1.83	1.88	30.22	34.35	35.43
VI	5.21	1.43	1.76	2.01	27.51	33.80	38.69
VII	6.47	1.51	2.24	2.72	23.33	34.62	42.04
VIII	6.95	0.79	2.70	3.46	11.38	38.87	49.77

Note : P= Primary Sector, S = Secondary Sector, T= Tertiary Sector

Table 3.12. Sectoral Contribution to GDP Growth Over Decades.

Decade	GDP Growth	P	S	T	P	S	T
1950-51 to 1959-60	3.61	1.43	1.04	1.14	39.61	28.81	31.58
1960-62 to 1969-70	3.23	0.66	1.22	1.35	20.42	37.72	41.86
1970-71 to 1979-80	3.39	0.72	1.14	1.53	21.26	33.57	45.17
1980-81 to 1989-90	5.26	1.01	1.84	2.41	19.18	34.97	45.85
1990-91 to 1996-97	5.89	0.87	2.05	2.97	14.76	34.81	50.43

Note : P= Primary Sector, S = Secondary Sector, T= Tertiary Sector

The contribution of the primary sector towards the overall GDP growth is showing a declining tendency over the plan periods. The primary sector had contributed 47.61 percent of the GDP growth in the first plan period. However, it declined to an all time minimum of 8.53 percent during the third plan period. It again showed an upward tendency during the fifth and sixth plan period. But during the seventh and eighth plan the contribution of the agricultural sector

to the overall GDP growth again declined. During the eighth plan period the contribution of the agricultural sector was only 11.38 percent.

The contribution of the secondary sector towards the overall GDP growth rate is showing an upward tendency over the plan periods. It started with a minimum of 25.76 percent in the first plan and increased to 45.59 percent during the third plan period after the second five-year plan, which emphasised on industrial growth. The share of the secondary sector had then shown a declining tendency in the fifth plan, but during the subsequent plan period the share had shown an increasing tendency. During the eighth plan period the share of the secondary sector was 38.87 percent.

In the case of tertiary sector share we notice an upward tendency throughout the plan periods. It started off with 26.62 percent in the first plan period and increased to 32.6 percent during the second plan period. It recorded an all time high of 55.88 percent during the fourth Plan period. During the fifth and sixth plan there was a decline in the tertiary sector contribution to aggregate GDP growth. But during the seventh and eighth Plan period, the contribution of the tertiary sector had again shown an increasing tendency. During the eighth plan period also the share of the tertiary sector to the overall GDP growth was 49.77 percent.

As far as the sectoral shares in GDP are concerned, the Indian experience conforms to the often noticed tendency of the share of the agricultural sector declining, and that of the other sectors expanding with economic growth. Infact it may even be said that the rates at which the structure of production has changed in India have been faster than warranted by either her low per capita income or her slow economic growth. For example, the share of the services sector, especially when due to the growth of public administration, has not lead to any significant acceleration of economic growth¹⁴.

3.4. GDP Growth in the Sub-sector Levels

In order to understand the growth pattern at more desegregated level, we analyse the growth of subsectors in this section. We examine growth over the plans as well as decades to identify the leading sectors and the lagging sectors in the process of transformation.

¹⁴ An argument put froth by Sundrum (1987).

Table 3.13. Growth rate of GDP at the Sub-Sectoral level under different plans

INDUSTRY	I	II	III	IV	V	VI	VII	VIII
1.Agriculture, forestry & fishing	3.54	2.96	0.59	0.64	3.96	3.85	4.63	2.82
1.1 Agriculture	3.92	3.11	0.17	0.51	4.71	4.11	4.898	2.83
2.Mining & quarrying	2.24	6.48	5.76	1.42	4.79	6.86	9.15	4.72
3.Manufacturing	6.46	5.77	6.3	2.78	5.8	7.53	8.19	10.3
4. Electricity, gas & water supply	7.71	12.18	11.93	5.35	9.53	7.82	9.24	6.98
5.Construction	6.37	5.62	7.79	-0.83	7.90	2.40	5.13	5.78
6.Trade, hotel & restaurant	5.25	5.23	5.39	0.55	6.86	5.28	6.14	10.82
7. Transport, storage & commu.	4.37	6.49	5.86	1.42	5.75	5.939	7.315	7.52
8.Finance, Insurance, Real estate	3.118	3.11	2.98	3.44	6.42	6.101	8.006	8.86
8.1 Banking & Insurance	8.42	7.39	4.62	5.34	14.64	10.56	13.86	12.36
9. Community, Social & Per. Scr.	2.98	4.31	5.97	-0.54	3.15	5.32	7.04	4.72
9.1 Public Administration & Defence	3.88	6.44	9.37	4.75	4.87	6.34	8.32	3.96

Table 3.14. Decadal Growth Rate of GDP at Sub-Sectoral level

Industry	1950-51 to 1959-60	1960-61 to 1970-71	1970-71 to 1979-80	1980-81 to 1989- 90	1990-91 to 1996- 97
1.Agriculture, forestry & Fishing	2.67	1.49	1.72	2.89	2.91
1.1 Agriculture	2.89	1.26	1.92	3.08	2.99
2.Minig & Quarrying	3.98	4.90	4.51	7.11	3.59
3.Manufacturing	5.93	4.63	4.77	7.04	7.55
4.Electricity,gas & Water Supply	9.73	10.92	7.14	8.58	7.43
5. Construction	5.70	6.64	3.01	4.09	4.51
6. Trade, hotel & restaurant	4.98	4.35	4.81	5.85	8.75
7. Transport, storage & communication	5.57	5.36	6.20	7.11	6.60
8. Finance, Insurance, Real Estate	3.00	3.06	4.34	6.98	8.41
8.1 Banking & Insurance	7.44	4.91	7.47	12.12	11.98
9.Community, social & Personal Services	3.45	5.10	3.61	6.33	4.51
9.1.Public Administration & Defence	5.03	7.36	7.67	3.70	3.70

As prelude to this analysis, we shall examine some of the major studies that analysed the sectoral GDP growth. The growth of agricultural sector, the major component of primary sector, is a widely debated issue in the Indian economy. We analyse our results in light of the important empirical works regarding agricultural growth.

Panse (1959) identified an increase in the agricultural growth rate in the planning period using the analysis of variance to evaluate the extent to which observed changes in per acre yields of wheat and rice between 1945 and 1955. In the late sixties, the issue of agriculture growth attracted attention of economists in the context of planning. Mitra (1968) argued that the rate of growth of Indian agriculture, especially that of food grains had declined after the second five-year plan¹⁵. Contrary to this Minhas and Srinivasan (1968) maintained that the growth rate of food production had not declined but remained constant. They criticised the methodology used in Mitra's study¹⁶. Rudra (1970) tried to make methodological advancement in agricultural growth estimation¹⁷. He concluded that there was a slight tendency toward slowing down of the rate of growth in agriculture, though in the long run the growth rate was more or less constant¹⁸.

Growth decomposition exercises to estimate the relative contribution of area, crop pattern and per hectare yield¹⁹ and further refinements to separate out the effects of shifts in the spatial distribution of area under different crops²⁰ were also attempted to provide explanations for the growth process. Studies also attempted to estimate the increase in production and yields, which could be expected from the observed changes in the proportion of major inputs namely, cropped area, irrigated area, fertiliser and improved seeds and compare it with actual realisation²¹.

Using a trend fitting exercise Patnaik (1972) analysed the growth performance of agriculture and highlighted a decline in the agricultural output in the post green revolution period. Raj (1976) in his analysis of the growth performance of the agricultural sector in the post green revolution showed that the green revolution has not been successful in increasing the output except for few crops like wheat. His study further shows that there is a regional concentration in the adoption of new technology in Wheat sowing areas of the country. Vaidyanathan (1977)

¹⁵ Mitra (1968) calculated the growth rate for the period 1949-50 to 1958-59 as 3.2 percent per annum, in contrast for the period 1958-59 to 1967-68, which was only 0.67 percent per annum.

¹⁶ According to them Mitra's calculations were scientifically invalid because they were not based on any adequate statistical trend analysis. They also questioned the rationality of periodisation in Mitra's study. They recalculated the growth rate of food production on the basis of fitted trend curve. Their result showed an annual growth rate of food grains at 3.21 percent.

¹⁷ Rudra tried out three different curves for the purpose of trend fitting to the same statistical series, the straight line, the semilogarithmic curve and the Gempertz curve. Both Gempertz and the semi logarithmic gave almost good fit.

¹⁸ Dey (1975) studied the agricultural growth performance in the post green revolution period and concluded that notwithstanding the so called green revolution there was a tendency towards slowing down.

¹⁹ Minhas and Vaidyanathan (1965)

²⁰ Dharam Narain (1976)

²¹ Cunning (1971)

analysed the reasons for the divergence between the expected and realised output in the post green revolution period in India and identified weather as a crucial variable in explaining this divergence.

Srinivasan (1979) shows that there has been a decline in the rate of growth of gross sown area, in particular under non-food crops, in the decade starting from 1967-68 compared to the fifteen years ending in 1964-65, but the output of food crops and all crops grew more or less uniformly over the entire period 1949-50 to 1977-78 with no evidence of acceleration or deceleration since 1967-68²².

Extending on his earlier analysis Vaidyanathan (1980) included weather as an explanatory variable and argued that sustained change in the weather variable has a significant bearing on the trends in output growth but it can be falling or rising or a cycle spanning over a large part of the period²³.

Studying the question of deceleration in the growth of crop production between the periods 1960-61 to 1969-70 and 1969-70 to 1978-79 Alagh and Sharma (1980) concluded that the estimated growth rates in the second period were generally higher than the first. In an exercise making end point comparisons of three year averages, centred around a peak agricultural year, Patnaik (1981) had found that there was marked deceleration in growth rates, not only of total agricultural produce but also of food grains products. Sawant (1983) has shown that using the same method, the compound growth rate of food production from 1950-51 to 1980-81 was 2.5 percent per annum, which was slightly higher than the rate of growth of 2.2 percent per annum recorded in the earlier period from 1950-51 to 1967-68.

In light of the policy changes Thamarajakshi (1989) shows that the agricultural sector had recorded a constant growth rate around 2.5 percent over the period, although its labour absorbing capacity is declining. More recently Thamarajakshi (1999) analysed the growth performance of the agricultural sector in the liberalisation context. Her study shows that there was record growth performance in the food grains output in the 1980s and since the

²² Srinivasan (1979) shows that the slow down in the growth of crop area in the periods after the mid 1960s compared to the earlier period is shared by almost all crops except wheat. He comments that wheat shows faster growth in output and yield per unit area, and there is not yet green revolution but only wheat revolution.

²³ Vaidyanathan(1980) argued that in modeling and empirical verification of agricultural growth, the analysts are also faced with the problem of finding a proper specification of the weather crop relation. While defining the notion of weather as a variable, Vaidyanathan stressed that it has substantial influence on agricultural sector at all stages of plant growth in terms of rainfall, temperature, humidity and sunshine. He uses rainfall as a Cath-all Index.

liberalisation period there was a decline in the public investment in the agricultural sector and it leads to a stagnant situation in the growth of agricultural output²⁴.

We observe from the table 3.14 that of the three sectors in the economy, though it was the major sector in the early periods, the primary sector GDP was growing at a slow rate compared to the other sectors. However, given the importance of agriculture in the Indian economy²⁵, even though slow, their growth rates are of importance. Also, it does not mean that there was no rise in the levels of agriculture GDP. To analyse the sub sectors in this sector, we have GDP figures for agriculture and allied activities together and for agriculture alone. The levels of agriculture were rising and proportionately the levels of the primary sector GDP were also rising because agriculture forms the major contribution.

A review of the studies on agricultural performance reveals that irrigation and new technology were the two most important sources of growth in agriculture after the mid-sixties. After independence, India invested heavily in major and minor irrigation schemes, in order to reduce its dependence on uncertain monsoons. Since most of the easier and cost-effective options for expanding the irrigation potential have now been utilised, the real hectare costs of major irrigation schemes have increased sharply in the eighties. At the same time, public and private investment in agriculture in general, and irrigation in particular, had declined. The decline in public investment, which is an important source of investment in public irrigation schemes, has been sharper than that in private investment²⁶. This in turn has affected the performance of the agricultural sector in recent times. The dismantling of trade restrictions in wake of the changes in global scenario too influenced the growth performance of the eighties and nineties.

The growth of secondary sector revolves around the growth of industrial sector, which is the major component. Attempts to decipher the growth process of secondary sector have

²⁴ In a study of agricultural growth under economic reforms BalaKrishnan (2000) too observes a slow down in the agricultural growth in the era of economic liberalization.

²⁵ On the performance of the sectoral GDP growth in agriculture Jalan (1996) comments that "Agricultural growth is not only vital for the economy, but also central to the welfare of the bulk of India's population. Agriculture accounts for about 65 percent of employment in the country, nearly 250 million of the poor live and work in rural areas. Unfortunately even after 50 years of planned development, the proportion has practically remained static since independence. Agricultural growth rates have been even lower than the low rate of growth of the economy as a whole. As a result the disparity between percapita income in agriculture and other sectors has accentuated over the years. The employment elasticity of growth in the manufacturing and other sectors of the economy have been relatively small, and what is worse, growth rates in other sectors have not been high enough to pull labour out of agriculture. Here lies the importance of accelerating growth rates in the economy" (Jalan; 1996; page 83).

²⁶ Jalan (1996) is of the view that the deceleration in the rate of investment in agriculture is an important challenge for public policy. According to him, without an accelerated rate of investment, a sustained growth in the agricultural sector will not occur.

concentrated mainly on the growth of manufacturing sector. These attempts have focused on two issues a) on the slow growth rate or the stagnation from the mid sixties and its causes and b) the turn around in growth in the eighties explained mainly by the changes in policy regime. These two distinct phases in industrial growth can be identified with the fourth plan and the sixth plan respectively. Before we examine the growth of the sector we present some of the arguments of both the stagnation and turn around debate.

In the early phases, the growth of industrial sector, the major component of secondary sector, was largely studied in the context of stagnation debate. This was started mainly with the observation of Raj (1976) that there is a sharp decline in the industrial output since mid 1960's²⁷. This view was further supported by Srinivasan and Narayana (1977). Ahluwalia (1985) also observed a significant slow down in the growth of the industrial sector after the mid-sixties. A growth rate of 7 percent per annum during the period from 1956-57 to 1965-66 was followed by a slower growth of 5.5 percent per annum during the period thereafter, and this deceleration in growth was statistically significant.

There is wide agreement among authors on the occurrence of a turn around in the growth rates of this sector during the eighties, though there are differences of opinion on the timing of the turn around. While Raj (1984) and Alagh (1985) asserted that the recovery had begun just after the mid seventies, Ahluwalia (1987) and Nagaraj (1990) identify the same only with the period after 1979-80. This turn around is often attributed to the changes in the policy sphere towards an outward looking strategy²⁸. Nagaraj (1994) attributes the improvement in growth rates largely to the favourable changes in the composition of capital formation, improvement in the rate and structure of public investment in general and the performance of infrastructural industries in particular.

Kelkar and Kumar (1990) attempted to identify the major policy issues coming out of the

²⁷ The important participants in the stagnation debate are Raj (1976), Ashok Mitra (1977), Vaidyanathan (1977), Srinivasan and Narayana (1977), Patnaik and Rao (1977), Deepak Nayyar(1978), Shetty (1978), Chakravarty (1979), Desai (1981), Bagchi(1981), Patnaik (1981). See Ahluwalia (1985) for a good review of important explanations for this stagnation.

²⁸ See Ahluwalia (1985).

industrial growth in the eighties²⁹. Chandrasekhar (1996) in an attempt to explain the post reform industrial growth argues that no linkage can be established between liberalisation, private investment and industrial growth. Rather liberalisation has created a consumption boom. Thus it may be concluded that the industrial sector witnessed a significant recovery in the eighties after stagnation in the mid sixties.

Our analysis reveals that in the secondary sector the growth in the levels of GDP accelerated in the 1980s and 1990s. In this sector, manufacturing dominates over the other sub sectors. Other components of the secondary sector like the construction and mining and quarrying registered only modest growth rates. In the post eighties, it was the manufacturing, which contributed for the rise in the secondary sector GDP levels, followed by the construction sector. The sub sector mining and quarrying maintained a steady rate of growth in its levels except for a significant increase during the seventh plan.

We observe that the service sector was one of the fast growing sectors in the economy. The sector witnessed not only fast growth, but also fast changes in its role and importance in the economy. The earlier approach of analysing growth of an economy in a two sector framework (agriculture-industry) implicitly assume the fact that the development of certain services as one of the preconditions for economic growth, and not as its consequence. The definitions of goods and services also changed over time, as services of various kinds are delinked from the manufacturing process and became essential elements of the productive structure³⁰.

As mentioned earlier, tertiary sector GDP rose at a faster rate than the other sectors. However, the sector was not dominated by any one of its sub sectors like the other two sectors; like primary sector dominated by agriculture and secondary sector by the manufacturing sector.

²⁹ They put forward the idea that the government policy changes during the eighties have tended to create a bias in favour of chemical based industries as opposed to the metal based sector, though the latter is more suited to the country's development objectives. By relying almost exclusively on non-tariff forms of protection at high rates, in conjunction with increasing delicensing of the entry, the policy has led to excessive entry, high costs of production and lack of competitiveness in domestic industries.

³⁰ Note that many industrial products are not only manufactured, they are also designed, and serviced. Thus a significant and rising part of the value added by manufacturers now consists of services. Further, the change in the image and role of services has been brought about by the unprecedented and unforeseen advances in software and information technology in the last two decades. The fastest growing segment of services is the rapid expansion of knowledge based services, such as professional and technical services, particularly in the information technology (Jalan, 1996).

Though the sub sector trade, hotel and restaurants is the largest in terms of the levels of GDP, the sub sectors of finance and real estates and banking and insurance also registered a faster growth rates in the 1980s despite fluctuations. There was continuous growth in the GDP growth of community, social and personnel services till 1964 after which it started steadily falling till the late 1970. Again, systematic rise in the growth rates of GDP were registered in this sector till the late 1980s. However, the new economic policies and shift in the development concerns reflected in a steady fall in the growth of this sector. Similarly, public administration and defence (PAD) grew continuously till mid 1960s and afterwards the growth rates fell to lower levels by the late sixties, to rise again, which continued till the early 1970s. It remained around 6 percent throughout the seventies and eighties. After 1988 it registered falling growth rates. This means that the GDP levels are increasing in the sector, but at a rate lower than the previous rates, or we may infer that the levels of GDP is rising at a decreasing rate.

3.5.1 Statistical Testing of Alternative Hypotheses

On the basis of the analysis so far, we test for the phases of acceleration/deceleration of growth in GDP. We use the methodology similar to Reddy (1978), which is explained below. If the growth rate is constant, then it can be estimated by regressing the variable with respect to time. The results can be obtained by the following equation.

$$\ln Y = \alpha + \tau t + u \quad (1)$$

Where, Y is the GDP and t is the time trend. This equation can be estimated using the OLS method for obtaining τ , the growth rate.

If the growth rate is changing, then the regression coefficient τ is not constant but varying. This varying parameter can be modelled as a function of time (Madalla 1979:390). The

simplest function is to postulate a linear relationship between the rate of growth (τ) and the time (t). This would mean,

$$\tau = \tau_0 + \tau_1 t \quad (2)$$

Substituting (2) in (1)

$$\begin{aligned}\ln Y &= \alpha_0 + (\tau_0 + \tau_1 t) t + ut \\ &= \alpha_0 + \tau_0 t + \tau_1 t^2 + ut\end{aligned}\quad (3)$$

The nature of the growth rate depends on the sign of both τ_0 and τ_1 . The growth rate is accelerating if τ_0 and τ_1 are positive and decelerating if τ_0 and τ_1 are negative. Decelerating from a positive growth rate if $\tau_0 > 0$, $\tau_1 < 0$ and $t < -\tau_0 / 2\tau_1$ and accelerating from a negative growth rate if $\tau_0 < 0$, $\tau_1 > 0$ and $t > -\tau_0 / 2\tau_1$.

The acceleration test was run for the aggregate GDP and for primary, secondary and tertiary sectors separately.

The results for the aggregate GDP are as follows

$$\begin{aligned}\ln Y &= 11.47 + 0.0398t + 0.00028 t^2 \\ &\quad (102.55) \quad (8.764) \\ N &= 47, DW = 0.740, R^2 = 0.99\end{aligned}$$

The results show that the GDP is showing an overall growth rate of 3.98 percent. There is a significant acceleration in the growth rate. The rate of acceleration is 0.02 percent. But the low Durbin Watson indicates the presence of autocorrelation. Therefore, the trend equation was reestimated in order to overcome this problem. Although there are several methods to overcome the problem, the Cochrane-Orcutt (COC) is used here (Johnston, 1984:p.323). The method transforms the original variable in such a way that the error term in the transformed variable has no serial correlation.

The results of the COC method are given below.

$$\begin{aligned}\ln Y &= 4.33 + 0.0394t + 0.00035 t^2 \\ &\quad (44.99) \quad (5.04) \\ R^2 &= 0.983, DW = 2.125\end{aligned}$$

Still the results show that the GDP growth rate was accelerating at a rate of 0.035 percent. The trend growth rate over the period of time is 3.94 percent. We follow the same sectors as well.

The results for the primary sector growth rate are given in the following equations.

$$\ln Y = 9.79 + 0.02425t + 0.00015 t^2$$

(49.17) (3.64)

$$R^2 = 0.978, DW = 2.012$$

The sector is showing an aggregate growth rate of 2.42 percent over the years. There is significant trend acceleration in the growth rate of 0.015 percent over the years.

$$\ln Y = 10.08 + 0.05331t + 0.0003 t^2$$

(79.40) (0.504)

$$R^2 = 0.99, DW = 2.260$$

In the case of secondary sector we find a growth rate of 5.33 percent. There is trend acceleration in the growth rate. But the trend is not statistically significant. And in the case of tertiary sector,

$$\ln Y = 10.38 + 0.00491t + 0.00034 t^2$$

(140.93) (11.69)

$$R^2 = 0.99, DW = 2.175$$

The results show a growth rate of 4.91 percent. Although the rate of acceleration is only 0.034 percent, it is statistically significant, which means that there is trend acceleration in the tertiary sector GDP over the period.

In order to examine whether the policy changes during eighties made any significant impact on the GDP growth, a test for trend break is attempted. For this purpose we use the methodology suggested by Boyce (1986). The method can be applied for a time series of n observations with a break at a single point k . The discontinuous growth for the two sub periods can be estimated using the dummy variable (D_i) method:

$$\ln Y_t = \alpha_1 D_1 + \alpha_2 D_2 + (\beta_1 D_1 + \beta_2 D_2)t + u_t \quad (4)$$

Where, $D_1 = 1$ for the first period,

$= 0$ for the second period

$D_2 = 1$ for the second period,

$= 0$ for the first period

Imposing a linear restriction $\alpha_1 + \beta_1 k = \alpha_2 + \beta_2 k$, in order to eliminate the discontinuity

between the two trend lines, and substituting for α_2 in (4) we have,

$$\begin{aligned} \ln Y_t &= \alpha_1 D_1 + (\alpha_1 + \beta_1 k - \beta_2 k) D_2 + (\beta_1 D_1 + \beta_2 D_2) t + u_t \\ &= \alpha_1 D_1 + \alpha_1 D_2 + (\beta_1 k - \beta_2 k) D_2 + (\beta_1 D_1 + \beta_2 D_2) t + u_t \\ &= \alpha_1 + \beta_1 (D_1 t + D_2 k) + \beta_2 (D_2 t - D_2 k) + u_t \quad (5) \end{aligned}$$

Where β_1 and β_2 are the growth rates for the two periods with a kink at k if the estimated values of growth rates are different.

We tested for trend breaks using alternate years. Our results indicate a statistically significant break in the trend for the year 1982/83. As the OLS estimates show the presence of autocorrelation a two-stage Cochrane-Orcutt method. The estimated results are reported below.

$$\begin{aligned} \ln Y &= 8.68 + 0.035 (D_1 t + D_2 k) + 0.055 (D_2 t - D_2 k) \\ &\quad (70.08) \qquad (44.16) \\ R^2 &= 0.99, DW = 1.89 \end{aligned}$$

The results similar to some of the earlier findings on a break in the GDP growth rate indicate that the decade eighties witnessed a departure from that of the earlier period. Interestingly this coincides with the changes in the policy regime as noted by Ahluwalia (1985, 1991). The earliest attempts to deregulate industrial sector and trade can be traced to late seventies and early eighties marking a shift in the inward oriented policy sphere. This resulted in a one-shot increase in output as reflected by the GDP growth leading to a break in the trend.

An attempt is also made to test whether there is any structural break in the GDP growth in the 1990's following the liberal policy changes. The results based on the two stage Cochrane-Orcutt method with a kink in 1992-93 are given below³¹.

$$\begin{aligned} \ln Y &= 7.48 + 0.051 (D_1 t + D_2 k) + 0.065 (D_2 t - D_2 k) \\ &\quad (22.3) \qquad (11.07) \\ R^2 &= 0.98, DW = 2.17 \end{aligned}$$

The result shows only a modest increase in the growth rate in nineties as compared to that of eighties. It increased from 5.1 percent in eighties to 6.5 percent in nineties. However, a test of

³¹ Looking the significance of coefficients and the goodness of fit of the model, we identify 1992-93 as a break.

acceleration for both the pre and post nineties doesn't show any significant acceleration or deceleration in growth rates.

The results are given below

For the period 1980-81 to 1992-93

$$\ln Y = 11.99 + 0.052t + 0.0053 t^2$$

(29.80) (0.90)

$$R^2 = 0.93, DW = 2.13$$

The results of the acceleration test for the period 1992-93 to 1996-97.

$$\ln Y = 12.45 + 0.069t + 0.0013 t^2$$

(61.38) (1.23)

$$R^2 = 0.99, DW = 2.06$$

In both the periods, the 't' statistic is not significant. This rejects the hypothesis of trend acceleration in the growth rate during this period.

Thus we may conclude from the above analysis that while there was a significant break in the growth pattern of GDP in eighties the growth in nineties was more or less stagnant with a nominal increase in the growth rate. Having an idea of the growth pattern of the aggregate GDP as well as the different sector we try to identify the relative positions of different sectors in terms of lagging and leading sectors.

3.5.2 Lead and Lag Sectors in the Growth Process

From the analysis of the GDP growth rates at the broad sectoral level and sub sectoral level, we identify certain sectors as the leading and some others as the lagging sectors in the process of economic growth.

The analysis shows that the primary was the leading sector in the early phase of planning as indicated by its growth and contribution to overall growth. The Secondary sector was the leading sector in the third five-year plan. During this period the agricultural sector and the tertiary sector were lagging behind this sector. In the fourth five-year plan it was the tertiary sector, which was prominent. During the fifth and sixth plans secondary sector was lagging

behind due to a down swing in industrial growth. The tertiary sector fuelled growth during the seventh and eighth plans while the secondary and primary sectors were lagging behind.

At the sub sectoral level we find that Banking & Insurance, Electricity Gas and Water and manufacturing were the leading sectors during the first five-year plan. During the second plan the leading sectors were Electricity gas and water, Banking and insurance and mining and quarrying. Construction, public administration and defence emerged as the leading sectors along with the sectors, which were leading in the previous plan during the third plan. During the fourth plan the electricity, gas and water and Banking and insurance maintained their leading position, which is continued over the fifth plan also. Over the sixth seventh and eighth plan periods the manufacturing sector and the banking and insurance were the leading sectors. Agriculture, forestry and fishing can be identified as the lagging sectors over the plan periods as the growth rate of these sectors were lagging behind.

Any analysis of the growth performance of Indian economy devoid of open economy considerations does not hold well after the mid-eighties. The movement away from import substituting regime to export oriented policies necessitates the examination of the role of external sector in the growth process. In the next section we analyse the role of exports in accelerating growth.

3.6. Development Strategies and the External Sector: Linking Policy Changes to Trade Performance and Growth

From the foregoing discussion on the sectoral contributions to GDP growth we have seen the structural transformation the economy has been undergoing over the years as manifested in the shift away in contribution to total output from the primary sector to the industrial and service sectors. Having seen the structural transformation within, let us now examine the policies that have been directed towards the external sector over the years and analyse on the light of it the developments in the sector. We begin with a brief review of the policy changes with respect to external sector over different periods.

3.6.1. Policy Changes in the External Sector

In the earlier stages of development planning in India, external sector was not given much importance. By following a development strategy of import substitution and inward orientation and adopting such import control measures like quotas and other quantitative restrictions the domestic industries were heavily protected from external competition. Three

distinct phases are discernible in Indian policy makers' approach towards the external sector. The early phase, which lasted up to about 1972-73, was one of extreme export pessimism. Following the writings of Prebisch, Singer and Nurkse, Indian planners felt that there was very little scope for expansion of exports in view of the limited size of the foreign markets and inelastic demand for developing country exports. It was also believed that the terms of trade of developing countries were destined to deteriorate over time regardless of the policies they adopt.

The second phase in India's export policy seems to have begun in 1973 after the first oil crisis. During this phase, it was recognised that import substitution policies by themselves could not bring about a viable balance of payments situation in the country. It was also felt that export promotion policies could be pursued as "exceptions" to normal development policies. Exports were therefore accorded high priority and incentives were given for exporting firms.

In the third and the most recent phase (1991 onwards), exports are being seen as an integral part of industrial and development policy. The underlying assumption is that the economy suffered from certain structural rigidities, which not only hindered the growth process, but also undermined its capability to respond to crisis situations. Structural rigidities are both external and internal; the internal or domestic rigidities emanate from governmental interventions like controls on entry and exit, restrictions on the scale of operation, intervention in pricing (both in the product and factor market) and so on. The rigidities in the external sector, on the other hand, arise from man made restrictions on free trade like tariff policy, exchange rate policy, controls on foreign investment and transfer of foreign technology and so on. The policy reforms initiated in India during the early nineties proposed to do away with these rigidities and the resulting disequilibria through globalisation and liberalisation (Bhagwati and Srinivasan, 1993). The new policy paradigm emphasised on the importance of technological upgradation in Indian industry, among other things, in order to be internationally competitive through liberalising technology, import and FDI policies; increase in the plant size to reap scale economies, etc., as a part of strategies for export promotion.

3.6.2. Response of External Sector to Policy Changes

Having discussed the paradigmatic shift in the external sector policy of the government from one of 'inward looking' to an 'outward oriented' programme of development, it becomes

pertinent to see the extent to which the external sector has been responding to the former. This is attempted in two stages. First we examine the extent to which the external orientation of the economy has changed over the period 1970-71 to 1995-96. This is followed by an examination of the plausible changes in the composition of export and imports to draw meaningful conclusions on the impact of growth on employment generation in the new scenario.

Table 3.15. Trends in openness export orientation and import intensity (in percent)

Year	Trade intensity	Export intensity	Import intensity
1970-71	8.0	3.9	4.1
1975-76	13.1	5.7	7.4
1980-81	15.7	5.5	10.3
1985-86	13.1	4.7	8.4
1990-91	15.9	6.8	9.0
1995-96	22.8	10.6	12.2

Source: Reserve Bank of India, Handbook of Statistics on Indian Economy.

The degree of openness, defined as the ratio of total value of exports and imports to GDP, has been relatively stable from the mid seventies till the late eighties as is evident from table 3.15. The low degree of openness until the early 1970s could be attributed to the inward looking development strategy adopted through the initial five-year plans. In the nineties, however, the liberal policies initiated appear to have led to a substantial increase in openness. It may be noted that the degree of openness in the pre-ninety periods has been largely on account of high import intensity, which were almost double the corresponding figures of export intensity. The nineties, however, gives a different picture with exports registering remarkable growth with an intensity of 11 percent, nearly twice as that in the pre-ninety period. The import intensity on the other hand, though retained its lead albeit marginally, has been growing at a slower pace in the nineties.

The above discussion though points to the greater openness of the economy, it needs to be ascertained whether the structural transformation the economy has been undergoing has made any impact on the commodity composition of export and import. This is necessary to evaluate as to how far greater openness has influenced sectoral growth impetus and hence employment generation. Towards this we undertake a disaggregated analysis of exports and import for the same period.

Table 3.16 Exports of Major Commodities as Percentage of Total Exports

Year	Primary goods	Ores & minerals	Manufactured goods	Petroleum products	Others
1970-71	29.46	16.39	52.88	0.82	0.44
1975-76	34.40	13.48	50.94	0.91	0.27
1980-81	27.80	12.14	58.89	0.42	0.75
1985-86	25.05	10.27	58.51	6.01	0.16
1990-91	18.49	5.34	71.62	2.88	1.67
1995-96	19.13	3.70	73.91	1.43	1.83

Source: Reserve Bank of India, Handbook of Statistics on Indian Economy (1999)

Table 3.16. reveals that the manufacturing sector has been enjoying a pre-eminent position in India's export basket during the entire period under consideration. In line with the argument that trade liberalisation effects a transition from primary commodities to more value added commodities in the overall exports, the nineties witnessed a remarkable surge in the contribution of manufacturing to exports. The primary commodities on the other hand though constituted about 30 percent of total value of export until the late seventies began to loose significance from the eighties onwards forming a share of around 19 percent in the mid-nineties. Another remarkable change in the nineties has been the loosing of significance of mineral resources in generating export earnings. While its share in total export hovered around 10 percent until the late eighties, the figure for 1995-96 has been a meagre 4%. The above exercise points to the fact that liberalisation and opening up of the economy has led to a shift away from primary commodities to more value added commodities in the manufacturing sector in the export composition of India. This has led to the hypothesis that export growth fuelled economic growth in the era of trade liberalisation.

A plethora of studies have examined the relationship between exports and economic growth at the international level³². This substantial literature using a range of methodologies supports an association between exports and growth in cross section analysis. However, the relationship does not seem to hold good over a period of time. Moreover, the relationship between exports and growth holds robustly only when investment is included as a variable. This suggests us that the links between exports and growth may operate through improved resource accumulation rather than improved resource allocation. The question thus boils down to the issue of causality,

³² We do not summarise this extensive literature starting from Michaely (1971) and Balassa (1978).

that is, can a higher rate of growth in export cause higher rate of growth in GDP?

The simplest method to test this proposition is by using rank correlation analysis. This, however, can only show covariation, parametric results of OLS studies on a cross section of data too are incapable of showing causation. The framework erected by Granger (1969) and elaborated further in Granger (1980) helps us to capture direction and magnitude of causality between two variables. Granger defines causality between two variables X and Y as follows. Y is an 'instantaneous cause' of X if knowledge about current values of Y enables us to make a better forecast of X in the next period. Granger (1969) test of causality is a two-step regression procedure. To determine if there is any causality stemming from Y to X, X is first estimated as a function of past values of X (called the restricted version). Then X is estimated as a function of past values of X and past values of Y (called the unrestricted version). The two regressions are as follows:

$$X_t = \sum_{i=1}^m a_{xi} X_{t-i} \quad (\text{restricted}) \quad (1)$$

$$X_t = \sum_{i=1}^m a_{xi} X_{t-i} + \sum_{j=1}^n a_{yj} Y_{t-j} \quad (\text{unrestricted}) \quad (2)$$

There is causality in Granger sense from Y to X if the inclusion of past values of Y as a group improves the estimation of X significantly by an F test. Here the direction of causation is from past to present as present cannot affect past.

Using Granger causality we test whether growth rates in exports cause growth rate in GDP for the period 1980 to 1996. We consider this period for two reasons a) the economy witnessed a growth of export as well as GDP during this period, and b) the extent of outward orientation increased in this era with the belief that higher levels of outward orientation can raise the levels of growth. We estimate equation one and two and the results are as follows.

X = growth rates of exports

Y = growth rate of GDP

$$m = 3$$

$$n = 2$$

$$F(1,9) = 0.47$$

X	Y	m	n	F(1,9)
Growth of Exports	Growth of GDP	3	2	0.47 *

Note: * denotes that F is not significant, table value being 0.51.

Our results show that growth rates of exports does not 'Granger cause' growth rate of GDP. This point to the fact increased exports in the era of trade liberalisation made no significant addition to the growth of GDP. This can partly be explained by the increasing import intensity of exports. An examination of the structure and composition of imports thus provides a clue to both the failure of exports to boost overall growth as well as to the structural transformation in the economy.

Having seen the changes in the export composition, let us now turn to the commodity composition of imports. It may be noted that one of the avowed goals of liberalisation has been to improve the efficiency of domestic industry by facilitating import of intermediate and other inputs at lower cost. This conviction has been based *inter alia* on the theoretical reasoning that 'access to a variety of foreign inputs at a lower cost shifts the economy-wide production function outward, which illustrates a concrete link between productivity and the trade regime' (Dornbusch, 1992). The evidence seems to indicate that as has been the case with exports, in the realm of imports as well manufactured products have come to dominate, more so in the nineties (Table 3.16). The share of manufacturing which hovered around 45 percent until the early eighties began to show greater increase then onwards, reaching as high as 71 % of total imports by 1995-96.

Table 3.17. Import of Major Commodities as Percentage of Total Imports

Year	Primary goods	Ores & Minerals	Manufactured	Petroleum
1970-71	19.01	12.26	60.41	8.32
1975-76	27.48	4.04	45.19	23.29
1980-81	8.64	4.51	44.67	42.18
1985-86	8.40	7.64	57.44	26.52
1990-91	2.62	4.94	67.39	25.04
1995-96	3.26	4.71	71.51	20.52

Source: Reserve Bank of India, Handbook of Statistics on Indian Economy.

The above analysis leads us to the following broad conclusions. One, there has been a remarkable improvement in the extent of openness in the economy in the aftermath of reforms. In response to the policy changes there have been changes in the intensity of exports and imports as well. While pre-liberalisation period witnessed a higher proportion of imports in the total value of trade, exports began to register impressive growth in the period that followed reaching near parity with imports by the mid nineties. Two, there have been significant changes in the commodity composition of exports and imports, both showing a drift towards more value added manufacturing products from primary commodities, minerals, etc. Viewed within the frame wok of 'trade as an engine of growth', it can be argued that greater openness may have led to enhancement of domestic capabilities in the industrial sector through greater exposure to foreign markets, technology, etc., but fail to act as a catalyst to enhance growth as shown by our results of causality. This may have bestowed on Indian industry the advantages of scale economies, superior technology that could lead to increased production and greater utilisation of capacity (Azeez, 1999). An interesting fall out of these developments, it is to be assumed is a possible change in the employment structure characterised by greater generation of employment opportunities in the more value-added sectors of the economy. This may imply that a realignment of the labour force characterised by a gradual shift from employment in primary sector to the industrial sector is taking place in the economy. In the following chapter we examine whether the changes in the structure of employment has been on the predicted lines as is theoretically postulated in response to structural changes in the economy.

Summing Up

In this chapter, we have analysed the growth performance of the economy, in terms of GDP growth, at the aggregate level and at the sectoral and sub-sectoral level for the period 1950-51 to 1996-97. Following the theoretically postulated relationship the savings and investment pattern in the economy is also analysed. The results show an overall growth rate of 3.98 percentage over a period with a significant trend break in the growth rate at the year 1982-83. At the sectoral level the secondary sector show higher growth in eighties as compared to primary and tertiary sectors. However, in the subsequent period the tertiary sector bypasses other two sectors both in terms of contribution to total GDP and its growth. Our analysis reveals no significant acceleration of overall growth in the nineties. We also identify the

contribution of the various sectors to the overall growth confining the pattern of structural change postulated in the Kuznet's hypothesis. Consideration of the open economy perspectives prompt us to examine the role of external sector. We find no causal relationship between growth of exports and GDP growth after 1980's. These structural transformation and changes in growth lead to changes in employment generation too. We examine the changes in employment structure consequent to this pattern of growth in the next chapter.

Chapter IV

TRENDS AND PATTERNS IN EMPLOYMENT GROWTH

Introduction

The analysis of the GDP growth in the previous chapter showed that there was a shift in the sectoral growth towards secondary and tertiary sectors compared to the primary sector. Theoretically, this shift in the income growth rate is expected to be accompanied by a shift in the employment structure also (Lewis 1954; Fei & Ranis 1961; Kuznets 1965). The experience of the presently developed countries shows that as the economy grows from an underdeveloped to a developed stage, the relative share of labour force in agriculture declines and that increases in the modern industrial and tertiary sectors, this change in the distribution of labour force between different sectors of the economy has come to be known as the Fisher- Clark- Kuznets doctrine of structural transformation. Indeed, this would happen even when the population increases and there may or may not be full employment in the economy. In the case of an economy, which has increasing population with full employment, the doctrine of structural transformation requires that the rate of labour absorption in the modern sector must exceed the rate of growth of its labour force. In the case of countries with increasing population and existence of unemployment, the requirement is that the rate of labour absorption in the modern sector to be sufficiently large to absorb not only the existing unemployed, but also the new entrants to the labour force. Here the employment growth should be higher than the growth rate of labour force.

In the developed countries, which faced neither much unemployment nor rapid growth of population, the process of modern economic growth involving relative change in the sectoral labour force was accompanied by the absolute shift of workers from agriculture to modern industrial and tertiary sectors over a fairly long period of time. However, the developing countries with surplus labour force, face not only a high magnitude of underemployment, but also high rates of population growth. Because of this, in these countries, structural transformation in the sense of absolute shift of labour force from agriculture to the modern sector has not been achieved. But in the long run there is expected a shift in these countries also. This however requires slow or no technological change of a capital-intensive variety.

Consciously adhering to this doctrine of structural transformation, an important objective of the Five-Year Plans in India, as we noticed in the previous chapter, was the shift in employment from

the primary sector to the secondary and tertiary sectors of the economy. The Second Five Year Plan formulated in 1956 had envisaged that the development of the economy at the expected pace would lower the proportion of the labour force engaged in agricultural occupation from 70 percentage to about 60 percentage by 1976¹. The third plan prepared in 1961 had reiterated this point in the light of its assessment that a large proportion of the employment opportunities generated during the first two plans had gone to non- agricultural activities. Assuming a continuation of the trend and that “about two third of the increase in the labour force over the next 15 years would be absorbed outside agriculture, the third plan envisaged a reduction in the proportion of the workforce dependent on agriculture around 60 percent by 1976”².

In the light of the theoretical models and experience of development planning the present chapter attempts to study, changes in the employment pattern accompanying the structural transformation in the Indian economy. As is evident from the preceding chapter the economy witnessed changes in the sectoral composition of output. In this chapter we analyse employment growth at the sectoral level, to examine whether the change output was accompanied by a change in employment pattern. We then try to correlate the changes in the employment pattern with changes in output composition by examining the employment elasticities. The manufacturing sector, which occupies the major share in the secondary sector GDP, is expected to absorb labour from the agricultural sector. How far this sector has been successful in absorbing labour force from agriculture becomes a relevant question.

However, while analysing questions related to employment in a continuous period of time, the absence of time series data on employment is a serious limitation. The two major sources of data on employment in India are the decadal Census and the National Sample Survey Organisation (NSSO). Recent studies on employment structure in India³ show that the NSSO data are more reliable than the Census data⁴. In the present study the NSSO data will be used from 1961 onwards. As per the recommendations of the Dantwala Committee (1970), NSSO had started collecting information on employment and unemployment in India in its

¹ See the Government of India Second Five Year Plan document 1956.

² See Government of India Third Five Year Plan document.

³ For example Visaria (1996).

⁴ We do not discuss the superiority of one database over the other, an issue taken up by Visaria (1994) for extensive discussion.

Quinquennial surveys. From the 47th round onwards the NSSO had started collecting information on employment and unemployment from a small sample size as part of the Annual Surveys on consumption expenditure. Although the sample size is low, this data will also be helpful in analysing the trends in the employment pattern.

4.1. Employment Pattern

We attempt an examination of the employment pattern in this section. Prior to that we present some of the past results in order to situate our analysis in the background of the existing results. In his study of the changes in the structure of the Indian work force for the period 1961 and 1971 Krishnamurthy (1984) shows a relative shift of the workers from the primary sector towards the secondary and tertiary sectors. This pattern was confirmed further by Visaria and Basant (1994) who observed three broad trends in the rural non-agricultural employment⁵.

Visaria (1996) identified a change in the structure of the Indian workforce in terms of industry, occupation and status during the period 1972-73 to 1993-94, using the NSSO data⁶. In a series of papers, Bhalla (1993,1996,1997) also analyses the changes in the structure of work force using the Census of 1961,1971,1981 and 1991 and comes to almost the same conclusion. Thus it emerges that most of the studies analysing the structure of workforce have reached the conclusion of a change in the structure over time. However, an attempt to study the changes in the structure of the workforce should ideally start with a review of the estimates of the proportion of workers or the worker population ratio (here after WPR)⁷. We examine this first. The crude worker population ratio at the all India level is given in the table 4.1.

⁵ First, during 1961-1988, the share of the rural non agricultural sector in the total rural employment increased. Secondly, within the rural non-agricultural sector, the increase in the share of the tertiary sector exceeds that of the secondary sector. And finally the bulk of increase in the non-agricultural sector is explained by the proportion of casual labor.

⁶ The industrial distribution shows stability in the share of workers engaged in agriculture, a decline in the manufacturing and a rise in the share of service sector. The status distribution shows a decline in the share of self employed and an increase in the casual labour.

⁷ As emphasised by Visaria (1996).

Table 4.1. Worker Population Ratio in India by Sex for Rural and urban areas 1961- 1997

NSS Round (Year)	All India			Rural			Urban		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
17 (1961)	57.16	27.75	42.90	58.20	31.40	45.21	52.40	11.10	32.38
27 (1972-73)	53.61	28.09	41.31	54.50	31.80	43.56	50.10	13.40	32.41
32 (1977-78)	54.31	29.58	42.39	55.20	33.10	44.55	50.80	15.60	33.84
38(1983)	53.89	29.60	42.16	54.70	34.00	44.70	51.20	15.10	33.77
43 (1987-88)	53.13	28.33	41.15	53.90	32.30	43.47	50.60	15.20	33.50
45 (1989-90)	53.28	27.34	40.75	54.80	31.90	43.74	51.20	14.60	33.52
46(1990-91)	54.27	25.37	40.37	55.30	29.20	42.74	51.30	14.30	33.50
47(July-Dec1991)	53.83	25.24	40.07	54.60	29.40	42.47	51.60	13.20	33.12
48(Jan-Dec1992)	54.34	27.01	41.19	55.60	31.30	43.91	50.70	14.60	33.33
49(Jan-June1993)	53.58	26.46	40.53	54.50	31.10	43.24	50.90	13.00	32.67
50(1993-94)	54.48	28.38	41.92	55.30	32.80	44.47	52.10	15.50	34.49
51(1994-95)	54.96	27.09	41.55	56.00	31.70	44.31	51.90	13.60	33.47
52(1995-96)	54.91	25.38	40.70	55.10	29.50	42.78	52.50	12.40	33.21
57(1996-97)	54.28	25.11	40.24	55.00	29.10	42.54	52.10	13.10	33.34

Source: NSSO Quinquennial Surveys on Employment and Unemployment in India and annual Surveys on Employment situation in India.

We consider the 'usual status' rate based on the reference period of one year⁸ for our analysis. Table 4.1 summarise the crude WPRs based on the estimates of the NSS 17th round, five quinquennial surveys between 1972-73 and 1993-94 and the annual surveys between 1989-90 and 1996-97. The NSS estimates based on the usual status concept include both principal and subsidiary status workers. They were shown separately for rural and urban area as well as for males and females. The combined rates for India as a whole are also presented.

The WPR at the all India level shows that there is not much significant decline in the Worker population ratio. The WPR of all persons declined from 42.90 percent to 40.24 percent in the course of 36 years. The male WPR has declined from 57.16 percent to 54.28 percent, while the female WPR had declined from 27.75 percent to 25.11 percent. In the case of rural India, the WPR has declined from 45.21 percent to 42.54 percent. Both the male and female WPR also showed a declining tendency. The WPR in the urban areas is also showing only a marginal improvement. The WPR has increased from 32.38 percent in 1961 to 33.34 percent in 1996-97 in the all persons category. The female WPR has remained stable, if we ignore the year 1961. The rate has remained around 13.10 percent. The male WPR also remained more or less constant over the years. In light of these WPR we investigate the changes in the sectoral distribution of workers.

⁸The NSSO uses three approaches to estimate employment, the Usual status, the Current Weekly Status and the Current Daily Status for the reference period of a year, a week and an average day in the reference week respectively.

4.2 Industrial Distribution of the Workers

The NSS surveys give the Industrial distribution of the workers among three major sectors namely primary, secondary and tertiary sectors. The industrial distribution of the workers was analysed to find, whether there a change in the structural distribution of workers accompanied with a change in the structure of income growth. The NSS surveys give results separately for rural and urban areas. The all India figures were estimated using this data. The all India population figures and the employment figures for the sample periods were estimated for this purpose. The estimates of the population for the NSS survey periods were obtained by interpolating between the Censuses of 1971,1981 and 1991 on the basis of the rates of natural increase reported by the Sample Registration System. The details of which are given in the appendix 2.

Tables 4.2. Broad Sectoral distribution of workers (in terms of usual status) by sex 1961 to 1997, All India

ALL INDIA NSS Round (Year)	MALES			FEMALES			PERSONS		
	P	S	T	P	S	T	P	S	T
17 (1961)	71.57	11.61	16.32	85.30	9.06	5.64	75.88	10.81	12.97
27 (1972-73)	69.62	11.10	17.81	84.24	8.19	6.61	74.41	10.15	14.14
32 (1977-78)	67.43	11.80	19.01	82.14	9.43	8.35	72.37	11.00	15.42
38 (1983)	62.65	13.32	21.66	80.80	10.15	8.69	68.80	12.25	17.26
43 (1987-88)	60.05	15.30	23.01	77.82	12.70	9.48	65.95	14.44	18.52
45 (1989-90)	57.38	16.93	25.95	74.01	14.71	11.19	62.77	16.21	21.17
46(1990-91)	55.99	14.29	26.69	76.21	11.50	12.29	62.10	13.45	22.34
47(July-Dec1991)	58.79	13.52	25.21	77.89	10.63	11.49	64.57	12.64	21.05
48(Jan-Dec1992)	60.13	14.15	23.75	77.35	10.99	11.66	65.56	13.15	19.93
49(Jan-June1993)	59.22	13.97	24.16	79.47	10.32	10.21	65.58	12.83	19.78
50(1993-94)	58.19	14.31	25.31	77.62	11.20	11.18	64.52	13.30	20.71
51(1994-95)	59.52	14.22	24.74	78.58	11.63	9.79	65.50	13.41	20.05
52(1995-96)	58.51	14.24	24.61	52.31	10.86	10.57	56.65	13.22	20.40
57(1996-97)	59.52	13.62	24.26	79.58	10.48	10.25	65.54	12.68	20.05

Note: P= Primary sector, S = Secondary sector, T = Tertiary sector

Source: NSSO Quinquennial Surveys on Employment and Unemployment in India and annual Surveys on Employment situation in India.

The all India results show that there was a decline in the share of agriculture in the total employment from 75.88 percent in 1961 to 65.54 percent in 1996-97. The fall in the primary sector share has been absorbed more in the tertiary sector of the economy. Its share increased from 12.97 percent to 20.05 percent during this period. The secondary sector share has remained more or less constant. The distribution of the male workers at the all India level also shows a similar trend. In the case of female workers, the share in the agricultural sector is declining but at a lower rate compared to the male workers.

As there exists a possibility of a change in the pattern at the rural and urban levels we examine these two separately. The distribution of the workers among the three broad sectors at the rural level is given in the table 4.3.

Table 4.3. Broad Sectoral distribution of workers (in terms of usual status) by sex 1961 to 1997, Rural India

RURAL INDIA NSS Round (Year)	MALES			FEMALES			PERSONS		
	P	S	T	P	S	T	P	S	T
17(1961)	83.7	7.8	8.5	89.7	7.2	3.1	85.72	7.20	6.68
27 (1972-73)	83.3	7.8	8.9	89.7	6	4.3	85.55	6.00	7.28
32 (1977-78)	80.6	8.8	10.5	88.1	6.7	5.1	83.28	6.70	8.57
38(1983)	77.5	10	12.2	87.5	7.4	4.8	81.17	7.40	9.48
43 (1987-88)	74.5	12.1	13.4	84.7	10	5.3	78.16	10.00	10.49
45 (1989-90)	71.7	12.1	16.2	81.4	12.4	6.1	75.12	12.40	12.64
46(1990-91)	71	12.1	16.9	84.9	8.1	7	75.57	8.10	13.65
47(July-Dec1991)	74.9	11.2	13.9	86.3	7.9	5.8	78.70	7.90	11.20
48(Jan-Dec1992)	75.7	10.4	13.9	86.2	7.8	6	79.30	7.80	11.19
49(Jan-June1993)	75	10.9	14.1	87.2	7.4	5.4	79.22	7.40	11.09
50(1993-94)	74.1	11.2	14.7	86.2	8.3	5.5	78.39	8.30	11.44
51(1994-95)	75.6	10.3	14.1	87.1	8.3	4.6	79.56	8.30	10.83
52(1995-96)	74.8	11.4	13.7	86.8	8	5.2	68.83	8.00	10.88
57(1996-97)	75.8	10.6	13.6	88.5	7.2	4.2	79.98	7.20	10.51

Note: P= Primary sector, S = Secondary sector, T = Tertiary sector

Source: NSSO Quinquennial Surveys on Employment and Unemployment in India and annual Surveys on Employment situation in India.

It is striking to note that in rural India also the share of workers engaged in the agricultural activities is declining and that is compensated by the tertiary sector. The secondary sector share has shown a stagnant situation in the rural areas. The trend by sex shows that, rural males are shifting from the primary sector to the secondary and tertiary sectors, but in the case of females, agriculture still remains as the major provider of employment. The share of females engaged in the primary and secondary sectors remains constant over the years⁹. Like rural India the broad sectoral distribution of the workers is analysed for the Urban India also for males and females. The results are given in the table 4.4.

Table 4.4 Broad Sectoral distributions of workers (in terms of usual status) by sex 1961 to 1997, Urban India

URBAN INDIA	MALES			FEMALES		PERSONS			
NSS Round (Year)	P	S	T	P	S	T	P	S	T
17 (1961)	10.20	33.90	55.90	28.60	33.00	38.40	13.26	33.75	52.99
27 (1972-73)	10.70	33.10	56.20	32.90	28.80	28.30	15.12	32.24	50.64
32 (1977-78)	10.60	33.80	55.70	31.90	32.40	35.70	15.33	33.49	51.26
38(1983)	10.30	34.20	55.00	31.00	30.60	37.60	14.77	33.42	51.24
43 (1987-88)	9.10	34.00	56.90	29.40	31.70	38.90	13.55	33.50	52.96
45 (1989-90)	10.00	31.90	58.20	24.10	30.30	45.60	12.96	31.56	55.55
46(1990-91)	9.20	33.60	57.20	24.90	31.60	43.50	12.42	33.19	54.39
47(July-Dec1991)	9.50	30.70	59.80	23.70	28.20	48.10	12.22	30.22	57.56
48(Jan-Dec1992)	10.70	34.30	55.00	22.40	30.80	46.80	13.17	33.56	53.27
49(Jan-June1993)	10.20	34.40	55.40	25.80	30.60	43.60	13.19	33.67	53.14
50(1993-94)	9.00	32.90	58.10	24.70	29.10	46.20	12.39	32.08	55.53
51(1994-95)	8.80	32.90	58.30	20.50	34.30	45.20	11.09	33.17	55.74
52(1995-96)	8.20	33.50	58.30	20.90	30.90	48.20	10.48	33.03	56.49
57(1996-97)	7.80	34.00	58.10	20.00	32.40	50.70	10.11	33.70	56.70

Note: P= Primary sector, S = Secondary sector, T = Tertiary sector

Source: NSSO Quinquennial Surveys on Employment and Unemployment in India and annual Surveys on Employment situation in India.

It emerges that in the urban India, the tertiary sector is the major provider of employment. Its share is showing an increasing tendency. The share of persons engaged in the secondary sector

⁹ Vaidyanathan (1986), Shukla (1991,1992), Harris(1991) and Unni(1996), have observed a steady increase in the rural non farm employment.

remains constant, while that of the primary sector is increasing. In the case of males and females also the tertiary sector is the major provider of employment. As a more vivid picture emerges from an analysis of employment at the subsectoral level we now turn to this.

4.4 Employment Scenario at the Sub Sectoral Level

Like the analysis of the trends in the pattern of GDP, the distribution of the workers are also analysed at the sub sectoral level in order to get a clear picture of the employment distribution of the workers. The sub sectoral distribution of the workers are analysed separately for rural and urban areas and for males and females. This is done for the five Quinquennial surveys and the annual surveys of 1994-95, 1995-96 and 1996-97. The industrial distributions of the workers were analysed at the all India level and for rural and urban areas separately. The results at the all India level are given in Table 4.5.

Table 4.5. Percentage Distribution of the workers by sex, among different Industrial category, 1972-73 to 1996-97, All India

ALL INDIA PERSONS								
Sub- Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	74.41	72.46	69.08	66.08	64.44	65.53	64.53	65.54
Mining & Quarrying	0.45	0.46	0.62	0.70	0.71	0.59	0.51	0.61
Manufacturing	8.64	9.65	10.46	10.67	10.47	10.18	10.56	10.45
Electricity, Gas & Water	0.20	0.31	0.33	0.46	0.45	0.43	0.44	0.46
Construction	1.84	1.70	2.18	3.73	3.19	3.29	3.51	3.50
Wholesale, Retail Trade	4.95	5.77	5.80	6.87	7.48	7.31	7.33	6.72
Transport, Storage, Commu.	1.77	1.94	2.17	2.51	2.82	2.89	2.85	2.70
Finance, Insurance	2.86	2.92	3.25	3.35	5.03	0.75	0.90	0.90
Community, Social & Per. Ser.	4.87	4.80	5.43	5.67	6.45	9.18	9.34	9.66
All India Male								
Sub- Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	69.62	67.51	62.88	60.13	58.12	59.52	58.51	59.52
Mining & Quarrying	0.51	0.58	0.75	0.83	0.85	0.72	0.60	0.74
Manufacturing	9.67	10.37	11.42	11.49	11.06	10.33	11.36	11.31
Electricity, Gas & Water	0.25	0.37	0.35	0.50	0.52	0.56	0.57	0.59
Construction	2.13	2.17	2.77	4.19	4.13	4.16	4.28	4.33
Wholesale, Retail Trade	6.30	7.31	7.36	8.77	9.53	9.42	9.11	8.66
Transport, Storage, Commu.	2.53	2.82	3.14	3.68	4.06	3.95	3.96	3.75
Finance, Insurance	3.34	3.37	3.81	3.84	5.09	0.95	1.13	1.11
Community, Social & Per. Ser.	5.64	5.50	6.46	6.66	7.41	10.51	10.41	10.73
All India Female								
Sub- Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	84.24	82.23	81.18	78.04	77.54	78.67	78.57	79.58
Mining & Quarrying	0.32	0.23	0.36	0.44	0.43	0.30	0.31	0.30
Manufacturing	6.52	8.24	8.58	9.04	9.24	9.87	8.70	8.46
Electricity, Gas & Water	0.10	0.19	0.28	0.38	0.30	0.14	0.12	0.15
Construction	1.25	0.77	1.01	2.80	1.26	1.40	1.72	1.56
Wholesale, Retail Trade	2.19	2.71	2.74	3.07	3.22	2.67	3.17	2.20
Transport, Storage, Commu.	0.23	0.20	0.28	0.17	0.27	0.56	0.25	0.27
Finance, Insurance	1.87	2.03	2.15	2.38	4.91	0.32	0.37	0.39
Community, Social & Per. Ser.	3.30	3.41	3.43	3.68	4.47	6.25	6.86	7.17

Source: NSSO Quinquennial Surveys on Employment and Unemployment in India and annual Surveys on Employment situation in India.

The sub sectoral analysis of the employment pattern shows that there was a continuous decline in the percentage of workers engaged in agriculture from 73.9 percentage in 1972-73 to 65.54 percent in 1996-97. In the manufacturing sector, there was an increase in the percentage of people engaged from 8.8 percentage in 1972-73 to 11.7 percentage in 1987-88, but during the period 1987-88 to 1996-97, there was a decline in the manufacturing employment. The percentage of workers engaged in manufacturing is only around 10.5 percent. In the construction sector there was an increase in the percent of workers from 1.9 in 1972 to 3.8 percent in 1987-88, but during the period 1987-88 to 1993-94, its share was declined from 3.8 to 3.3 percent. During the period 1993-94 to 1996-97, it again showed an increasing tendency. The components of the service sectors are showing an increased absorption of the workers at the all India level.

In the case of male workers also the share of workers engaged in the agriculture and allied activities is declining. It has declined from 68.8 percent in 1972-73 to 59.32 percent during the period 1996-97. The manufacturing sector shows a slight upward tendency in the labour absorption. But more workers are employed in construction and other services.

The female workers dependence on agriculture still continues. Their share in the agriculture activities is declining at a very slow rate. The manufacturing sector is not showing much improvement in the absorption of female workers. The percentage of females occupied in the personnel, community and social services is showing an upward tendency. We analyse the sectoral distribution of workers in rural and urban areas separately.

The industrial distribution of the workers in the rural India is given in the Table 4.6. In rural India, the workers engaged in agriculture are still more than 80 percent. The manufacturing sector employs only 7 percent of the workers. Thus there is no significant structural shift visible in the rural India. The gender wise distribution of the workers shows that the share of male workers engaged in agriculture is declining and more labour is absorbed in the service sector. The distribution of the female workers among different sectors shows a stagnant situation. There is no significant change in the distribution of female workers among different sub sectors. The industrial distribution of the workers in the urban areas is given in the table 4.7

Table 4.6 Industrial distribution of the workers in rural India

RURAL INDIA PERSONS								
Sub-Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	85.55	83.38	81.47	78.26	78.29	79.59	78.78	79.98
Mining & Quarrying	0.33	0.39	0.49	0.59	0.59	0.43	0.43	0.50
Manufacturing	5.31	6.15	6.67	7.08	6.93	6.78	6.90	6.97
Electricity, Gas & Water	0.10	0.20	0.24	0.34	0.30	0.23	0.23	0.23
Construction	1.42	1.31	1.65	3.34	2.35	2.21	2.70	2.44
Wholesale, Retail Trade	2.50	3.28	3.48	4.02	4.29	4.16	3.94	3.68
Transport, Storage, Commu.	0.68	0.81	1.11	1.32	1.46	1.41	1.50	1.37
Finance, Insurance	1.52	1.71	1.83	1.88	3.46	0.23	0.23	0.23
Community, Social & Per. Ser.	2.58	2.76	3.06	3.24	3.64	5.10	5.24	5.28
Rural India - Male								
Sub-Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	83.3	80.7	77.8	74.6	74	75.6	74.8	75.8
Mining & Quarrying	0.4	0.5	0.6	0.7	0.7	0.5	0.5	0.6
Manufacturing	5.7	6.4	7	7.4	7	6.5	7.2	7.5
Electricity, Gas & Water	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Construction	1.6	1.7	2.2	3.7	3.2	3	3.4	3.2
Wholesale, Retail Trade	3.1	4	4.4	5.1	5.5	5.5	4.9	4.9
Transport, Storage, Commu.	1	1.2	1.7	2	2.2	2.1	2.2	2
Finance, Insurance	1.8	2	2.2	2.2	3.5	0.3	0.3	0.3
Community, Social & Per. Ser.	3	3.3	3.9	4.1	4.6	6.3	6.3	6.4
Rural India - Female								
Sub Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	89.7	88.2	87.8	84.8	86.1	87.2	86.8	88.5
Mining & Quarrying,	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.3
Manufacturing	4.6	5.7	6.1	6.5	6.8	7.3	6.3	5.9
Electricity, Gas & Water	0.1	0.2	0.3	0.4	0.3	0.1	0.1	0.1
Construction	1.1	0.6	0.7	2.7	0.8	0.7	1.3	0.9
Wholesale, Retail Trade	1.4	2	1.9	2.1	2.1	1.6	2	1.2
Transport, Storage, Commu.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Finance, Insurance	1	1.2	1.2	1.3	3.4	0.1	0.1	0.1
Community, Social & Per. Ser.	1.8	1.8	1.6	1.7	1.9	2.8	3.1	3

Source: NSSO Quinquennial Surveys on Employment and Unemployment in India and annual Surveys on Employment situation in India.

Table 4.7. Industrial distribution of workers urban India

URBAN INDIA PERSONS								
Sub Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	15.12	15.33	14.99	13.79	12.42	11.09	10.48	10.11
Mining & Quarrying	1.08	0.81	1.19	1.17	1.15	1.19	0.81	1.03
Manufacturing	26.36	27.97	27.00	26.12	23.75	23.38	24.43	23.82
Electricity, Gas & Water	0.74	0.88	0.73	0.98	1.01	1.20	1.20	1.31
Construction	4.06	3.76	4.48	5.37	6.37	7.49	6.59	7.54
Wholesale, Retail Trade	18.01	18.73	15.90	19.12	19.43	19.49	20.18	18.39
Transport, Storage, Commu.	7.57	7.85	6.78	7.65	7.96	8.61	7.95	7.81
Finance, Insurance	10.00	9.23	9.44	9.69	10.91	2.77	3.45	3.44
Community, Social & Per. Ser.	17.08	15.44	15.82	16.12	17.01	24.97	24.91	26.48
Urban India - Male								
Sub-Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	10.7	10.6	10.3	9.1	9	8.8	8.2	7.8
Mining & Quarrying	1	0.9	1.3	1.3	1.3	1.4	0.9	1.2
Manufacturing	26.8	27.5	27	25.9	23.6	22.4	24.2	23.4
Electricity, Gas & Water	0.9	1.1	0.9	1.2	1.2	1.4	1.4	1.5
Construction	4.4	4.2	4.8	5.9	7	7.8	7	7.9
Wholesale, Retail Trade	20.1	21.6	17.8	21.7	22	21.8	22.1	20.6
Transport, Storage, Commu.	9.1	9.8	8.2	9.6	9.8	9.8	9.4	9.3
Finance, Insurance	10	9.3	9.5	9.6	10	3	3.7	3.7
Community, Social & Per. Ser.	17	15	15.5	15.7	16.1	23.8	23.1	24.5
Urban India - Female								
Sub-Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	32.9	31.9	32	30.5	24.8	20.5	20.9	20
Mining & Quarrying	1.4	0.5	0.8	0.7	0.6	0.3	0.4	0.3
Manufacturing	24.6	29.6	27	26.9	24.3	27.4	25.5	25.6
Electricity, Gas & Water	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.5
Construction	2.7	2.2	3.3	3.5	4.1	6.2	4.7	6
Wholesale, Retail Trade	9.6	8.7	9	9.9	10.1	10	11.4	8.9
Transport, Storage, Commu.	1.4	1	1.6	0.7	1.3	3.7	1.3	1.4
Finance, Insurance	10	9	9.2	10	14.2	1.8	2.3	2.3
Community, Social & Per. Ser.	17.4	17	17	17.6	20.3	29.8	33.2	35

Source: NSSO Quinquennial Surveys on Employment and Unemployment in India and annual Surveys on Employment situation in India.

Table 4.7 shows that in urban areas, workers are engaged more in the service sector activities. The share of workers engaged in the manufacturing sector shows a slight declining tendency. The share of workers engaged in the agriculture and allied activities also shows a declining tendency. In the case of urban males also we can identify a significant reduction in the percentage of people engaged in the agriculture and allied activities and an increase in the service sectors of the economy. The manufacturing sector employment in the urban areas shows a declining tendency. It had declined from 26.6 percent in 1972-73 to 23.4 percent in 1996-97. The construction activities show an increase in the employment from 4.4 percent to 7.9 percent during this period. The female dependence on agricultural activities shows a declining tendency. It has declined from 32.9 percent in the period 1972-73 to 20 percent in 1996-97. The share of the manufacturing sector has remained more or less constant, but high growth rates were recorded in the service sector.

In order to understand the sectoral shift in employment, the nine sectors were ranked in different time periods. The ranking for males and females were done separately. The ranks are given in the table 4.8 and 4.9.

Table4. 8 Ranking of Sub sectors according to the percentage distribution of male workers

RANKING OF DIFFERENT SUBSECTORS (ALL INDIA MALE)								
Sub Sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	1	1	1	1	1	1	1	1
Mining & Quarrying	7	7	7	7	7	8	8	7
Manufacturing	2	2	2	2	2	3	2	2
Electricity, Gas & Water	8	8	8	8	7	9	9	9
Construction	6	6	6	5	6	5	5	5
Wholesale, Retail Trade	4	4	4	4	5	4	4	4
Transport, Storage, Commu.	9	9	9	9	9	6	6	8
Finance, Insurance	5	5	5	6	3	7	7	6
Community, Social & Per. Ser.	3	3	3	3	4	2	3	3

The table shows the agricultural sector maintained the first rank in the whole periods. The manufacturing sector got the second rank except 1994-95. The community, Social and personnel services got the Third rank except 1993-94 and 1994-95. The ranking shows that there was no

significant change in the ranking of the sectors. This indicates that there was not much structural shift in employment happening in the economy. A similar analysis is done for the female workers also, the results of which are given in the table 4.9.

Table 4. 9 Ranking of Sub sectors according to the percentage distribution of female workers

RANKING OF DIFFERENT SUBSECTORS (ALL INDIA FEMALE)								
Sub sector	1972-73	1977-78	1983	1987-88	1993-94	1994-95	1995-96	1996-97
Agriculture & Allied	1	1	1	1	1	1	1	1
Mining & Quarrying	7	7	7	7	7	8	8	7
Manufacturing	2	2	2	2	2	3	2	2
Electricity, Gas & Water	8	8	8	8	7	9	9	9
Construction	6	6	6	5	6	5	5	5
Wholesale, Retail Trade	4	4	4	4	5	4	4	4
Transport, Storage, Commu.	9	9	9	9	9	6	6	8
Finance, Insurance	5	5	5	6	3	7	7	6
Community, Social & Per. Ser.	3	3	3	3	4	2	3	3

The table 4.9 indicates that in the case of the female workers also the agricultural sector maintained the first rank throughout the period. The manufacturing sector got the second rank except 1994-95. The community, Social and personnel services got the Third rank except 1993-94 and 1994-95. The ranking shows that there was no significant change in the ranking of the sectors in terms of female employment.

The analysis of the sectoral distribution of the workers reveal that there was a significant decline in the percentage of workers engaged in the agricultural sector at the all India level. But there is no commensurate increase in the percentage of workers engaged in the manufacturing sector; more workers are absorbed in the subsectors of service sector. While in urban India a similar pattern emerges, in rural India, there is no significant structural change in employment.

4.5 Employment Growth

In the previous section, we have only analysed the percentage distribution of the workers in different sectors and status distribution. In this section, the growth rate of employment is analysed at the sub sectoral level, which shows the employment trends in the economy. The results are given in table 4.10.

Table 4.10. Employment Growth in Different Industries 1972-73 to 1993-94

EMPLOYMENT GROWTH				
All India	1972-73 to 1977-78	1977-78 to 1983	1983-1987-88	1987-88to 1993-94
Agriculture & Allied	1.91	1.50	0.75	2.33
Mining & Quarrying	2.97	8.81	4.16	3.11
Manufacturing	4.74	4.13	2.07	2.44
Electricity, Gas & Water	11.60	3.72	8.65	2.42
Construction	0.82	7.66	13.19	0.26
Wholesale, Retail Trade	5.60	2.58	5.18	4.59
Transport, Storage, Commu.	4.28	4.81	4.71	5.26
Finance, Insurance	2.88	4.68	2.29	6.45
Community, Social & Per. Ser.	2.14	5.05	2.52	5.54
All sectors	2.45	2.33	1.80	2.85
Rural India	1972-73 to 1977-78	1977-78 to 1983	1983-1987-88	1987-88to 1993-94
Agriculture & Allied	1.87	1.36	0.77	2.31
Mining & Quarrying	6.03	6.44	5.52	2.34
Manufacturing	5.43	3.50	2.80	1.87
Electricity, Gas & Water	7.62	5.33	8.95	0.02
Construction	0.64	6.69	16.99	-4.66
Wholesale, Retail Trade	8.11	3.03	4.57	3.64
Transport, Storage, Commu.	5.83	8.61	5.09	4.34
Finance, Insurance	4.89	3.21	2.07	5.64
Community, Social & Per. Ser.	3.82	3.90	2.78	4.73
All sectors	2.39	1.83	1.60	2.56
Urban India	1972-73 to 1977-78	1977-78 to 1983	1983-1987-88	1987-88to 1993-94
Agriculture & Allied	3.04	5.08	0.24	2.89
Mining & Quarrying	-2.95	14.01	1.52	4.71
Manufacturing	3.98	4.83	1.25	3.10
Electricity, Gas & Water	6.31	1.67	8.21	5.59
Construction	1.17	9.34	5.73	8.72
Wholesale, Retail Trade	3.58	2.16	5.75	5.42
Transport, Storage, Commu.	3.51	2.51	4.44	5.92
Finance, Insurance	1.14	6.02	2.47	7.60
Community, Social & Per. Ser.	0.71	6.08	2.30	6.21
All sectors	2.76	4.78	2.70	5.07

The employment growth was 2.4 percent during the period 1972-73 to 1977-78. It declined to 2.33 percent in the period 1977-78 to 1983 and further declined to 1.80 percent during the period 1983 to 1987-88. There was an increase in the employment growth during the period 1987-88 to 1993-94. The rate increased from 1.80 percent to 2.85 percent.

Among the subsectors the Electricity, Gas and Water supply had recorded a high employment growth of 11.60 percent during the period 1972-73 to 1977-78. This was followed by wholesale and retail trade, which recorded a growth rate of 5.60 percent. The manufacturing sector had recorded a growth rate of 4.74 percent. The finance, insurance and real estate recorded a growth rate of 2.88 percent. Other sectors recorded a lower growth rate than the overall average.

During the period 1977-78 to 1983, mining and manufacturing recorded a high growth rate of 8.81 percent. This was followed by the construction sector with a growth rate of 7.66 percent. The community, Social and personnel services recorded a growth rate of 5.65 percent. The manufacturing sector registered a decline in the employment growth compared to the previous period. The employment recorded only a growth rate of 4.13 percent compared to 4.74 percent in the previous period.

In the period 1983 to 1987-88, the construction sector recorded higher employment growth of 13.19 percent. This was followed by Electricity, gas and water that recorded a growth rate of 8.65 percent. The wholesale and retail trade recorded a growth rate of 5.18 percent. The transport, storage and communication also showed a high employment growth. The manufacturing sector, Mining and quarrying sector had shown a decline in the employment growth. The manufacturing employment declined from 4.13 in the previous period to 2.07 percent.

During 1987-88 to 1993-94 Finance, Insurance was the subsector had shown a higher growth in employment. This sector had recorded a growth rate of 6.45 percent. The community and social sector had recorded a growth rate of 5.54 percent. The wholesale and retail trade had recorded a growth rate of 4.59 percent. There was a revival in the agricultural sector employment growth. It had increased from 0.75 percent during the previous period to 2.33 percent during the period 1987-88 to 1993-94.

In rural India, we can observe a similar tendency as that of all India level. The overall employment growth had shown a decline in the first three periods. Among the dynamic sectors in rural areas, the wholesale and retail trade recorded higher growth in the period 1972-73 to 1977-78. The wholesale and retail trade showed a higher growth during the second period. The construction sector had recorded a very high growth of 16.99 percent during the period 1983 to 1987-88.

Finance and insurance had shown a high growth of 5.64 percent during the period 1987-88 to 1993-94. The agricultural sector employment had shown a sign of recovery after heavy decline in the previous periods. The growth rate was 2.32 percent compared to the previous growth rate of 0.77 percent. The manufacturing sector shows a continuous decline over the period. During this period the growth rate had declined from 1.87 percent from 2.80 percent during the previous period.

The employment growth in the Urban India shows that there was an increase in the overall employment growth at the rate of 4.78 percent during the period 1977-78 to 1983 compared to the rate of growth of 2.76 percent during the previous period. There was again a decline in the employment growth to 2.07 percent during the period 1983 to 1987-88. During the period 1987-88 to 1993-94, there was a revival in the growth rate and it was 5.07 percent. Among the subsectors, electricity, gas and water recorded higher growth rate of 6.31 percent during the first period. This was followed by the manufacturing sector, which recorded a growth rate of 3.98 percent. During the period 1977-78 to 1983 the mining and quarrying sector had recorded a higher growth of 14.01 percent. Construction sector recorded a growth rate of 9.34 percent. The agricultural sector and the manufacturing sector also recorded a high employment growth compared to the previous period. In the period 1983 to 1987-88 the electricity, Gas and water supply recorded high growth of 8.21 percent. Most of the other subsectors recorded a slow growth in employment during this period. Heavy decline in the growth rate were recorded in the manufacturing sector and the agriculture and allied sectors. In the final period, there was a revival in the employment growth in the urban areas. The sectors, which had shown higher growth are construction, Finance insurance, Community and personnel services. The manufacturing sector recorded a growth rate of 3.10 percent. The agricultural sector also recorded a growth rate of 2.89 percent.

Table 4.11. Employment and Labour force growth

Period	ALL INDIA		RURAL INDIA		URBAN INDIA	
	Emp.Growth	Labour Force Growth	Emp. Growth	Labour Force Growth	Emp.Growth	Lar Force Growth
1972-73 to 1977-78	2.45	2.67	2.39	2.58	2.76	2.80
1977-78 to 1983	2.33	2.81	1.83	1.86	4.78	4.98
1983 to 1987-88	1.80	1.82	1.60	1.78	2.70	2.02
1987-88 to 1993-94	2.85	2.62	2.56	2.07	5.07	4.08

The employment growth and the labour force growth were compared at the all India level and also at the rural and urban areas. At the all India level, the labour force growth in most of the periods was higher than that of the employment growth. This indicates the increasing unemployment in the economy over the years. During the period 1972-73 to 1977-78, the labour force growth was 2.67 percent but the employment growth as only 2.45 percent. In the period 1978-83 the labour force had recorded a growth rate of 2.81 percent, but the employment growth was only 2.33 percent. During the period 1983 to 1987-88 also the labour force growth was higher than that of the employment growth. It was only in the period 1987-88 to 1993-94 that the employment growth was higher than that of the labour force growth.

In rural India also the employment growth fall short of the labour force growth. The employment growth during the period 1973-74 to 1977-78 was 2.39 percent, but the labour force growth during the period was 2.58 percent. The employment growth during the second period was 1.83 percent but the labour force growth was 1.86 percent. During the period 1983-1987-88 the employment growth was 1.60 percent, but the labour force had recorded a growth rte of 1.78 percent. The employment growth in the period 1987-88 to 1993-94 was higher than that of the labour force growth. The employment growth was 2.56 percent but the labour force growth was only 2.07 percent. This shows that there was a decline in the unemployment in the rural areas during this period.

The employment growth in urban areas was lower than that of the labour force growth. But in the period 1983-87 the employment had recorded a growth rate of 2.70 percent against a growth rate of 2.02 percent in the labour force. During the period 1987-88 to 1993-94, the employment growth was 5.07 percent while the labour force growth was only 4.08 percent in urban areas. Having analysed the growth of output in the previous chapter and the growth of employment in the preceding section, we are in a position to arrive at the employment elasticity.

4.6 Employment Elasticity

Employment elasticity (EE) of a sector is defined as the average annual growth rate of employment of that sector divided by the average growth rate of income of that sector. The analysis of the employment elasticity with respect to GDP was calculated in order to know, which sectors have the increased capacity to absorb more labour. The results are given in the table below. The implication of a fall in EE is that of a decline in overall employment in the economy, if the GDP growth rate remains constant.

Table 4.12. Trends in Employment elasticity

ALL INDIA	1972-73 to 1977-78	1977-78 to 1983	1983-1987-88	1987-88 to 1993-94
Agriculture & Allied	0.44	1.42	0.41	0.41
Mining & Quarrying	0.60	1.09	0.80	0.40
Manufacturing	0.92	0.87	0.27	0.30
Electricity, Gas & Water	1.56	0.55	0.98	0.23
Construction	0.18	2.25	2.74	0.04
Wholesale, Retail Trade	0.94	0.58	0.91	0.63
Transport, Storage, Commu.	0.68	0.84	0.59	0.73
Finance, Insurance	0.67	1.08	0.33	0.60
Community, Social & Per. Scr.	0.66	0.94	0.39	0.87
All Sectors	0.53	0.58	0.37	0.41

Table 4.12 shows that the overall employment elasticity was less than one percent in India over the periods. The overall employment elasticity had shown an increase from 0.53 percent during the period 1972-73 to 1977-78 to 0.58 percent the period 1977-78 to 1983. It had again shown a decline in the period 183 to 1987-88, the overall employment elasticity was only 0.37 percent

during this period. There was a shift in the employment elasticity in the period 1987-88 to 1993-94. The employment elasticity was 0.41 percent during this period¹⁰.

Among the subsectors, electricity, gas and water recorded high employment elasticity during the period 1972-73 to 1977-78. Trade, hotel and restaurant and the manufacturing sector followed this. In the second period, the construction sector had recorded higher employment elasticity. The agricultural sector, finance Insurance, Mining and quarrying were the other subsectors, which recorded employment elasticity more than one. There was a decline in the manufacturing sector employment elasticity.

In the third period also, the construction sector recorded high employment elasticity. Rest of the sectors had shown a decline in the employment elasticity. The manufacturing sector employment elasticity had further declined to 0.27 percent from 0.87 percent during the previous period. The agricultural sector also showed a decline in the employment elasticity. During 1987-88 to 1993-94, most of the sectors had shown low employment elasticity. The construction sector employment elasticity had shown a higher decline. The manufacturing and agricultural sector employment elasticity had remained more or less constant.

GDP and Employment Growth

We have analysed the GDP growth in the previous chapter and employment growth in the present chapter. In this section an attempt is made to link the GDP growth and employment growth. GDP growth trend was analysed from 1950,s onwards. But due to the limitation of time series data on employment the employment growth was analysed only for the NSS quinquennial survey periods. However, a trend in the employment growth can be understood from this analysis.

The analysis showed that up to 1970's the GDP growth was below 3.5 percent. But by the early eighties, there was an increase in the GDP growth. The growth rate was above 5 percent during the eighties and nineties. Among the different sectors the secondary sector and the tertiary sector had shown higher growth rate in the 1980's and 1990's.

¹⁰Notable previous studies like Kundu(1993),Shariff(1997),Shariff and Gumbar (1999) arrive at a similar tendency of decline in the employment elasticity over the periods. According t their studies, the decline in the EE can be partly due to an increase in labour productivity and partly to an increase in capital productivity.

The employment growth of the economy was below 2.5 percent during the 1970,s. In the early eighties, the employment growth was only 1.80 percent. During the late eighties and early nineties the employment growth was only 2.85 percent. This shows that although there was an increase in the overall GDP growth, this was not followed by an increase in the employment growth. The stable employment elasticity over the periods clearly reflects this phenomenon. When we look at the GDP growth and employment growth, it is clear that although there was an increase in the manufacturing GDP growth, this was not accompanied by an increase in the employment growth particularly in the 1980, s. This creates a situation of jobless growth in the manufacturing sector. The increased employment opportunities are mainly created in the tertiary sector like Finance, Insurance, Community and personnel services. The construction sector and electricity, which showed higher employment growth in the initial periods, shows a decline in the employment growth in the latter periods. These sectors had recorded a higher growth in income over the periods.

The agricultural sector GDP growth and employment growth remained stable over the periods. This shows that there is no possibility of increased labour absorption in the Indian agriculture. The manufacturing sector, which is supposed to absorb more labour, is not successful in doing so. Still above 60 percent of the workers are engaged in the agricultural activities. The subsectors of the service sector relieve pressure from agriculture. This shows that there was no significant structural transformation happening in the employment scenario.

Chapter V

Summary and Conclusions

Achieving rapid income growth and full employment are considered essential for the economic development of an underdeveloped country. The development theories, which originated mainly in the context of underdeveloped countries efforts to achieve rapid growth and development after liberation from colonial rule, stressed these objectives. The developing economies are mainly having an agrarian structure at the time of independence. The major share of income growth and employment generation in these economies is from the agricultural sector. In the process of economic development of such economies, theoretical postulations suggest a diminishing role of agricultural sector and the faster growth of secondary and tertiary sectors. In addition to this, the surplus labour, which is available in the agricultural sector is expected to be absorbed in the secondary and tertiary sectors of the economy (Fisher 1935,1939, Clark 1940,Lewis1954, Kuznut 1957,Fei&Ranis 1961,1964). Another dimension of importance in this context is the relative importance of the various sectors in stimulating the income growth and employment.

Indian economy was a primary sector driven economy at the time of independence. All the characteristics of underdevelopment were present in the economy at that time. The country adopted a development strategy, which should lead to rapid economic growth in a time bound manner. The Five-Year Plans, started from 1951-52 were mainly aimed at transforming the country to higher growth path in terms of income growth and employment generation. Though the mixed economy character is sustained over the years, the focus of sectoral priorities of development has been undergoing changes in these years. From the mid eighties the economy started liberalisation policies, which achieved rapid momentum since 1991.This has radically changed the character of the economy. The perception of development and the traditional agriculture - industry dichotomic focus of sectoral analysis were forced to accommodate the tertiary sector, which is rapidly growing worldwide. These new developments in the international sphere influenced India's economic policies also. External sector and industrial sector were given higher priority in the new development strategy. In the wake of such transformations, the present study attempted an analysis of the achievements, the country made in income growth and employment generation, using last 47 years data. The study tried to correlated the developments in the economy, with respect to income growth and employment to

the theoretical developments in the field. The main objectives of the study were (1) to analyse the trends and patterns of GDP growth at the aggregate level and at the sectoral level of the economy, (2) to examine the sectoral growth and its contribution to aggregate GDP growth, (3) To look at the trends and patterns in the employment generated in the Indian economy both at the aggregate and sectoral level and to examine the hypothesis of structural shift in employment.

The introductory chapter reviewed the major theoretical paradigms, which are relevant in the context of an under developed country like India. Our analysis has shown that, while the growth performance in the Indian economy is too complex to be subsumed under a simple theoretical schema, nonetheless some essential contours of the growth process can be much better comprehended through adopting a classical way of looking at the things.

In the second chapter strategies, objectives, targets and achievements of various Five-Year Plans in India were analysed in order to understand the policies pursued for income and employment growth in India. The analysis showed that in the initial stages of planning, public sector was given much importance. From the seventh plan onwards the private sector is becoming important. The results showed that barring the First Five-Year Plan, the period until mid seventies were characterised by a shortfall in the achievements in relation to the target set. From the Fifth Plan onwards there was reduction in the targets and the economy was successful in achieving this targets in output growth. The secondary sector output growth, which is considered as crucial in the structural transformation of an underdeveloped country also, failed to attain the targeted levels of growth. In the employment scenario, although the additional employment generated had shown an increasing trend, this was not in pace with the growth in labour force. The unemployment levels have been increasing over the Five-Year Plans.

The third chapter analysed the trends and patterns in the GDP growth, both at the aggregate level and sectoral level. In the first section an analysis of the trends in savings and capital formation is done. The analysis showed that both savings and capital formation as a percentage of GDP is showing an upward trend. Over the years there developed an increasing gap between the savings and capital formation in the economy. The sectoral distribution of the investment shows that the secondary sectors share in total investment is increasing, while that of primary and tertiary sectors are declining. The incremental capital output ratio, which shows an upward trend. This adversely affected the realisation of increased investment to increased output growth.

The analysis of the GDP growth at the aggregate and broad sectoral level in the second section shows that there is an upward trend in the GDP growth since the early eighties. There was an overall growth rate of 3.98 percent. Up to 1980,s the growth rate was below 3.5 percent, but since 1980,s the growth rate is more than 5 percent.

The sectoral level growth clearly indicates a higher growth in the secondary and tertiary sectors of the economy compared to the primary sector. The primary sector growth remained more or less stable over the years. The secondary sector showed higher growth in the 1950's and early sixties, but by the end of the sixties, there was stagnation in the secondary sector. This was mainly due to stagnation in the growth rate of the manufacturing sector. From the 1980's onwards, there was a recovery in the secondary sector growth. The tertiary sector is showing higher growth rate compared to the other two sectors in the nineties.

The sub sectoral growth analysis showed that the agriculture sector is showing more or less a constant growth around 3 percent over the period. There is some fluctuation in the manufacturing sector growth. The sector recorded higher growth in the initial stage, but from the late sixties, there was stagnation. In the eighties, there was a recovery in the manufacturing sector growth rate. In the tertiary sector, sub sectors like banking and Insurance and personnel and community services had recorded higher growth over the period of analysis. The construction sector had shown a boom in the late eighties, but since 1990, a decline in its growth rate should be noted.

In order to understand whether there was any acceleration or deceleration in the growth rate, the *Kinked Exponential* model was used. The statistical analysis shows a trend acceleration of 0.035 in the GDP over the period. There was a significant break in the GDP growth in the period 1982-83. In order to test whether, there was any spurt in the GDP growth since liberalisation, acceleration test and trend break analysis were done for the early 1990,s. The results rejects the hypothesis of trend break and acceleration in the 1990,s.

In order to capture the contribution of the external trade on domestic GDP growth, a brief analysis of the external trade of India from the 1970's was done. The results indicate an increasing in the export intensity of the country since liberalisation. Granger Causality was run in order to measure the impact of external trade on domestic economic growth. The results show

that the growth rate of exports does not 'Granger Cause' growth rate of domestic GDP growth. This points to the fact that increased exports in the era of liberalisation made no significant addition to the growth of GDP. The chapter as a whole showed that there was a structural transformation happening in the economy over the period of time. There is a shift in the GDP growth from the primary to the secondary and tertiary sectors of the economy. Since liberalisation the tertiary sector is showing higher growth rate compared to the other two sectors.

In the fourth chapter we made an examination of whether this structural transformation of the income growth had led to a structural transformation in the employment growth also. While the data on GDP is available on a time series basis, the employment data is only available for different points of time. Thus, the employment growth is analysed only for different time points.

The analysis shows a decline in the percentage of workers employed in the primary sector of the economy. The share of the workers employed in the tertiary sector is growing at a higher rate compared to that of the secondary sector. In the urban areas also this type of transformation is taking place. In the rural areas, although there is a decline in the number of males employed in the agricultural sector, there is not much decline in the female dependence on agriculture. At the subsectoral level the manufacturing sector had shown higher growth in employment in the seventies, but there was a decline in the manufacturing employment in the eighties. The sub sectors of the service sector had shown a higher growth of employment over the period. The construction sector had recorded higher growth in employment in the eighties, but there is a decline in the nineties.

Employment elasticity was estimated in order to understand the link between income growth and employment growth. The employment elasticity had remained more or less stable over the periods. The analysis of the employment elasticity had shown that the secondary sector is not absorbing more labour, although there was an increase in this sector income growth.

Thus the overall analysis of the employment growth shows that although there was some structural transformation happening in the employment sphere, this has not led to a radical change in the employment structure of the economy.

The study of the growth performance of the Indian economy for the last 47 years thus indicates that although there was radical structural transformation in the output growth from primary towards secondary and tertiary sectors, it was not accompanied by a theoretically postulated relationship in the employment structure. The secondary and tertiary sectors were not able to absorb more labour from the primary sector. Still more than 60 percent of the people are depending on the primary sector. The study thus concludes that the Indian growth performance was not succeeded in making radical changes in the employment structure.

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APPENDIX 1

Concepts Used in the Study

Primary Sector: The primary Sector Consist of the sub sectors Agriculture alone and allied activities like forestry, fishing, livestock and animal husbandry.

Secondary Sector: The Secondary Sector consists of the sub sectors Mining & Quarrying, Manufacturing (both registered and unregistered), Electricity, Gas and Water Supply and Construction.

Tertiary Sector: The Tertiary Sector includes the sub sectors Transport, Storage & Communication (Including Railways), Finance, Insurance & Real Estate (Banking & Insurance), Community, Social & Personal Services (Including Public Administration & Defense)

Concepts Used in National Accounts Statistics

Gross domestic product (GDP) at factor cost:- The gross output of all commodities, industries etc. evaluated at factor cost less the purchaser's value of intermediate inputs.

Gross Domestic Savings:- The aggregate difference between the current receipts and the current disbursements, the balancing item on the income and outlay account. This consists of savings by the household sector, private sector and public sector.

Household Sector savings:- This is the sum of the increase in the financial assets and physical assets of household sector.

Private Sector Savings:- Aggregate savings of both the organised and unorganised enterprises excluding those under public sector.

Public Sector Savings:- The aggregate savings made by the government departments and departmental and non-departmental enterprises.

Gross Capital Formation:- Gross capital formation includes gross fixed capital formation and change in stocks.

Gross Fixed Capital Formation:- Gross fixed Capital formation consists of outlays of industries, producers of government services and producers of private non profit services to house holds, on addition of commodities to their stocks of fixed assets less their net sales of similar second hand scrapped goods. Outlays by households on residential construction are also included. Excluded are the outlays of government services on durable goods for military use.

Stocks:- Stocks consist of the materials supplied, work in progress except in construction projects and finished products and goods in the possession of industries. Standing timber and crops are excluded from the stocks, but livestock raised for slaughter and harvested crops are included.

Concepts used in NSSO Surveys on Employment and Unemployment in India

Labour Force:- Persons who are either working or seeking or available for work (i.e. unemployed) during the reference period constitute the labour force.

Workers:- Persons who are engaged in any economic activity or who despite their attachment to economic activity have abstained for the reasons of illness, injury or other physical disability, bad weather, festivals, Social or religious functions or other contingencies necessitating temporary absence from work constitute workers. Unpaid helpers who assist in the operation of an economic activity in the household farm or non-farm activities are also considered as workers.

Usual Status:- The Usual Status refer to the status of activity on which a person spent relatively longer time of the preceding 365 days from the date of survey is considered as the principal usual status of the person. A person is considered as working or employed, if the person was engaged for relatively longer time during the past one year in any one or more economic activities.

Current Weekly Status:- In the Current Weekly Status approach, a person is considered as working or employed if the person was engaged for at least one hour on any day of the previous week on any work related economic activity.

Current Daily Status:- In the Current daily status approach, a person was considered as

working, if he had worked 4 hours or more during the day. If he had worked or more but less than 4 hours, he was considered working for half day.

Appendix 2

1. Estimates of population for the survey periods by sex and Rural Urban residence, For the NSSO Survey Periods. (million)

	All India Total	Male	Female	Rural Total	Male	Female	Urban Total	Male	Female
1961	439.23	226.29	212.94	360.17	185.56	174.61	79.06	40.73	38.32
1973	571.26	295.97	275.23	456.10	236.31	219.75	115.15	59.66	55.48
1978	628.30	325.52	302.72	501.90	260.03	241.81	126.41	65.49	60.90
1983	713.81	369.11	344.63	547.75	283.24	264.45	166.07	85.87	80.18
1988	793.53	410.33	383.12	609.39	315.12	294.22	184.14	95.22	88.90
1990	836.24	432.42	403.73	624.29	322.82	301.41	201.95	104.43	97.50
1991	846.30	439.15	407.07	628.80	326.28	302.45	217.50	112.86	104.62
1991	846.30	439.15	407.07	628.80	326.28	302.45	217.50	112.86	104.62
1992	862.97	447.80	415.09	641.38	332.81	308.50	221.60	114.99	106.59
1993	879.45	456.35	423.02	654.08	339.40	314.61	225.38	116.95	108.41
1994	896.52	465.20	431.22	667.42	346.32	321.03	229.10	118.88	110.20
1995	913.91	474.23	439.59	681.03	353.39	327.58	232.88	120.84	112.01
1996	922.82	478.85	443.88	694.79	360.53	334.19	236.03	122.47	113.53
1997	931.29	483.25	447.95	698.96	362.69	336.20	232.33	120.56	111.75

Source : Government of India, Census, General Population Tables and Sample Registration System.

The estimates of the Population for the NSS survey periods were obtained by interpolating between the Censuses of 1971, 1981 and 1991 on the basis of the rates of natural increase reported by the Sample Registration System.

Estimates of the Number of workers for the Survey Periods by Sex and Rural Urban residence. (million)

Year	ALL INDIA			RURAL			URBAN		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
1961	129.34	59.08	188.42	108.00	54.83	162.82	21.34	4.25	25.60
1973	158.68	77.31	235.99	128.79	69.88	198.67	29.89	7.43	37.32
1978	176.81	89.54	266.35	143.54	80.04	223.58	33.27	9.50	42.77
1983	198.90	102.02	300.92	154.93	89.91	244.85	43.97	12.11	56.07
1988	218.03	108.54	326.57	169.85	95.03	264.88	48.18	13.51	61.69
1990	230.37	110.38	340.76	176.91	96.15	273.05	53.47	14.24	67.70
1991	238.33	103.28	341.61	180.44	88.32	268.75	57.90	14.96	72.86
1991	236.39	102.73	339.12	178.15	88.92	267.07	58.24	13.81	72.05
1992	243.34	112.12	355.46	185.04	96.56	281.60	58.30	15.56	73.86
1993	244.50	111.94	356.44	184.97	97.84	282.82	59.53	14.09	73.62
1994	253.45	122.38	375.83	191.52	105.30	296.81	61.94	17.08	79.02
1995	260.61	119.08	379.69	197.90	103.84	301.74	62.72	15.23	77.95
1996	262.95	112.66	375.61	198.65	98.59	297.24	64.30	14.08	78.38
1997	262.29	112.47	374.76	199.48	97.83	297.31	62.81	14.64	77.45