CHAPTER-I

INTRODUCTION

1.1 Introduction

The economic development of any country mainly depends on systematic growth of three important activities viz., Industrial, Agriculture and Service Sector growth. The contributions from these sectors directly take the country in the right direction, which would enable to reach self-sufficiency and sustained economic growth. The main reason behind this is the population. The size of the population is considered as the base for determining the scope of economic activities. Population forces the economy to provide required quantity of goods and services for their regular living. The fulfillment of this is very essential; otherwise it would lead to social disasters and create an environment where normal living becomes impossible. The population basically requires food, clothing and shelter. It is the basic duty of any country to provide these facilities through industry, agriculture and service sectors growth. If the contributions from different segment are insufficient, the country will be forced to import the nation’s requirement.

In addition to these basic requirements, industry or industrialization would solve major economic problems viz., unemployment, under employment, exploitation of natural resources, capital formation etc. Economy and industry is not a new phenomenon. Industrialization may be defined as “a process which accelerates economic growth, increases income, brings about structural changes in the economy, greater employment opportunities, gives impetus to foreign trade and induces social change.” Therefore, industrialization is a continuous process of economic development.

The economic problems like low per capita income, high dependence on agriculture, lack of efficient exploitation of natural resources, unemployment problems and disparity between imports and exports can be solved only by industrialization. This is rightly demonstrated by economically advanced countries and advocated in India to exploit the natural and manpower resources. Industrialization is the only means through which the income level of the nation is increased. Industrialization provides the scope for manufacturing goods and offering
different type of services that are demanded in the economy. The encouragement of industries helps the country to exploit all types of resources to manufacture the required goods and services. It provides employment opportunities to millions of unemployed youth and increases their standard of living. In the long run this helps in mobilizing more amounts of savings and in turn capital formation. The disparities between imports and exports can be reduced by industrialization. A country which has excess of imports over exports always faces balance of payment crisis. The size of the deficits can be reduced by increasing the exports and earn substantial quantity of foreign exchange.

Industrialization absorbs the excess unemployed surplus labor in the country. Surplus labor results in increased population. Encouraging the activities of industries in the country can solve this economic problem. Industrialization is the process of bringing changes in the production function of an economy, which include change in the production factors of the existing enterprises or bringing up of new production facilities. Thus industrialization will lead to increase in the national income of an economy through increased output and development of employment opportunities in the economy. This increase in the national income and development of employment opportunity must match with growth rate of the population; otherwise there will be a fall in the per capita income of the economy. Industrialization is an essential precondition for long run economic development of a nation whether developed or still developing. Industrialization provides the basic foundation on which the super structure of development and growth can be attained.

The 1990s reforms in India were specifically targeted to the manufacturing sector. The emphasis on the manufacturing sector was due to the realization that the sector offers greater prospects for capital accumulation, technical change and linkages and hence job creation, especially for the semi-skilled and poorly educated segment of the labor force, which comprises most of India’s working poor (Sen 2009). There is apprehension about the role that agriculture can play in the growth process, given that the primary commodities have been facing a long-run decline in prices in the world market (Sarris and Hallam 2006). As a result, the prospect for the agriculture sector as a major employment provider and driver of economic growth are bleak in the Indian context. Thus, key to India’s future economic growth and poverty reduction depends on the growth performance of a dynamic outward oriented manufacturing sector
which can attract the large pool of surplus labour employed in low productivity work in agriculture.

Industrial sector in India has been undergoing significant changes both in structure and pattern owing to the policy changes. Since the early 1950s until the early 1980s the evolution of manufacturing sector was guided by protected industrial and trade policies, which restricted the growth of the economy in general and manufacturing sector, in particular. Manufacturing sector was characterized by extensive public sector participation, regulation of the private sector firms, restriction on foreign investment, high tariff and non-tariff restrictions on imports, which held up the growth of the manufacturing sector in India. This has been replaced through the adoption of new economic policy in 1991.

The process of economic reforms led to gradual dismantling of industrial licensing, removal of import licensing for nearly all manufactured intermediate and capital goods, tariff reduction and relaxation of rules for foreign investment. The reforms in respect to the industrial sector were intended to free the sector from barriers to entry and from other restrictions to expansion, diversification and modification so as to improve its efficiency, productivity and competitiveness. After the liberalization and globalization Indian economy derived both positive and negative benefit from the industry. In India industry is a corner stone for accelerating economic development; within industry manufacturing industry occupy important place in Indian economy by accelerating economic development through providing large number of employment, contributing to output and export.

During the economic reforms new firms with more advanced technology are likely to enter an industry and the existing firms are expected to develop a strategy to meet the challenge from the new entrants to an industry and in particularly the multinational enterprises (MNEs). Under these circumstances, the homogeneity assumption, that is all firms in an industry are alike, might not be valid. In an industry consisting of a variety of firms that differ in terms of their access to technology, knowledge and other intangible assets, openness would result in gain and loss and the productivity gap between firms in an industry could widen.

Globalization creates more open economic environment. In an open economy, development of a nation much depends on capital inflow, export and import activity.
India is one of the open economic nations. To boost economic growth, Indian government encourages the participation of foreign and private investors by opening up of domestic economy to globe. India attracting foreign direct investment (FDI), foreign technology actively could boost the productivity performance and extent of its impact may vary across different industries. In fact, different kinds of industries could derive different reactions from economic reforms.

One of the important objectives of India’s economic reform process was to expand the creation of new employment opportunities for meeting the backlog on the employment front and also for absorbing new addition to the labour force.

In this context the present study focuses on the impact of economic reforms on productivity dynamics and the creation and destruction of employment and capital in Indian organised manufacturing industries by classifying them in to labour intensive and capital intensive industries.

1.2 Importance of manufacturing

The economic strength of a country is measured by the development of manufacturing industries. Manufacturing sector is considered the backbone of development in general and economic development in particular mainly because manufacturing industries not only help in modernising agriculture, which forms the backbone of our economy, they also reduce the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors. Industrial development is a precondition for eradication of unemployment and poverty from our country. This was the main philosophy behind public sector industries and joint sector ventures in India. It was also aimed at bringing down regional disparities by establishing industries in tribal and backward areas. Export of manufactured goods expands trade and commerce, and brings in much needed foreign exchange. Countries that transform their raw materials into a wide variety of finished goods of higher value are prosperous. India’s prosperity lies in increasing and diversifying its manufacturing industries as quickly as possible. Agriculture and industry are not exclusive of each other. They move hand in hand. For instance, the agro-industries in India have given a major boost to agriculture by raising its productivity. They depend on the latter for raw materials and sell their products such as irrigation pumps, fertilisers, insecticides, pesticides, plastic and PVC pipes, machines and tools, etc. to the farmers. Thus,
development and competitiveness of manufacturing industry has not only assisted agriculturists in increasing their production but also made the production processes very efficient. In the present day world of globalisation, industry needs to be more efficient and competitive. Self-sufficiency alone is not enough. The manufactured goods must be at par in quality with those in the international market. Only then, will we be able to compete in the international market.¹

1.3 Classification of Industries

There are numerous manufactured products which are used in our daily life such as – transistors, electric bulbs, vegetable oil, cement, glassware, petrol, matches, scooters, automobiles, medicines and so on. If they are classified based on a particular criterion then it is possible to understand their manufacturing in a better way. Industries may be classified as follows:

On the basis of source of raw materials used:

- Agro based: cotton, woollen, jute, silk textile, rubber and sugar, tea, coffee, edible oil.
- Mineral based: iron and steel, cement, aluminium, machine tools, petrochemicals.

According to their main role:

- Basic or key industries which supply their products or raw materials to manufacture other goods e.g. iron and steel, and copper smelting and aluminum smelting.
- Consumer industries that produce goods for direct use by consumers – sugar, toothpaste, paper, sewing machines, fans etc.

On the basis of capital investment

- A small scale industry is defined with reference to the maximum investment allowed on the assets of a unit. This limit has changed over a period of time. At present the maximum investment allowed is rupees one crore.

On the basis of ownership

- Public sector owned and operated by government agencies – BHEL, SAIL etc.

¹ Social Science Contemporary India2, NCERT textbook for class X, page no.65-67
• Private sector industries owned and operated by individuals or a group of individuals – TISCO, Bajaj Auto Ltd., Dabur Industries.

• Joint sector industries which are jointly run by the state and individuals or a group of individuals. Oil India Ltd. (OIL) is jointly owned by public and private sector.

• Cooperative sector industries are owned and operated by the producers or suppliers of raw materials, workers or both. They pool in the resources and share the profits or losses proportionately.

**Based on the bulk and weight of raw material and finished goods:**

• Heavy industries such as iron and steel

• Light industries that use light raw materials and produce light goods such as electrical products.

1.4 **Manufacturing Sector**

The manufacturing sector is classified into two broad sectors, viz., ‘registered’ and ‘unregistered’. The registered manufacturing sector and the unregistered manufacturing sector are complementary to each other. The manufacturing sector covers all manufacturing, processing and repair and maintenance services units irrespective of their employment size, investment and location.

1.5 **Registered manufacturing sector**

The registered manufacturing sector includes all factories covered under sections 2m (i) and 2m (ii) of the Indian Factories Act (IFA), 1948 which respectively refer to the factories employing 10 or more workers and using power or those employing 20 or more workers but not using power on any day of the preceding 12 months.

All the factories forming part of the registered manufacturing sector are classified into 19 industry groups based on the National Industrial Classification (NIC). The NIC-1970, which inter-alia provided a uniform framework for grouping together economic activities of similar nature prevailing in the economy, has since been revised and replaced by the revised National Industrial Classification of all Economic Activities NIC-1987, again by NIC-1998 and NIC 2004. In the new series 1999-2000, NIC 1998 classification has been adopted, as the base year estimates are
based on the results of Annual Survey of Industries (ASI), 1999-2000, which followed the NIC-1998.

1.6 Industrial productivity:

Rise in productivity implies rise in production which increases National income and economic growth rate. Infact rise in productivity is just not sufficient index of rise in growth, rise in productivity must be accompanied by reduction in cost of production of every additional unit expansion of output with minimum input implies rise in productivity.

Productivity: the term productivity has been defined differently by different authors.

B. B. Lal said that “productivity refers to measurable relationship between well-defined output and input i.e., between the production results and the relative production agents in both the financial and physical terms in relation to given time and condition”.2

Ewan Claugue says that ‘Productivity is a word which we use broadly to express the overall efficiency with which our industries perform.’3

Russel. W. Fenske4 defines the term ‘Productivity’ in five ways: they are:

(i) Productivity is a form of efficiency.

(ii) Productivity is the utilization of resources or effectiveness of utilization of resources.

(iii) Productivity is a ratio.

(iv) Productivity is a ratio (rather than a phenomenon).

(v) Productivity is a rate of return (Primarily in monetary terms).

J.M.S. Risk defines ‘Productivity as a physical ratio: it relates to the quality of goods produced or services given in comparison with the quantity of resources consumed’5

The International labour office defines “productivity as the ratio between output and of the factors of input is generally known as the productivity of the factors

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2 B.B.Lal Industrial Productivity and economic growth.
3 Ewan Claugue, Productivity, Employment and living Standards Conference on Productivity,4th June 1969,university of Wiscom in U.S.A
4 Russel W. Fenske, Productivity, measurement at the work centre N.P.C., Productivity Journal.
5 J.M.S Risk measurement in a Comparative planned Economy, Management Accounting july 1970,p.259
This productivity means the ratio between output and any of the factors of production land, labour, capital and organization.

1.7 Theoretical Framework and Empirical Evidence

Simon Kuznets in his work “Quantitative aspects of economic growth of nations, industrial distribution of national product and labor force” mentioned that the most common characteristic of low per capita income countries is low degree of industrialization. A close relationship between industrialization and the growth of national income has been observed. Kuznet’s comparison of 50 countries has shown marked increase of manufacturing output with rising per capita income. Kuznes in his historical experience of the developed countries found that the countries where per capita income grew significantly, the proportion of labour force engaged in agriculture declined and that engaged in industries increased.

Chenery and Taylor also found that a statistically significant relationship exists between per capita income and the degree of industrialization with industrial development economic progress having a relatively low ceiling.

Professor Gunnar Myrdal observed that “against the backwash effects, there are, however, also certain centrifugal “spread effects” of expansionary momentum from the centre of economic expansion to other regions. It is natural that the whole region around a nodal centre of expansion should gain from the increasing outlets of agricultural products and be stimulated to technical advance all along the line.” There will also be spread effects to localities producing raw materials for the growing industries in the centres and those having consumer goods industries will be stimulated. These will overcome the backwash effects from the older centres and encourage self-expansion of new centres. Similarly, the spread effects flowing from a centre of industrial expansion to other localities and regions, operating through

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increased demand for their products and in many other ways are themselves into the cumulating social process by circular causation.

**A.O. Hirchman**,\(^{10}\) popularized the concept of ‘unbalanced growth’. It is his contention that deliberate unbalancing the economy, according to a pre-designed strategy, is the best way to achieve economic growth in an under developed country. According to Hirschman, investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and pave the way to further economic development. He maintains “development has of course preceded in this way, with growth being communicated from the leading sectors of the economy to the followers, from one industry to another, from one firm to another.”

**Paul N. Rosentein-Rodan** in his “theory of big push” states that proceeding “bit by bit” will not lunch the economy successfully on the development path; rather a minimum amount of investment is a necessary condition for this. It necessitates the obtaining of external economies that arise from the simultaneous establishment of technically inter-dependent industries. Thus indivisibilities and external economies flowing form a minimum quantum of investment are a pre-requisite for launching economic development successfully.

According to **Lewis**, the subsistence sector engaged in primary production provides the foundations for both capital accumulation and industrial growth. The surplus labour in agricultural sector can be employed in industrial sector. At the same time, the agriculture sector provides the main source of demand for industrial goods, whether inputs for production or outputs for consumption. The inter-sectoral linkages, on the supply side and on the demand side, operate through a variety of mechanisms. The nature of these linkages, combined with the inter-sectoral terms of trade between the agricultural and non-agricultural, sectors can have profound impact on the pace of industrialization whether we consider market economies or the erstwhile planned economies.

**In Keynesian macroeconomic model**, the income or output in the economy derives also from the level of investment made in the economy. It should be noted that

out of all the four factors contributing to income of a nation namely consumption expenditure, investment expenditure, government expenditure and net income from abroad; income from investment comes both from investment expenditure especially by private individual as well as from government spending. Therefore according to Keynes management of aggregate demand in the economy depends on the level of investment. Keynes also says that when aggregate demand increases in the economy entrepreneurs hire more labour in production process increasing employment and output. This proves that investment in organized manufacturing industries is economically justifiable.

Joseph Alois Schumpeter in his “theory of economic development” was the first to establish an explicit linkage between economic development and financial institutions. Capital is nothing but the lever by which the entrepreneurs subject to their control the concrete goods which he needs; nothing but a means of diverting the factors of production to new use, or of dictating a new direction to production Schumpeterian capital is a particular fund of liquid purchasing power rather than the stock of real asset of community. The availability of credit enables the entrepreneur to carry on his function. Improvement in the techniques of production depends upon the level of entrepreneurial activity, which in turn depends upon the willingness of credit institutions to finance risky undertaking.

Macroeconomic theory states that industrialization is associated with economic growth and structural change. The process of economic growth is characterized by a dynamic interaction between demand factors and supply factors, so that a mismatch between aggregate demand and aggregate supply as also disproportional between and within sectors, which surface over time, affecting either the price level or the balance of payments or both. The process of structural change reflects differences in the rates of expansion or contraction of output, employment or investment in different sectors, where the underlying factors are changes in the structure of final demand and change in the technology of productive activities in the national context juxtaposed with changes in comparative advantage in the international context. In the area of orthodox economics, much of the literature or theories on industrialization emphasize the supply side.
Product life cycle theory argues that in the early stages of innovation, products have low elasticities of demand and thus less sensitive to input prices. This allows innovative products from small firms to find niches within international markets and to achieve exports soon after establishment. Such firms are often referred to be ‘born global.’ As these firms grow they form backward linkages with their users and suppliers, which may eventually form into sector clusters (Hoover & Vernon 1959, Simmie 1997).

Raul Prebisch insists that the terms of trade of the less developed countries have been secularly deteriorating. In his well-known work ‘towards a new trade policy for development; Raul Prebish maintains that there is a long-run tendency for the prices of the primary products to deteriorate relative to the prices of manufacturing goods. Prebisch’s argument is based on the fact that the underdeveloped countries are net producers of primary products such as coffee, copper, tea, rice, sugar, fats etc. These products are roughly the same goods today as they were fifty years ago. On the other hand, the quality of manufactured goods produced by the developed countries such as the automobiles, radio, petroleum, refinery, equipments, trucks etc have improved tremendously. Consequently in the world market these goods fetch higher prices relative to those fetched by the primary products.

The basic frame of analysis for the nexus between factor use and trade comes from the Hecksher-Ohlin trade theory. The relatively higher endowments of labour in developing countries than that of industrialized countries provide these economies comparative advantage in the production of labour-intensive goods. Thus, the labour-intensive production relatively expands and capital-intensive production contracts in developing countries; the opposite scenario will occur in industrialized countries. Consequently, in developing countries, the demand for labour rises and that of capital falls. Therefore, theoretically one can say that developing countries are the main beneficiaries under the liberalised trade regime, in terms of employment (Ghose, 2000, Abdi and Edwards, 2002).  

At present, the concept of labour productivity is widely accepted and is recognized as an indispensable factor for rapid economic development. In history of economic thought, discussion on labour and its role in economic development is quite old. Adam Smith, Ricardo and Karl Marx established a fundamental relationship between labour theory of value, production, distribution, accumulation and economic development. Thus, economic development is viewed as an aspect of man’s struggle against nature. The change in mode of production has shifted the attention from exchange to production and gave an impetus to the idea that labor was the source or cause of wealth or value. It is the search for the role of labour in economic development that led the classicists to build up the edifice of political economy on the foundations of the labor theory of value. This approach led to the discovery of labour both as a creator and measure of wealth, a market, a pressure group, subject of social protection, creator of new institutions and also contributor for rapid economic development in a capitalist economy. This makes it more than a factor of production because the quantity and quality of labour is a cause and consequence of economic development.

**Productivity analysis** has proved to be very useful at various levels of economic organization and productivity measurement is an important tool of economic and social analysis. It is best way for studying the rate of growth of an economy and for judging the stage of economic development attained by a nation. Through inter-regional and international comparisons of productivity, efforts have been made to locate the factors responsible for rapid growth and competitive strength.

There are numerous obvious reasons for giving exalted importance to labour productivity. Labour is the most important and common factor in the production process, and labour time possesses an apparent universality regardless of production unit, industry or nation. It is a relatively simple concept since by relating the output to the labour input alone, reduces the difficulties of adding together unlike things. It is emphasized that “The labour productivity index is composite. In the final analysis it reflects the realization of many other economic objectives (reduction in the cost of production, advantages location of the industry, degree of specialization, effectiveness

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of capital equipment and so on).”\textsuperscript{13} It is measure of industrial efficiency in general, reckoned in terms of one specific factor. It is rightly remarked, “behind labour productivity lies all the dynamic forces of economic life: technical progress accumulation, enterprises, and the institutional pattern of society.”\textsuperscript{14}

In the post-liberalisation phase marked by virtually jobless growth in India and recessionary trends in the global economy, the studies pertaining to employment, wages and productivity in a labour abundant country has assumed increasing importance and relevance. A thorough probe into the changes in productivity appears to be imperative, for it indicates the efficiency with which resources are converted into commodities and services that men want. Higher productivity is the means of achieving better level of economic wellbeing and national strength. Given the pivotal role of human resources in economic development, a thorough understanding of the relationship of its productivity improvement and the reward it obtains from its contribution to output is exceedingly important.

The earliest explanation of wages, by mercantilist and physicorats, was the idea of subsistence wages. In 1776, Adam Smith expounded the idea of ‘labour theory of value’. He recognized that there was a level below which wage level could not go. Wages of labour, however, will vary depending on skill and nature of job. He believed that reward to person is determined by his contribution to the creation of wealth. Smith while not advocating a low wager per se advocated the idea of laissez-faire which strengthened the forces of cut-throat competition. Other concepts of wages that came from the classical school of thought included “Subsistence Theory of Wages” (Iron Law of Wages) and “Wage-Fund Theory”, which served as bulwarks against workers’ demands for higher wages and improved living conditions. It was at this stage that a good part of the ethical and moral arguments gave way to economic explanations such as capital formation and rate of growth of profits.

For Marx, the main economic problem was to explain the distribution of the relative shares of the total output between capital and labour. Unlike Ricardo and his predecessors, who tried to explain the distribution purely as a result of economic forces, Marx was one of the first writers in political economy to draw attention to the


historical and social elements, that played a significant part in the evolution of two classes; the capitalists and the workers. He argued that in the process of production, whereas other factors transform themselves, it is the labour alone which transforms itself more than what it receives. The capital, thus, was nothing but the dead labour. The excessive use of capital would cause a falling rate of profit; because of over production, which would ultimately lead to the breakdown of capitalism.

According to marginal productivity theory, the rate of increases in real wages and the rate of increase in real productivity should be similar or the same in long run. Hicks and Marshall had advanced the ‘law of marginal product’ that affirmed that the wages of labour tends to be equal to his marginal net product. This is regarded, even today, as the most fundamental principle of the theory of wages. This implies that any increase in real wages can take place only through improvements in productivity.

The efficiency wage hypothesis also established the link between wages and productivity in reverse direction. Wage rate, as per this theory, acts as a motivating factor for the improvement of the workers’ productivity. The rise in productivity acts as deciding factor for the adoption of improved technology as a result of which the workers’ skill improves leading to improvement of wage rate.

The empirical evidence and historical experience, however, have shown that the entire galaxy of wage theories has been unable to capture and represent the dynamism of wage determination in progress. In theory, the relationship between wages and productivity seems plausible and convincing and as such, the role of productivity in wage determination cannot be undermined. In fact, the wage determination must be linked with productivity simply because the workers must get their share out of the increased productivity. In practice, however, productivity plays a limited role in wage determination.

Kaldor examined the relationship between industrial development and economic growth, and based on empirical results, characterized the manufacturing sector as “the main engine of fast growth” (Kaldor, 1967:48). This not only held true for the 12 early industrializers Kaldor examined, from UK to Japan, but is also characteristic of catching-up countries that have experienced rapid, sustained growth (The Growth Report, 2008; Felipe et al., 2014). At high income levels, and as a
standard feature of successful structural change, countries invariably experience non-industrialization, resulting in lower growth rates. Deindustrialization is primarily attributed to a decline in labour intensity and a shift of manufacturing activities to lower income countries based on trade between mature economies and developing countries (Tregenna, 2009; Kucera and William, 2003; Rowthorn and Ramaswamy, 1997).

Early non-industrialization has recently been increasingly noticeable in developing countries with a lower share of manufacturing in GDP at their peak, which they reached at a much lower level of income than the early industrializers (Dasgupta and Singh, 2006; Amirapu and Subramanian, 2015; Rodrik, 2015; Ghani and O’Connel, 2014). While the debate on whether services can become a new growth-enhancing sector continues, research indicates that early non-industrialization is prevalent in developing countries and that manufacturing sector no longer plays an important role of the engine of growth in developing countries.

Non-industrialisation is a fundamental cause for decline in the significance of manufacturing in the world due to changes in global demand and supply rather than to the failures of some countries. To develop their manufacturing sector proportionately to other sectors, countries need to ascertain at least one of the following two conditions.

1. Based on **Kaldor's** formulations manufacturing industries is no longer the driver of economic growth in developing countries.

2. The share of manufacturing industries to value added relative to that of other sectors and employment have decreased significantly in developing countries.

The first condition essentially focuses on whether the relationship between the share of manufacturing in the economy and economic growth is positive and stronger than the relationship between the share of other sectors and economic growth. The second condition focuses on the relative size of manufacturing value added and manufacturing employment in the economy.

Even though manufacturing is the main driver of economic growth which means rejecting above said first condition, a scenario exists in which manufacturing plays a less significant role in developing countries’ economic development than it
previously did because its size decreased significantly. It is extensively thought that manufacturing jobs are shrinking internationally (Ghani and O’Connel, 2014). For this reason, even if manufacturing sector retained the same size, it could be considered as playing a less significant role due to its weakened ability to enhance economic growth.

If both above said conditions are rejected, one can conclude that the significance of manufacturing in developing countries’ economic growth has not changed. Then, one can say that early non industrialization is not caused by changes in any development characteristics of manufacturing which may diminish its role in economic development but due to the abilities of some countries to develop their manufacturing sector relative to other sector proportionately.

Several empirical studies have examined first condition. The role of manufacturing as a driver of economic growth in developing countries Szirmai and Verspagen (2015) tested the relationship between the value added share of manufacturing and growth of GDP per capita using fixed effects, random effects, Hausman-Taylor estimations and between effects models for an unbalanced panel of 92 countries. This relationship was examined for three periods, 1950–1970, 1970–1990 and 1990–2005, and compared these results to the service sector. Focusing primarily on the results of traditional Hausman-Taylor estimations, Szirmai and Verspagen’s study focuses on the contribution of manufacturing to GDP per capita growth conditional on the level of education and stage of development. They find that manufacturing acts as an engine of growth for low and for some middle income countries because they provided a sufficient level of human capital. Such growth engine characteristic is not found for the service sector. Fascinatingly, the findings for more recent periods indicate that a higher level of human capital is necessary for manufacturing sector to plays its role as engine of growth in developing countries.

Necmi (1999) tested whether Kaldor’s conclusions were still valid beyond the heydays of rapid industrialization and catch-up of the 1970s, applying an instrumental variable econometric technique for 45 mostly developing countries for the period 1960-1994. The results confirmed that “manufacturing is an engine of growth” argument of Kaldor’s holds good for most of the developing countries included in the

By contrast, the results of Fagerber and Verspagen (1999) indicate that manufacturing only acted as an engine of growth for developing, but not for developed countries in the 1970s and 1980s. A cross-sectional regression study by Dasgupta and Singh (2006) for 48 developing countries from 1990 to 2000 concluded that manufacturing continued to play an engine of growth role; at the same time services sector also played a similarly significant role during that period.

Chakravarty and Mitra (2009) and Kathuria and Natrajan (2013) examined the engine of growth hypothesis for India, where the service sector has played a key role in the country’s economic development (Aggarwal and Kumar, 2015). In the former study (Chakravarty and Mitra, 2009), which covers the period 1973 to 2004, manufacturing was found to have been one of the drivers of growth, together with construction and services. Kathuria and Raj (2013) tested the hypothesis for all 15 states of India in the period 1994-1995 to 2005-2006, and concluded that manufacturing had indeed acted as an engine of growth in India, despite its declining share in GDP.

Rodrik discussed the driving nature of manufacturing (2013), how successful regions have changed their structure to benefit from this driver of economic growth (McMillan, Rodrik and Verduzco-Gallo, 2014) and whether this path of economic development is still available for currently developing countries (2015). This series demonstrates that the formal manufacturing sector exhibited a rapid unconditional convergence in labour productivity and that Asian countries grew faster than other regions by moving labour from low to high productive sectors, particularly manufacturing. However, Rodrik had negative opinion about the continuation of this pattern of economic development for developing countries due to early non industrialization.

Evidence from above literature suggests that the engine of growth hypothesis for manufacturing by and large still holds for developing countries – particularly those with a higher level of human capital. However, availability of the opportunity to use this engine seems questionable, which relates to the second condition.
After having looked into the theoretical and empirical base for the study, the important studies in the area of organised manufacturing industries have been reviewed in chapter two in order to establish research gap and the need for study.

1.8 Limitation of the Study

Labour input could not be adjusted for quality differences. Only the aggregate data at industry level were available and firm level data was not available. The present study is based on secondary data and the approach is macro in nature. The study has considered only organised manufacturing industries in India. Moreover, the reporting factories may not be giving precise figures or they may be following deviating accounting practices.