CHAPTER - I

INTRODUCTION

There exists a considerable volume of literature that contends that it is the efficient unit of investment, and not investment as such, which is crucial for economic growth. It is therefore increasingly recognized that the public policy should be directed to bringing forward efficient investment, apart from being a policy guideline to increasing the level of investment. Capital formation is desirable if and only if investment is efficient. In other words, there are instances when actual investment is inefficient, and consequently a high saving rate is not reflected in a high growth rate. Since it is presumed that efficient investment is responsible for economic growth, the focus of this study is on the path of capital accumulation over time in terms of an increase in rate of investment which is consistent with a high rate of economic growth and therefore is efficient.

The basic premise of the present study, which pertains to importance of investment for economic growth in a developing economy, should be emphasised at the outset. It is maintained that increase in investment forms essential basis of growth in a developing economy only when it is associated with productivity growth. This is in line with
a perspective which views technological progress as the main source of growth. However, technological progress, it is maintained, finds its way into actual production only with the use of new and different capital equipment. Therefore, the effectiveness of innovations in increasing output would be conditioned by rate of investment. Accordingly, the policy to increase investment should lead to faster transfer of new technology into actual production and thereby lead to an increase in productivity. In literature, the positive association between investment and productivity growth, which implies that technological progress is embodied in investment, is often discussed, but this path of capital and output expansion is discussed in an aggregative framework which is consistent with steady-state equilibrium growth path. Steady-state equilibrium growth path is however viewed as a theoretical abstraction of the growth process in a 'mature' and technologically advanced economy. Accordingly, it has been maintained that this path of steady-state accumulation model is not proper for an analysis of the actual traversed growth path of an economy and by the same token may not capture the growth process in a developing economy which is in a state of disequilibrium.6

On the other hand, Mathur (1987) in an empirical work on the actual traversed growth path in a developing economy, India, emphasizes two sources of output growth where
investment plays an important role. First, output growth is partly due to steady-state growth where all inputs, including capital, increase at a given rate, given the state of technology. The importance of investment here is viewed in its capital-widening sense. Second, output growth is also due to productivity growth in specific sectors of the economy and the growth process is of non-steady type. The importance of investment in this non-steady growth process is given by the fact that it is a vehicle of technological progress. However, investment here does not refer to aggregate investment behaviour that leads to productivity growth in all industries at a given rate, but investment in specific industries and leads to productivity growth in those industries only.

The present work does not endeavour to highlight the nature of investment behaviour which is the source of steady-state growth. This is because it maintains that a developing economy is in a state of disequilibrium and the growth in a state of disequilibrium is mainly of a non-steady-state type. Accordingly, in the present study, the basic premise, i.e., investment forms essential basis of growth only when it is associated with productivity growth, is formulated primarily to highlight the importance of investment behaviour in the disequilibrium growth process.
This investment behaviour, moreover, is maintained to have two crucial features which are discussed below:

(a) In a state of disequilibrium, investment does not refer to aggregate investment behaviour in an economy but refers to investment in specific industries. More precisely, investment is increased in some industries but not in others. The increase in investment in industries which is primarily for expansion programmes forms essential basis of growth when it is associated with productivity growth.

(b) In the growth process, investment mainly refers to "induced investment" which follows profitable opportunities specific to some industries in the economy. Profitable opportunities which induce investment in industries are of two types. First, induced investment can be due to an increase in effective demand for the products in question. Second, innovations specific to certain industries are also responsible for an increase in expectations of profits and thereby induce investment. For example, innovations which make production process more energy-efficient are likely to benefit industries that use energy intensively. It can, therefore, be maintained that investment which takes the form of embodied technical change is induced and is not particularly constrained
by supply of loanable funds. It is presumed that there is either supply of loanable funds, which is diverted from other less profitable uses, or in the absence of it, a banking and monetary system which is capable of facilitating this kind of induced investment.\textsuperscript{10}

In the framework adopted in this study these aspects of investment behaviour form the basis of growth in a state of disequilibrium. Accordingly, it is maintained that investment behaviour having these features is an efficient form of investment.\textsuperscript{11}

Furthermore, the framework adopted in the present study maintains that growth-inducing changes in a state of disequilibrium in an economy are endogenous to the economic system.\textsuperscript{12} This means that efficient investment behaviour as discussed here is both the basis for, and the result of, economic growth. The endogeneity of efficient investment behaviour is maintained to be the propelling factor which makes cumulative growth possible in a state of disequilibrium in an economy. It should be point out that the emphasis on efficient investment behaviour in this study is not to undermine the contributions of capital widening aspect of investment behaviour in the growth process. In fact, the present study recognises that cumulative growth in a state of disequilibrium involves growth of various interrelated industries and derived demand for capital.
Thereby, investment in the growth process may take many forms other than efficient investment behaviour in industries. Similarly, growth also is discussed in the context of rapid structure changes in an economy where many growth inducing changes are also important other than efficient investment behaviour in industries. However, the present emphasis on efficient behaviour in industries is because it is maintained that the overall growth in an economy in a state of disequilibrium is particularly dependent on dynamic role played by specific industries in the economy, and any particular industry plays the dynamic role when investment in the industry takes the form of efficient investment behaviour.

The conceptual and methodological adequacies of the present framework which maintains that efficiency of an increase in rate of investment form essential basis of growth in a state of disequilibrium are discussed in the following sections of this chapter.

SECTION 1.1 DISEQUILIBRIUM AND GROWTH PROCESS.

Disequilibrium in a developing country is taken to mean a situation in which there are factors that raise profitability of some industries but not of others. Under conditions of disequilibrium it can therefore be maintained that the rate of return may increase, or decrease, rather
than remaining constant over time and the change is different in different industries in the economy.\textsuperscript{17}

In this state, the implication of an increase in rate of investment for economic growth is analysed by maintaining that investment decisions are either guided by factors that account for enterpreneurial expectations about future profitability in industries or the profits actually realised on past investments.\textsuperscript{18} In fact, growth in a state of disequilibrium is maintained to be the consequence of investment that disequilibrium conditions bring forth in industries.\textsuperscript{19}

In a state of disequilibrium, the rate of investment would be industry specific, since change in the rate of return is different in different industries. Moreover, investment being industry-specific means that a higher rate of investment in an industry is guided by factors that increase the rate of return in the industry.

In this perspective, investment behaviour in a state of disequilibrium implies that there is a reallocation of investment in line with future relative profitability in different industries.\textsuperscript{20} Accordingly, it is maintained that the rate of growth of output, under disequilibrium conditions, is not to be analysed in terms of a change in the rate of aggregate investment, but should be seen as the
consequence of a reallocation of investment in different industries in line with changes in relative profitability over a period of time (as is suggested in studies by Mathur 1973; 1987).

This viewpoint also maintains that reallocation of investment is growth promoting when it signifies a structural pattern that significantly affects the growth rate of the economy. Following the initial argument of Allyn Young and continuing the empirical work of P.J. Verdoorn, N. Kaldor emphasised a structural pattern in terms of faster growth of manufacturing for promoting a 'virtuous circle' of growth. These studies implicitly assumed that whereas agriculture was subject to secular diminishing returns, industries would allow resources to be more productively employed. This is because it is presumed that industries' operate according to increasing returns. Similarly, Mathur (1987) in his study has pointed to a structural shift towards sectors using technologically advanced processes, as an important source of growth in a developing economy. In these studies the growth process is described either as a disequilibrium growth process or as a non-steady type of growth process.
SECTION 1.2: FRAMEWORK OF THE PRESENT STUDY

In the framework adopted here, the focus is on the importance of an increase in rate of investment in disequilibrium growth process. However, the importance of an increase in rate of investment in a disequilibrium growth process is discussed not in terms of aggregate investment behaviour but refers to investment behaviour in industries. In other words, disequilibrium conditions bring forth investment in different industries, but the emphasis is on an increase in rate of investment in industries which is important from the point of view of economic growth.

This study makes use of the theoretical frameworks (Young, 1928; Kaldor 1972; Blitch 1983; Reid 1989) that emphasise growth in a state of disequilibrium to be the consequence of investment in industries operating under conditions of increasing returns.²³ The focus therefore is on the nature of investment behaviour in industries which is important in the disequilibrium growth process driven by increasing returns in industries. It should be pointed that in literature there are many empirical studies which emphasise the dominant role of increasing returns in explaining rate of growth of output, but do not highlight the nature of investment behaviour in industries in the growth process.²⁴ These studies, following Kaldor (1966),
maintain that increasing returns is a "macro-phenomenon" and refers to an increase in productivity which is the by-product of an increase in output in the manufacturing sector in an economy. This increase in productivity in the manufacturing sector in turn signifies a structural pattern of investment which significantly influences the overall rate of growth of output in the economy.²⁵ In this perspective, the point of departure in this study is to analyse the role of increasing returns in the growth process not in terms of a structural pattern according to which an economy achieves accelerated growth as such, but in terms of nature of investment behaviour in industries.²⁶ The main emphasis is to highlight the importance and nature of investment behaviour in industries in the growth process driven by increasing returns. Accordingly, the present study undertakes a brief discussion of the disequilibrium growth process to highlight the importance of investment behaviour in industries in the growth process. The main aim is to bring out the nature of investment behaviour in industries which has an important bearing upon the process of growth.

Following Young (1928), increasing returns at an industry level refers to a higher level of productivity of resources brought about by an increase in capital expenditure.²⁷ Second, this investment is primarily undertaken for an expansion programme brought about by an
increase in demand for the product in question in which the volume of production is large.\textsuperscript{28} This implies that at a larger scale of operation, investment in the industry is accompanied by a change in the method of production which is more efficient. By "more efficient technique" it is meant that the technique is both capacity-extending and cost-reducing and is a reflection of division and specialization of labour brought about by the investment programme, i.e., by providing more productive capital per labour.\textsuperscript{29} It can, therefore, be maintained that increasing returns at an industry level is a reflection of embodied technical change.\textsuperscript{30}

In the literature, it is emphasised that an industry being subjected to increasing returns has not only static implications in terms of a higher level of output and productivity in the industry, but also has a bearing upon economic growth. The process of growth is initiated because the increasing returns industry is responsible for an increase in effective demand for other goods and services and thereby brings forth investments elsewhere in other industries in the economy.\textsuperscript{31} The growth process continues as long as the investments elsewhere also reflect embodied technical change. Hence, productivity expands as market expands in an industry but the increase in productivity resulting from a larger market in turn enlarges the market
for other goods and by the same token causes productivity to rise in other industries also. Growth is the consequence as long as the process is continuous and propagates itself in a cumulative manner.\textsuperscript{32}

Thus, the crucial conditions for growth to occur are that supply is elastic, i.e., every increase in demand evokes investment for an expansion of production and investment should take the form of embodied technical change which is endogenous to the economic system. Given these conditions, growth process is a continuous interaction between demand increase induced by increases in supply and increases in supply in response to an increase in demand.

In this growth process, the nature of investment in industries which has important bearing for the growth process has two crucial aspects. First, investment in an industry should be positively associated with an increase in productivity, which implies that investment takes the form of embodied technical change. In this instance, investment in the industry is not only responsible for a higher level of output in the industry, reflecting contribution of a higher level of productivity but is also responsible for an increase in effective demand for other goods and services. Thereby, it brings forth investments elsewhere in other industries. Furthermore, the nature of technical change suggests that the higher the flow of investment expenditure
in the industry, the higher is the level of productivity that the industry attains. Second, investment in industries which is crucial for growth is maintained to be induced by the increase in productivity in industries. What this implies is that investment in industries is induced by an increase in effective demand for the product in question, brought about by an increase in total income and purchasing power in the economy. The increase in total income and purchasing power, in turn, is generated by investment in industries which is associated with higher level of productivity. Thus, in this study, these two aspects of investment behaviour in industries form essential basis of the disequilibrium growth process which is continuous and propagates itself in a cumulative manner.

Efficiency of Investment

The framework developed so far in the present study brings out two essential features of investment behaviour which reflect the importance of increasing returns in the process of growth in a state of disequilibrium. The present study maintains that investment behaviour having these two features is efficient. By definition, efficient investment behaviour reflects a process which secures increasing returns and, therefore, is responsible for growth.
It should be pointed out that an essential aspect of the growth process is that there are unequal growth rates across industries and the growth takes place at a variable rate over time for each industry. Second growth of various industries is seen as an interrelated whole where advances in one industry is a prerequisite for the advances in another. It can, therefore, be maintained that the growth process involves growth of various industries at variable rates where there are some industries in which increasing returns are important and are responsible for growth in other industries, whereas there are other industries in which increasing returns have ceased to be important. They may nevertheless benefit from a general industrial expansion.

The present work focuses on growth of a particular industry in which increasing returns is important and is responsible for development of other industries in the economy. In the framework developed so far in this study, growth in an industry, signifying increasing returns, should reflect contributions of productivity growth. However, productivity growth, being in the nature of technical progress embodied in investment, also signifies an increase in the flow of investment expenditure in the industry. In other words, an increase in rate of investment in an industry is particularly important in the growth process.
when it is associated with productivity growth.

The increase in rate of investment in a particular industry in the growth process however should be interpreted cautiously. Increase in investment, in the Youngian framework developed by Kaldor (1972 and 1975), is maintained, not to be an exogenous constraint on growth but is seen as a by-product of a faster growth of output reflecting productivity growth in industries. Following Young (1928), one can maintain that productivity growth and faster expansion of production signify an increase in total income and effective demand for goods and services and thereby brings forth investment in industries. However, an increase in total income does not necessarily imply an increase in effective demand for the product of a particular industry. In this study, it is maintained that in the context of an increase in total income and purchasing power, increase in productivity in a particular industry is responsible for increase in the size of the market for the product in question. The increase in the size of the market, in turn, induces further investment in the industry. Alternatively, one can also maintain that productive growth in an industry signifies an increase in prospective rate of profit (and future market expectations) and thereby induces further investment in the industry. The issue of investment in an industry which is regarded as the resultant of
productivity growth in that particular industry is discussed in detail in chapter III, Section 3.3.

In this perspective, it can be maintained that growth in an industry which signifies increasing returns should imply a specific representation of investment behaviour in the industry. Investment for capacity expansion in a particular industry should be associated with an increase in productivity. The increase in productivity, in turn, is responsible for further investment in the industry. The process continues to result in an increase in the rate of investment which is associated with productivity growth. According to the framework developed so far, this increase in rate of investment in a particular industry which is associated with productivity growth, is maintained to be efficient.

In the present work, the discussion of efficiency of investment, since refers to an increase in rate of investment, should also take into account the fact that the increase in rate of investment in an industry also implies an increase in the industry-specific rate of return.40

The present study maintains that an increase in rate of investment, associated with productivity growth generated through embodied technical progress, is responsible for the increase in rate of return in the industry.41 This is to highlight the fact that since an increase in rate of
investment is maintained to be induced by productivity growth, the increase in the rate of return which accompanies it, should accordingly reflect productivity growth. On the other hand, there are studies which maintain that productivity increase ex-hypothesis is a profitable one and when it implies an increase in rate of return in the industry, brings forth an increase in rate of investment in the industry.42 However, in this case also, since the present study maintains productivity growth should be associated with an increase in rate of investment in the industry, the increase in rate of return can be maintained to be due to embodied technical progress. This study does not delve into a theoretical discussion on the exact nature of a causal relationship between rate of return and rate of investment. It maintains that in empirical studies, the increase in rate of return signifying efficiency of an increase in rate of investment would reflect embodied technological progress in the industry.

It should be noted that efficiency of an increase in rate of investment in an industry not only implies a growth of output in the industry reflecting contributions of productivity growth but is also responsible for development of other industries. At the same time, efficiency of the increase in rate of investment also presupposes an ever-increasing size of market for the product in question, as
reflected by an increase in total income brought forth by growth in other industries. It can, therefore, be maintained that efficiency of investment in the present framework can only be discussed in a disequilibrium growth process where the rate at which one industry grows is conditioned by the rate at which other industries grow.

However, it should be pointed out that the efficient investment behaviour in industries as postulated here is associated with expansion programmes brought about by an increase in demand for the products in question. This significance of an increase in demand (and the 'elasticity of supply') can be put forward to question the relevance of this framework of study in the context of developing countries. This issue is discussed in detail in chapter III.

SECTION 1.3: AIM AND OUTLINE OF THE PRESENT STUDY

Aim of the Present Study

The aim of the present work is to provide an empirical framework to establish efficiency of investment which forms essential basis of growth in a state of disequilibrium in a developing economy. The framework maintains that in a state of disequilibrium there are increases in rate of investment in various industries in the economy and these increases are accompanied by increases in industry-specific rate of return. Efficiency of an increase in rate of investment in
any particular industry, according to the framework of the present study, requires that the increase in rate of return in that particular industry should reflect embodied technological progress. Embodied technological progress is empirically discussed in terms of a positive and significant association between rate of investment and productivity growth.43

Second, in a state of disequilibrium there are various factors that are responsible for increases in rate of investment in industries. The present framework maintains that increase in productivity in a particular industry should empirically emerge to be the most important determinant of the increase in rate of investment in the industry. The increase in rate of investment when it refers to the increase in rate of investment in the industry which is brought about by an increase in rate of return also implies that the increase in rate of return should reflect productivity growth.

It should be pointed out that though there are many empirical studies which stipulate that induced investment is guided by rate of return, there are many factors, other than the rate of return, which are cited as factors governing productive investment in an industry.44 In this event, the present empirical work also takes up a study of the factors to study investment behaviour in the industry. The main
focus is to judge whether the investment behaviour in industry is induced by factors that reflect contributions of productivity growth.

Furthermore, it should be pointed out that increase in rate of investment which is efficient is maintained to be specific to industries that are imperfectly competitive. This is because of the nature of embodied technical change in industries which is assumed in the efficiency criterion adopted in this study. It is maintained that embodied technical change comes about only when output in an industry is increased in response to an increase in demand for the product in question. This increase in output however does not come through an increase in the number of similar establishments producing homogeneous products but comes with more highly specialised establishments with new capital and specialised products with diversified uses. This conceptualization of the "industry" is discussed in detail in Chapter III, but the main point is that the industry is mainly imperfectly competitive with power over market forces of demand and supply for its output and pricing policy. In this case, the existence of market-power in the industry may pose difficulties for the proper measurement of productivity growth and rate of return. First, in literature, it is mentioned that the conventional measure of productivity growth, say, the Solow residue, is over-estimated when there
is market-power in the industry. In other words, productivity growth may mainly reflect return to market-power, rather than showing returns to technological progress. This empirical work therefore provides a measure of productivity growth which does not include returns to market power. Similarly, an increase in rate of return in an industry may mainly reflect an increase in market-power. This is even if the industry may experience productivity growth which is associated with investment in the industry, and is responsible for further investment in the industry. An increase in rate of investment is efficient if it is established that the increase in rate of investment is mainly guided by productivity growth rather than by the rate of return which reflects increase in return to market-power. These and other related issues are discussed in detail in the following chapters.

An Outline of the Present Study

The present empirical work on efficiency of investment is discussed in the context of a slow growth of output in the face of high manufacturing investment in a developing economy. There have been many explanations for this relationship. Inefficiency of business management, economic environment that depreciates aggressive competition, over-manning and trade unionism and restrictive economic policies...
of government are few of the factors that are cited often in the literature.

The present work which emphasises the role of efficiency of investment does not downplay these other explanations. It maintains that some of the factors are not crucial by themselves but accompany efficiency of investment while other factors can be categorised as supply conditions and demand conditions that bring forth efficiency of investment.

Chapter II discusses the important theoretical and empirical works which discuss economic growth and their relevance in a developing economy. This literature survey serves the basis of highlighting the importance of investment behaviour in the growth process of a developing economy and studies whether the importance of investment behaviour in the growth process reflects efficiency of investment as discussed in the present chapter. Since in this study efficient investment behaviour reflects the dominant role of increasing returns, Chapter - III of this thesis discusses the nature and importance of increasing returns in an economic system. This chapter also serves as a literature survey of the studies which suggests increasing returns as an important source of growth. The framework to analyse the conditions for efficiency of investment is discussed in chapter III, sections 3.1 and 3.2. Chapter II
and Chapter III together provide the theoretical basis of the present framework which maintains that efficient investment behaviour forms essential basis of growth in a developing economy.

Chapter IV of this thesis discusses the empirical issues and concepts which are crucial for establishing efficiency of investment behaviour in an industry. It should be pointed out that efficient investment behaviour, as according to the framework developed in this thesis, is discussed with reference to investment behaviour in particular industry in the growth process in a country. This study takes up the case of the cement industry in India to analyse whether investment behaviour in the industry is efficient. The relevance of this industry and the overview of the growth concern of the industry is highlighted in chapter V of the thesis. Chapter VI brings out data on important variables to establish efficiency of investment in the cement industry. Chapter VII discusses the changes in profitability in the industry. Various factors which affect profitability in the industry are discussed to see whether changes in profitability in the industry reflects technological progress in the industry. The measure of technological progress in terms of an index of total factor productivity growth is discussed in chapter VIII. As earlier discussed in this chapter, productivity growth
reflecting 'increasing returns' in an industry is specific to imperfectly competitive industries and these industries enjoy market power. The existence of market power in an industry may imply that the prices of the product of the industry increases more than proportionately than the cost changes and accordingly there is an increase in returns to market power which increases profitability in the industry. The existence of this sort of market power also implies that the real value-added which is obtained by a single deflation method and the measure of productivity growth which is based upon this measure of real value-added is over-estimated and contains returns to market power. In this context, the main emphasis is to obtain a measure of real value-added and the consequent measure of productivity growth which do not contain return to market power. These and other related empirical issues relating to productivity growth are discussed in detail in chapter VIII. Chapter IX, finally, on the basis of the findings in chapter VII and VIII, analyzes investment behaviour in the cement industry to establish its efficiency, or inefficiency, according to the framework developed in this chapter.

In this thesis, it is maintained that efficient investment behaviour refers to investment behaviour in a state of disequilibrium and involves redistribution of investment among regions in a multi-regional set up.
Moreover, the regional redistribution of investment in an industry is maintained to be primarily determined by the relative efficiency of the investment in different region. This study takes up Orissa, a state in India, as a region to study whether the flow of investment in cement industry in this region is consistent with the relative performance of investment in cement industry in Orissa vis-a-vis the country as a whole. This is discussed in chapter - X of this thesis.

At the end, chapter XI contains the summing up of the main results and the concluding remarks.

SECTION 1.4: LIMITATIONS OF THE PRESENT WORK

In this study the focus is mainly on investment behaviour in a specified industry in the context of disequilibrium growth process. The implication for aggregate investment behavior is not taken up in this study, though it points towards a reallocation of investment under the condition of disequilibrium, as is suggested in the works by Mathur (1973; 1987). In literature, Hirschman (1958) and Rostow (1989) are the studies which are relevant for studying the importance of investment behaviour in specific industries for the overall growth in an economy. Second, the accounting of factors that explain the efficiency of investment in an industry is also not taken up. These issues which have
important implication for this study are taken to be beyond the purview of this study.

As far as limitation of the present study is concerned, one may mention two more things.

(a) Whether dynamic efficiency of investment which is reflected by a smooth and harmonious development of investment and output, converges to higher equilibrium values of investment and output, or explodes through indefinite expansion (or contraction) in the unstable case, is not tried out here. But it may be hypothesised that the final outcome of stability or instability is dependent upon reallocation of investment in the economy and the resultant structural pattern according to which the economy grows.

(b) Similarly, whether dynamic efficiency of investment in an industry and the resultant reallocation of investment in the economy are consistent with an increase in gainful employment is also not discussed in this study.

The present study provides a framework to determine whether investment in an industry is properly utilised and thereby provides a guideline for direction of investment. This study mainly takes up investment behaviour in an industry to establish its efficiency or inefficiency with the help of related empirical data.
NOTES

1. This thesis tries to formalize this aspect of the link between investment and economic growth. For a critique of the literature, refer to J.B. Delong and S.L. Summers (1991); Dennis Anderson (1988). In Indian context this aspect has been studied by S. Chakravarty (1983); Ashok Mathur (1987) and for a descriptive analysis of this issue, see C.P. Chandrasekhar (1992); H. Drabu (1992).

2. In empirical studies on growth, there is a general agreement that growth and capital accumulation are interconnected in countries where the rate of capital formation is usually accompanied by growth of productivity. However, this causal relationship is complex and does not permit of any facile assumption that more capital formation will of itself bring about a corresponding acceleration in the growth of production. For an excellent discussion in these lines, refer to A.K. Cairncross (1984), pp.228-229. Moreover, Cairncross (1984) also maintains that once rapid growth is taking place there is an indirect demand for capital which takes various forms without being associated with productivity growth. The important point is that investment by itself is not sufficient to bring about economic growth.


5. According to L.L. Pasinetti (1979), Steady-state growth models basically refer to a study of conditions under which long-run dynamic equilibrium is maintained so that the economy adheres to a path of steady-growth (P.69). According to him, it would be misleading to interpret these models as a description of what is actually happening (P.95). Also see R.M. Solow (1988), P.105. For an excellent discussion on Steady-State growth, refer to R.M. Solow (1988), Chapter 1.
6. A.K. Das Gupta (1965), p. 25. According to him, the growth problem in a developed economy is a follow up of the Keynesian theory of under-employment equilibrium and leads up to models of steady growth, while the problem in an underdeveloped economy is a problem of "primary accumulation" and leads to models of accelerated growth. Further, the significance of increasing returns and external economies are also put forward to question the relevance of equilibrium growth in context of developing economies. See, D. Hunt (1989), pp. 319-320.


8. For a detailed discussion on the nature of induced investment in a state of disequilibrium, refer to, N. Kaldor (1972), PP.386-393. Also, N. Kaldor (1978), P. XXVI. It should be pointed out that induced investment in an economy is independent of desired savings in the economy and therefore is inconsistent with steady-state equilibrium growth path. For an excellent discussion, refer to, A.K. Sen (1970), PP. 23-24; E. Malinvaud (1983), P.96. For a critique of the investment behaviour assumed in steady state growth models, refer to, A. Bhaduri (1986), Chapter 7.

9. According to Kaldor (1972), induced investment, in general, can be regarded as the resultant of either a shift in the demand or a shift in the supply; for the latter on a broad view, can be taken to embrace all investment induced by technological progress, see, N. Kaldor (1972), pp.390-391; N. Kaldor (1978),p.XXVI, n.1.

10. N. Kaldor (1972), PP.391-393. W.W. Rostow also holds that the demand side of the investment process, which reflects major entrepreneurial acts, rather than the supply of loanable funds, is the decisive element in the take-off for sustained growth. Refer to W.W. Rostow (1989), p.175.

11. In literature, "efficiency of investment" as a formal concept is discussed mainly in the context of planning in a socialist framework, see, M. Kalecki 1969; M. Rakowski 1966. The concept is maintained to be involving optimum techniques embodying investment in industries which is consistent with maximum growth in an economy (M. Kalecki, 1969) and by the same token is also consistent with steady state equilibrium growth.
(R.M. Solow, 1962b). The present study, on the other hand, defines efficiency of investment in a state of disequilibrium. For a critique of the concept of optimum technique in a state of disequilibrium, refer to A.K. Bagchi (1962), pp. 669-676.

12 This is similar to the idea of development discussed by Schumpeter (1934). Refer to M.Fg. Scott (1989), pp. 102-103.


14 For a review of growth inducing changes other than embodied technical change, see M.Fg. Scott (1989), pp. 102-103; Cairncross (1984).

15 In literature, Hirschman (1958) and Rostow (1989) are the relevant studies pertaining to this aspect of investment behaviour in the overall growth process. For studies on interrelationship between growth in industries and overall growth rates along this line, refer to L. Currie (1989), p 53; G.C Reid (1989), chapter 4 and 8.

16 A.K. Mathur (1973), PP. 171 and 155-161; also see, G.C Reid (1989), p. 25. The present study following Kaldor (1972) and Gunnar Myrdal (1963), discusses disequilibrium situation which is amenable to economic growth in terms of endogenous and cumulative changes in an economy. Since the focus is not on the study of optimum utilization of resources, the present study does not discuss another conceptualisation of disequilibrium situation which is taken to mean a condition in which certain key prices, such as the foreign exchange rate or the interest rate are fixed at a non-market clearing level, as well as those in which there are distortionary tariffs and quotas. For the distinction between these two conceptualisations of disequilibrium situation refer to D. Hunt (1989), p. 307 and 318.

17 A state of disequilibrium can also be discussed in terms of differential growth rates in an economy. See G. C. Reid (1989), P. 144. For the discussion of disequilibrium in terms of differential profit rates, see, A. Bhaduri (1986), PP. 214-219 and 227-233; G.C. Reid (1989), p. 25.
18. For a discussion on this kind of investment function, refer to M. Dobb (1960), pp. 4-5. It needs to be emphasized that when there is a constant rate of return in various industries in the economy and that the rate of return is the same in all industries, this kind of an investment behaviour would lead up to a cumulative tendency of the Harrod type. See, M. Dobb (1960), p.4.


21. For a discussion refer to Kaldor (1978), pp. 104-105. For a discussion on the strategy as adopted in Indian development plans along these lines, refer to, S. Chakravarty (1987), pp. 10-11.


24. The initial spark to empirically study to role of increasing returns in the growth process was provided by Kaldor (1966). The subsequent literature is reviewed by J.S.L. McCombie (1983) and A.P. Thirlwall (1983). Also see, vaciago (1975) and J.S.L. McCombie and de Ridder (1983).

25. N. Kaldor (1966); also see, A.P. Thirlwall (1983).

26. The relevance and the underlying basis of this point of departure is discussed in chapter III, pp. 56-61. It should be pointed out that in literature there are empirical research on the presence of increasing returns at various micro levels, e.g., firms and industries (Kaldor, 1972, p. 381; Hollander, 1973, chapter 7; Prendergast, 1972). However, the main emphasis was on its implication for static equilibrium theory (Blitch, 1983, pp. 361 - 364; Prendergast, 1992; Richardson, 1975). Similarly, many reasearch papers (Currie, 1981; Reid, 1989) starting with Young (1920) and Kaldor (1972) emphasised the consequence of increasing returns at the industry level for the overall growth, but the studies do not provide a framework to study the disequilibrium growth process in terms of efficient investment behaviour in industries.
27. Young (1928) discusses various ways in which a cost reduction as output is increased can be achieved. But the emphasis is on the method that amounts to an increase in capital intensity reflecting technical change. See A. Young (1928), pp. 531-533; Also see S. Hollander (1973), chapter 7 for an excellent discussion on nature of technical change which reflects division and specialisation of labour. The nature of increases in productivity which reflects increasing returns is discussed in chapter III, section 3.2.

28. According to Young (1928), it is the large volume of production facilitated by a large market that is crucial and emphasizing the role of market size he maintains that Ford's methods (speaking of elaborate methods) would be absurdly uneconomical if his output were very small, and would be unprofitable even if his output were what many other manufacturers (using standard tools) would call large. See A. Young (1928), pp. 530-531.

29. A. Young (1928), P.530; According to Young (1928), the capital-labour ratio in production is a function of the extent of the market rather than of relative factor prices, see N. Kaldor (1972), P.380.

30. N. Kaldor (1972), 380-381. This also means that under the conditions of increasing returns investment is used in its cost-reducing sense, see C.P. Blitch (1983), P.367. Also see, S. Hollander (1973), who maintains that division of labour which is responsible for increasing returns in the Smithian framework is a reflection of embodied technical change (pp.209).

31. The basic presumption is that supply of a commodity under increasing returns reflecting embodied technical change makes it possible for wages to increase in line with an increase in labour productivity. This increase in wages, Provided that employment has not fallen, signify an increase in consumer income for expenditures in goods and services. See, N. Kaldor (1972), PP.383-391; C.P.Blitch (1983), PP.36-367, Also See H. Myint (1987), pp.93-94.

32. For a discussion on the necessary and sufficient conditions for growth to occur under conditions of increasing returns, refer to, N. Kaldor (1972), P.385; C.P. Blitch (1983), PP.368-369.
33. Since it is assumed that investment, which takes the embodied technical change, reflecting division of labour in production, is in response to increase in demand, a higher demand for the product implies a higher flow of investment expenditure which facilitates a further division and specialisation of labour.

34. A. Young (1928), P. 534; N. Kaldor (1972), P. 385.

35. In the literature there has been emphasis on the interdependence of various sectors in an economy in the shape of external economies, i.e., influence of the development of one sector upon the possibility of development of others, that goes beyond external economies of equilibrium theory. Refer to T. Scitovsky (1989), pp. 299-308. This study, following Young (1928) discusses the notion of interdependence of sectors where the the influence of growth of various sectors in the economy has upon the growth-potentiality of a particular industry in the economy. See Young (1928), pp. 533-34.


37. This according to N. Kaldor implies that investment is induced by technological change. See N. Kaldor (1978), p. XXVI, n. 1; also see N. Kaldor (1975). pp. 894-895; N. Kaldor (1972), P. 392.

38. For a detailed discussion on this issue, refer to H. Myint (1987), PP. 93-94.

39. Young (1928) maintained that productivity growth in an industry induces demand growth, relying mainly on the 'substitution effect' working through price elasticity of demand for the product in question or relying on advertisement and selling expenditure. See, C.P. Blitch (1983), p. 368-369. Also See, H. Myint (1987), pp. 91-92. This issue is further discussed in chapter III, Section 3.3.

40. C. Kurdas (1991), PP. 211-215. The underlying rational is also discussed in chapter III. pp. 75-76.

41. It should be pointed out that productivity growth signifying increasing returns in an industry does not imply an increase in rate of return. Increase in rate of return is either due to an increase in profit share in the face of productivity growth or given a constant
profit share an increase in output to capital ratio. This is discussed in detail in chapter VII, pp.218-219. However, in the present thesis it is maintain that productivity growth reflecting increasing returns in an industry should be responsible for an increase in wages in line with labour productivity (see n.31 above). Hence, an increase in rate of return that accompanies embodied technical progress should be a reflection of an increase in output - capital ratio. Moreover, this increase in output-capital ratio is considered in the context of increasing return in an industry which make possible specialised capital stock economical at a higher level of output see Kaldor (1977), p.426. Further, this increase in output-capital ratio which accompanies an increase in rate of expansion of capacity in an industry also signify an increase in expected rate of profit, see Kaldor (1961), p.213. For a discussion on increasing return and rate of return refer to N. Kaldor (1977), PP.425-426.

42. See G. Ranis (1962). According to him, an increase in rate of investment which is associated with economic growth should be due to productivity growth, reflecting by an increase in rate of return.

43. See Chapter IV, n. 4 & 5, for the underlying rationale.

44. See chapter III, Section 3.3 also chapter IX, section 9.2 (a). It should be pointed out that investment behaviour in an industry requires a broad framework of analysis, as adopted by A.K. Bagchi (1980), Chapter - 1. But this thesis mainly recognizes the fact that investment is the father of further investment. If there is a slack in the investment in a period, it should be because the opportunity for making profits through investment had been restricted in the previous periods. See, Bagchi (1980), p.24.

45. For details refer to chapter VIII, section 8.3.

46. These accompanying factors are mainly of the type of better organisation, rationalisation of the industrial setup which accompany division and specialisation of labour. See A. Young (1928), PP.531-532. For an excellent discussion on evolution of institutions which accompany division of labour and competitive process, refer to, G.C. Reid (1989),Chapter 9.

47. Refer to, chapter III, sections 3.1 and 3.2