

Employment Growth in Meghalaya

Since 1976

BY

Dutta
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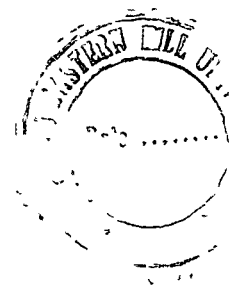
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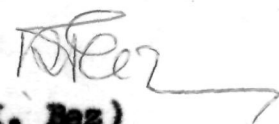
CERTIFICATE

Certified that **Smt. Sanchita Dutta** has done her **M.Phil Dissertation** under my supervision and she has done a very commendable work in the field of "**Employment Growth with Special Reference to Meghalaya**", which was hitherto not taken seriously by the academicians.

It is her original piece of work which was neither published earlier nor submitted for another degree in any other University.

I recommend her for the award of the **M.Phil Degree** on the basis of her work.

January 16, 1990


(K. Bez)
Supervisor



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C O N T E N T S

	<u>Page</u>
<u>Chapter I</u>	
Introduction	1 - 5
<u>Chapter II</u>	
Survey of Literature	6 - 34
<u>Chapter III</u>	
Data Base	35 - 42
<u>Chapter IV</u>	
Methodology and Empirical Findings	43 - 76
<u>Chapter V</u>	
Conclusion and Suggestions	77 - 92
Bibliography	93 - 98
Tables - Appendix	

Chapter I

Introduction

1.1 Economic development of any region is an outcome of effective utilisation of available human resources. Therefore efforts have been made from time to time to create more and more productive employment opportunities to utilise the maximum manpower available everywhere. However, the size and structure of economic activities are likely to vary from region to region depending upon their various resource-base and development potentials.

The non-availability of productive employment opportunities in the hills has produced two inevitable consequences of the structure of local manpower.

- 1) There prevails a massive unemployment, especially under-employment and disguised unemployment in agriculture.
- 2) The young and educated unemployeds in the urban areas.

These adverse features of local manpower tend to reduce the regional productivity to a great extent. Obviously, the crucial problem arises in such a 'Dilemma' is how to generate productive employment opportunities in the hills to provide to the local manpower to eradicate the twin problem of poverty and unemployment staking the land. So in this study an attempt has been made to review the growth of employment in a hilly state - Meghalaya.

An analysis of the current economic situation shows a state of under-development in the state of Meghalaya, characterised by low per capita income, low agricultural productivity, excessive pressure of population on land, predominance of subsistence and wasteful type of farming, lack of proper system of transport and communication, low consumption of power, absence of modern industries and near absence of institutions of higher education in science and medicine and technology (Mongia, June 1978).

In Meghalaya, slow growth in some of the major sectors implies the demand is inadequate and on the average incentive to invest is low. The lack of demand in the economy reflects itself in excess-capacity in certain sectors and sickness in others (Arun Kumar, 1989).

In this circumstances, therefore, it might seem worthwhile to consider the desirability and feasibility of a plan with employment as its basic objective in which plan outlays and their allocations and also the choice of techniques are determined by the targets of employment generation. Thus the overall investment pattern of our plans is subjected to the test of employment creation.

So stimulation of employment has remained an abiding concern of economic planning in Meghalaya. Meghalaya has a population of 13,28,343 and of which the total non-working population comprises 7,21,273 i.e. 54.3%. These non-workers

include both unemployed as well as old, students, etc. However, such a great percentage of non-workers threatens the explosion of employment problem in near future, unless employment aspect is given more importance in different economic plans in Meghalaya.

So we have concentrated on finding out the growth of employment in different economic sectors of Meghalaya.

1.2 Objectives of the study

- 1) To find the demand function for the different economic sectors of Meghalaya.
- 2) To identify the sectoral change in employment in 3 broad economic sectors of Meghalaya.
- 3) To relate education with employment problem in the state. and
- 4) To resolve various ways and means by which the present employment situation can be improved.

1.3 Brief review of the chapters in the dissertation

Chapter I is the introductory chapter where the problem of employment has been presented and the scope and objectives of the study are discussed.

Chapter II is devoted to the research on literature on employment. Employment has been the concern of economists and planners from long back. Thereby, in this chapter we have discussed the various economic theories on employment.

right from the classical school. Employment aspects seem to be different in developed and developing economies. Thereby the third section of this chapter deals with the employment in less developed countries with special reference to India. In the last part we have brought into focus the employment problem in Meghalaya.

Chapter III is mainly devoted to data for our analysis and their source. The present study on employment growth of Meghalaya relates to the secondary data collected by the author from the various government departments. There had been a lot of loop-holes in data, which have been mentioned in this chapter.

In chapter IV, we deal with the methodology and the empirical analysis. Here, we have considered the theoretical framework as precisely as possible, the justification of the use of statistical tools and the logical basis of analysis of the estimation. It may be mentioned that we have used the regression analysis in two separate models and tried to find out the demand for employment in Meghalaya. In the first model we have attempted to find out the demand for employment as a function of investment and output, whereas, in the second model we have dealt with the demand for employment as a function of the trend-factor alone.

All the empirical results are given in this chapter together with appropriate and plausible conclusions. Some of

the data tables are given in the appendices.

The third section of this chapter is concerned with the sectoral change in employment among the various economic sectors of Meghalaya, while the fourth section studies the problem of education in relation to employment in the state.

Finally, chapter V, is devoted to conclusion and suggestions. The conclusion succeeding the empirical results are usually the resultant state of the statistical model applied in practice. Moreover, here we have discussed the findings about sectoral change in employment and the problems of education and employment.

Lastly, in this chapter, we have tried to give some suggestions to eradicate the problem of employment in Meghalaya. Here an attempt has been made to find the plausibility of introducing these suggestions in the light of Meghalaya's economic problems and prospects.

Chapter II

Survey of Literature

2.1 Introduction - Presentation of the Problem

Planning for development aims at maximum utilization of a country's resources, of which the human resource is of supreme importance. The experience of the past few decades of planning after World War II has brought about in the thinking of the planners all over the world an increasing shift of emphasis from physical capital to human capital. This trend is also evident in our country from the special emphasis laid on manpower and employment in our successive five year plans. The provision of more employment opportunities, better employment and reduction in unemployment has been the principal guiding component in each of the core items of the developmental plans in the country.

Efforts have been made from time to time to create more and more productive employment opportunities to utilise the maximum manpower available everywhere in our country.

Unemployment is an economic phenomenon in the developed (industrially advanced) countries is essentially frictional and sometimes cyclical. In the assumed equilibrium condition at full-employment levels in view of setting in of economic recession, innovation or other technological change (or for other economic reasons) this equilibrium gets disturbed and temporary disequilibrium sets in. Unemployment in developing countries is the outcome of this economic disequilibrium.

It is, therefore, more of a short time phenomenon. While in the long period full employment is normally assumed (Yogi, 1988).

In the developing countries, on the other hand the phenomenon of unemployment is chronic, endemic, structural and seasonal. Dependence on land and agriculture, pressure of population on limited natural resources, relative scarcity of other capital resources, lack of adequate inputs such as fertilizer, seeds, etc. existence of a large unirrigated track and farmers' incapacity to utilize even the available irrigation facilities, high growth of population - all these factors either singly or jointly operate and hinder full utilization of available labour supply for gainful economic activity (Yogi, 1988).

2.2 Theories of employment as a function of investment

In the literature before the Great Depression, unemployment was usually regarded as a temporary maladjustment of demand and supply of labour. It was explained in terms of cyclical or other shifts in demand, low mobility of labour and sluggish price and wage adjustment.

The Great Depression and the Great Keynesian Simplification (of Economics), born of depression experience, has made the world employment conscious. Underemployment equilibrium (with or without competition) is regarded as the

rule and full employment the rare exception. According to Keynes, there is always some slack in the economy, which is always due to insufficiency of effective demand. Keynes main achievement is negative in the sense that it says, there is no autonomous mechanism tending to establish full employment in an unplanned private economy. It has demonstrated the age-old doctrine of Prof. Say "supply creates its own demand" which is in fact called as an axiom by Marshall. It is also defended on some logical grounds.

The orthodox conception of a natural self-equilibrating mechanism in a Laissezfaire economy has two branches.

1) It is the rate of money-wages, which provides the mechanism and which could be lowered if there are unemployed. Keynes has shown that this theory is based on the simple fallacy - the fallacy of composition. If all wages are cut, all prices will fall, all money income will fall, and the demand will be reduced as much as costs. So no employer will be induced to increase employment. Hence, a statusquo situation will prevail.

2) The second line of argument is concerned with the rate of interest. According to the orthodox argument, reduced demand for consumer goods implies increased saving, which implies decreases in interest. As a result, the industry will want more investment so there will be an increase in employment in the capital goods though in the consumer-goods industries, the employment will reduce due to the fall in demand for it.

Here again Keynes has pointed out the simple error. If employment and income remains unchanged, fall in consumption implies increased saving. But the first effect of income which further implies less savings. If the rate of investment in new capital does not increase, income will decrease to the point where saving is no greater than before and there is no tendency for the rate of interest to fall. Thus both Keynes as well as Marx have found capitalism to carry the seeds of its own decay.

In few words, it is an unequal distribution of income, which sets up this chronic tendency for the demand to fall short of the productive capacity of the industries. Those who have the demand for goods do not have the purchasing power and others having too much income, have already reached the saturation point of consumption and therefore accumulate and save. This saving tends to be idle because it itself limits consumption which further limits the demand for capital goods to produce the consumer goods. Booms occur when investments are profitable. But booms or prosperity is not the normal state of a highly developed capitalist system, the very accumulation on the part of the rich spoils or destroys the system.

Thus the crisis appear not as a superficial blemish in the system of private enterprise economy, but as a symptom of a deep seated and progressive disease (Robinson, Joan, 1974).

Keynes was totally disgusted with capitalism for both moral as well as aesthetic reasons. But he was neither a socialist like Marx. He tried to patchup the capitalist system to make it worth tolerably well. The new defence of Laissez-faire economy was that full employment was attainable. It was necessary to remove one of the glaring defects from the private enterprise economy and it would become perfect and ideal.

In Mrs. Joan Robinson's words, "full employment (with some reservations about not allowing it to get over-full) has become an aim of conservative policy and the strongest argument against socialist critics. You used to complain, we now admit with some justification, that a capitalist system, that permits heavy and chronic unemployment is indispensable. Now we offer capitalism with a high and stable level of employment. You have nothing to complain of" (Robinson, 1974). Keynes concentrated on the central point of the problem, i.e. increased expenditure. Whatever be the source and purpose of such increased investment, it solves the problem of unemployment.

According to Keynes, increased investment through multiplier and acceleration tends to bring full employment and growth in the economy. It was Kahn, a young pupil of Keynes working on employment theory, who set out the analysis of the multiplier. He found the relation of an increase in employment in investment to the total increase in employment

that it generates and showed how the rise in income that accompanies an increase in investment brings about an increase in savings of an equal amount. Thus there comes the overall growth of employment and income of the economy through increased investment.

In 1934, Keynes succeeded in getting his theory of money and wages and Kahn's multiplier into a coherent system. Thus the General Theory of Employment, Interest and money was published in July, 1936.

Meanwhile Michael Kelecki opened by attacking the orthodox theory at the most vital point - the view that unemployment could be reduced by cutting money wage-rates. He shows that if monopolistic influences prevent prices from falling when wage costs are lowered, the situation is still worse. Because reduced purchasing power causes fall in sales of consumption goods so that higher profit margins do not result in higher profits.

Like Keynes he too found the seeds of increased employment in increased investment. He further points out that if a spontaneous increase in investment is possible, it must be possible to have carry it out by different government schemes for investment, which will relieve unemployment and increase consumption as well. Kelecky avoids the problem of equality between savings and investments. He simply agreed on the fact that the equivalent of investment outlay is added

to profits. Kelecki's weakness lies in the fact that he did not consider multiplier as an adjusting mechanism.

However, all these theories are concerned with the rich industrial countries. Poor and underdeveloped countries are spared this particular scourge, because they still have plenty of investment opportunities and their poverty keeps the rate of saving low. According to ultra modern i.e. post keynesian theory, disguised employment exists in underdeveloped countries (UDC), typically and critically in agriculture. By disguised unemployment we mean those labourers who can be removed without reducing the aggregate output, i.e. these are the labourers whose marginal productivity is zero or negative.

The disguised unemployment and underemployment is not curable in the same easy method in under developed countries as is possible in industrial countries. A mere strengthening of effective demand by means of Easy Money Policy and Deficit Spending is not only insufficient but positively harmful (Haberler, 1977).

2.3 Work on Employment in less Developed Countries with Special Reference to India

The 1960s had already seen a growing number of developing countries include employment objectives in their developmental plans. Such concern was deeply rooted in countries like India, Pakistan and Sri Lanka, which had for long been confronted with massive and growing unemployment. But as the decade

drew to a close, concern over the steady deterioration of the employment situation and failure of GNP growth to have expected impact on poverty became more widespread. Therefore clearly, an increasing number of countries began to specify the increase in employment that was expected or hoped for as a result of the implementation of their development plans. Very often this was in the form of an aggregate employment target for the economy as a whole, which in short-term plans usually corresponded to the creation of enough additional employment atleast to match the projected increase in the labour force so as to prevent a worsening of the employment situation. Some plans recognised that the estimated increase in total employment would not be sufficient to achieve even the minimum target. Similarly in many African Countries, plans adopted a different approach, setting quantitative targets only for non-agricultural employment. Similarly, Argentine plans in 1969-74 aimed at a reduction in urban unemployment (Emmerij and Ghai, 1976). The use of this approach appears to have been dictated (atleast in part) by the concern over the urban employment situation and over the growing numbers of young people seeking wage employment outside of agriculture. There was also an underlying realisation that the traditional concept of "unemployment" and jobs was applicable mainly to the modern urban sectors only.

In this regard Arthur Lewis's contribution to deal with the problem of surplus labour is important. The essence

of his model is that wages in the modern sector are based on the average product of labour in the traditional rural sector. So to attract the labourers from the agricultural to the urban sector, wages should be somewhat higher. At this higher wage rate, the modern sector can call for as many ~~as~~ labourers as they want to. Further, his model suggests that wages shall not increase with increasing productivity, rather with increasing capital intensity, productivity and profit. This increased profit should then be limited in capital widening for the industrial sector so that the demand for labour continues and more and more industrial workers are employed at a constant real-wage. Finally, when all the surplus labourers are absorbed, wages start rising. However, we feel that the limited amount of unemployment say 5% is totally necessary to keep the prices in control which in return deter the inflation of wage to gain over all objective of welfare. Lewis's model, however, has not been of much help to these developing countries. The wage rate in the modern sector is much higher than 50% (as suggested by Lewis) than the average family income in the rural sector. In fact, the inflow of labourers in the sector is too great to be handled. Contrary to Lewis's model, an exceedingly high rate of unemployment has materialised in modern sector, due to induced demand for manufactured goods. It is mainly because the rate of urbanisation has been too high these days. Added with this is the

widening income difference between the rural and urban wages. Fundamentally, it can be submitted that the growing rate of open unemployment in the urban areas has been due to a premature increase in the industrial wage level combined with a premature reduction in agricultural employment (Callaway, 1968)¹.

The urban wage rate has increased not by the real earnings of agricultural labour but by the government and union activities (Lewis, 1954)². Further minimum wages regulation has been influential in raising the urban wages and in having a great impact on the total wage structure in a developing country.

Although the Lewis model envisages sufficient capital widening investment in the industrial sector to employ labour, the actual result has been a substitution of capital for labour in the modern sector. During 70's a highly protected

¹ In Africa, the unemployment among school leavers is one indication of this. Not only are there school leavers within the city, but also those who attend schools in villages reject the traditional occupations on the land and migrate to the cities in search of wage-paid jobs. See A. Callaway "Education Expansion and the Rise of Youth Unemployment" in P.C. Lloyd et al. (eds.), The City of Ibadan, Cambridge, 1968, pp.197-209.

² Lewis did recognize the effects of minimum wages and union action as being among the various possibilities that could cause the process of absorption of surplus labour from agriculture to come to a premature halt: Lewis, "Economic Development with unlimited supplies of Labour". The Manchester School of Economic and Social Studies, May 1954, pp.172-3. But the model as explained in Chapter III above, is allowed to run its course without the restraint coming into effect. In the Development Planning, however, Lewis does concentrate more on the resultant unemployment, pp.76-87.

urban based society has been generated without having much effect on employment generation.

Contrary to the model, wage rates in many of the less developed countries (LDCs) have actually risen more rapidly than productivity. Real wages have risen at rates comparable to those in the advanced industrial countries. But whereas in the industrial countries real wages have increased roughly in line with average national productivities. The rise of wages in the developing countries often implies an increase considerably faster than that in real national product per capita (Turner) (this may be due to unrestrained inflation). In many African and Latin American countries, average real wages in the urban sector have been rising some 4 to 5% per annum, compared with an increase in real product per capita of only some 1 to 1½% per annum (Turner). This has resulted in using capital intensive techniques, which is labour-saving. Capital intensive methods of production have also been subsidized by other price distortions - especially through low rate of interest and too low price for foreign exchange. This is often intensified by inflation which lowers the real rate of interest below the nominal rate. Thus the actual course of industrialization has deviated considerably from Lewis's model of development with unlimited supply of labour.

From the point of view of employment and output there has been a controversy among the economists. Recent

theoretical and empirical literature on this question mainly focus two issues:

- 1) A lag between the growth and employment is inevitable. This view illustrates the conflicting cases and
- 2) A lag between these two can be increased simultaneously.

Some economists have concluded that the conflict between the objective of maximisation of output and employment is inevitable. According to this school of thought technological and wage rigidities, low elasticity of substitution between labour and capital, market imperfections, savings and investment hypothesis, consumption pattern and faulty strategies of growth pursued by the government are responsible for the conflict (Kadak, 1985).

According to Costa and Mouli (1974) there is a trade off between output and employment. Output now or later is the main issue in this respect, e.g. lower output now may reduce the saving, the rate of growth of employment and output. The technique which maximises the current employment may lead to lower employment in future. They have also highlighted this issue in the context of non-homogeneous factors of production. This output cannot be increased by increasing the labour input and keeping capital constant. Because capital is embodied in specific pieces of capital equipment in most of the developing countries. Eckaus (1955) has examined the factor proportion problem in under developed areas. He has remarked

that the conflict is due to factor price distortions and structural disequilibrium at the factor level. Mazumdar (1977) has expressed that the present capital stock and wage fund are important reasons for the conflict. Dandekar and Rath (1971) have also pointed out that saving optimization goal will generate employment in the long-run. Higher rate of growth can be achieved at the expense of the current rate of unemployment and consumption. Berry (1973) has explained the issue in different perspective. According to him the consumption pattern prevailing in developing countries is one of the crucial factors responsible for increasing unemployment. The unequal distribution of income leads to such consumption patterns which themselves stimulate the sophisticated technique.

Most of the empirical studies have supported the phenomenon of growing gap between output and employment. Sethuraman (1971) has examined the trends of growth of output and employment for the large-scale Indian Manufacturing sector for the period 1950-64. The empirical findings show that employment has increased at an annual rate of 6% or little more, while the real value added has increased at an annual rate of 10% and the capital stock at an annual rate of 17%. Thus the growth in employment lagged behind the growth of value added and capital stock. Baer Warner and Harvey (1966) have examined the issue of employment and industrialisation in developing countries. The findings show that the employment has increased merely by one per cent in manufacturing

sector in India between 1951-61. The increase in capital intensity in new industries as well as in traditional and labour-intensive technique, modernisation of old capacity in a more modern way and rigid factor problem are seen to be the main factors responsible for the conflict. Planning Commission (1978) has also taken note of the conflict between output and employment in draft Sixth Five Year Plan 1978-83. Investment and output have grown at a high rate but the product-mix and the technique-mix have been so capital intensive that employment did not grow pari-passu. Between 1961-71, in the modern sector investment increased by 139% and output by 161% but employment increased only by 71%. Thus employment per unit of capital declined by 28%.

Mitra (1974) has examined the trend between value added and employment in Indian manufacturing sector for the period 1960-65. The empirical findings reveal that the output has increased by 59 points but employment increased only by 36 points between 1960-65. The trend rate of growth between the value added and employment was 9.0% and 6.4% respectively. Mukhopadhyay's (1966) findings are similar and support the conflict between output and employment. The study is related to Indian Economy for the period 1950-51 and 1959-60. Diwan and Gujrati (1968) have highlighted this issue in a new perspective. They have come to the conclusion that the conflict is not due to the size of the industries but it is due to the

size of the ~~industries~~ but it is due to the lack of substitutability in the production structure itself. The important implications of the above conclusion is that large-scale industries are not responsible for the conflict between output and employment as generally believed but the production structure is so rigid that factor substitutability is not possible in large as well as in small industries. Bhalla's (1965) study of hand pounding vs. machine milling shows that the conflict is inevitable. The farmer is superior only in respect of employment generation since greater employment does not lead to a greater corresponding increase in total output. Gujtav Ravis (1971) has examined output and employment trend in 1970s. He has come to the conclusion that employment has lagged behind output and elasticity of employment with respect to output is not only low but has been falling. The erroneous strategies pursued by the Government for maximising the output has resulted in capital deepening. Williamson Joffery (1973), has examined the growth of output and labour absorption in Philippines. The empirical findings show that the labor absorption in Phillippines is very low due to the low employment elasticity with respect to output, a shift in the industrial output structure in favour of capital intensive products, a rise in real wages, cheap capital, labour-saving bias in technical change and a very slow response of employment to capital accumulation.

According to some economists the goal of maximisation of output and employment are not incompatible. From the point of view of output and employment, it is said that the capital intensive production involve lower capital cost per unit of output than the labour-intensive methods (Gustav and Rawis, 1971).

This position is as extreme as the other. There is considerable evidence that in many industries and in processes, the more labour-intensive methods also save capital per unit of output (Williamson Joffery, 1971). In these cases, maximising employment and output are consistent. Probably of more significance is the possibility of devoting research and development efforts to the labour-intensive methods. So that they become efficient and can be compared with capital intensive methods (Rawis Gustav and Fei, 1963).

In fact, many economists opined that both output and employment can be increased simultaneously, or the gap between the two can atleast be minimized, e.g. Rawis and Fei (1963) have examined the employment trend in the industrial sector. Their main conclusion is that the labour absorption is the inverse function of higher innovational intensity and positively related with labour using bias. Japan and other countries have succeeded to avoid the conflict by adopting labour using bias innovation. Stewart and Streeten (1971) have found that the conflict does not arise between output and employment. The observations of a large number of countries reveal that

generally there is a positive association between growth of output and employment. Thus we are thinking in terms of functional relationship among employment, output and investment since employment and productivity are inherent in one another. The path that maximize the growth of output will also maximize the growth of employment but the output growth will be greater than employment. Similarly Franklin (1969) has found that there is no conflict. More output will increase more employment. Prasad and Rao (1977) have quoted Mathur's study. Mathur has pointed out that the employment objective need not conflict with maximising the growth rate of output. Choice of appropriate technology and product-mix can remove the conflict, e.g. consumer goods sector generate a greater volume of employment per unit of investment as well as a larger rate of growth of the economy.

Basically, the underutilization of labour was attributed to the lack of capital equipment. To augment its supply in the shortest feasible time, the Mahalanobis model proposed to increase not only the rate of investment but also the share of investment devoted to basic and capital goods industries. This bias was carried over to successive plans. It is felt time and again that the selection of projects has not been guided by a proper cost-benefit analysis and further that lack of complementary investments often prevents exploitation of the full productive potential of the schemes. The main reason

for asking for industrial development in an area is the possibility of diversification of employment structure and the creation of centres of high productivity and high wages, which can then provide the base for further development and diversification of economic activity. It is absolutely essential that the employment benefits from new manufacturing activity promoted in backward areas should accrue to persons from those areas and the secondary/tertiary benefits that flow out of industrial development are availed of by local entrepreneurs and local labourers.

Backward areas are characterised by a subsistence economy with stagnation of technology, low productivity and low income. These areas suffer from the fact that the growth impulses from centres of modern manufacturing have not percolated down. As a consequence the rapidly growing population has to be absorbed somehow or the other in the traditional sector leading to a high dependence on agriculture and traditional crafts and a low income per workers. This lack of purchasing power acts as a further inhibition on the development of industries. It is, therefore, necessary to break this circle by generating growth impulses within these areas.

Raw material based manufacturing activities will, of course, generate growth in the sectors supplying the raw material. But besides this direct effect modern manufacturing activity has a more wide ranging impact on growth. The importance of industrial employment in generating strong

growth impulses on all sectors arises for a variety of reasons. The first is the relatively high levels of income in industry. According to the data collected in the annual survey of industries, the average earnings per employee in the organised factory sector was Rs. 5900 p.a. in 1977-78. A large percentage of families in backward areas will be below this level and a substantial increase in industrial employment can lead to a significant increase in consumption standard. Thus the relatively high level of earnings in the modern manufacturing can generate demand for agricultural produce and other consumer goods, which can stimulate agricultural producers, small industries, trading and other service activities.

The second way in which modern manufacturing employment can stimulate growth impulses is by the upgradation of local skills. Modern industries require a larger number of skilled workers than agriculture or traditional manufacturing industries. Though the basic skills required by industrial workers have to be acquired in training establishments, the influx of industries into an area improves matter in several ways.

Firstly, it means that the trained persons will not have to migrate out of the area to seek work elsewhere.

Secondly, industries provide opportunities for on-the-job training through apprenticeship and other means.

Thirdly, the presence of industries can lead to an upgradation of technology in local workshops and similar establishments. The upgradation of skills brought about by the influx of industries can lead to further growth impulses in the form of technician based small industries, besides facilitating the further expansion of manufacturing employment in the area.

The third way in which the influx of industries generate further growth impulses is through the stimulus that it provides for the development of ancillary units. The backward linkages of industries vary greatly but just about all medium and large units require some manufactured inputs which can be made locally. The most obvious instance is provided by packing materials like crates, paper boxes, tin cans, sacks, bottles etc. Besides, these, engineering units may require sub-assemblies or components, textile units will require textile stores and almost all units will require a variety of stores and spares. Many of these requirements create a suitable base for ancillary development which can be taken up in backward area itself.

The fourth way in which manufacturing activity generate growth impulses is through the stimulus that it provides for the development of service for industries, e.g. the growth of industries can lead to the development of trucking and freight forwarding services, repair and maintenance services, trading

services for industrial stores. All these make it easier to undertake further development not merely in the manufacturing sector but in others like agriculture and trade craft.

The sharp increase in income brought about by additional industrial employment can have a dramatic impact on other sectors. To illustrate the point it may be noted that 5000 additional jobs in the factory sector at a wage of roughly Rs. 6000/- p.a. may mean an additional income in the region of Rs. 2-3 crores. This addition in consumer demand, if directed to local agriculture, service, village and small industries can generate a volume of additional employment and help to dynamise other sectors of economic activity (Planning Commission, Govt. of India, 1980).

However after all the planning and its implementation the total number of enterprises now have reached the very large figure of 16.90 million and employment generated is 50.82 million which reduces the average employment to just 3 per enterprise (Economic Report, 1986). It is also now possible to see which are the biggest givers of employment in the country : Manufacturing and Repair services lead with 5.9 million units at the time of the Census (1980-81) with about 20.1 million jobs. So it dominates the employment picture. However, there are other areas of high employment picture, e.g. whole sale and retail trade which had over 6 million enterprises gave no less than 10.23 million jobs. Community, social and personal services also gave a very large

number of jobs at 13.13 million in nearly 3 million enterprises. Remarkably, among the intensive employment givers will be found in restaurants and hotels, which in 807,000 enterprises gave 1.19 million jobs. One might conclude that aggregate rank order of magnitude of employment has been in the following order. Manufacturing and repair comes first in providing employment. The financial and business services are also significant givers of employment.

Another matter of great concern is the effect of the structural change in output growth and employment generation. Employment growth in private sector employing 10 more workers increased by 0.66% in 86-87, while it grew in the public sector by 4.9% and 2.3% in the respective years. This clearly suggests particularly in the context of private sector that high output growth was achieved substituting capital for labour in a country where there exists massive unemployment and underemployment (Sarma, 1989).

This is the background in which the sluggishness in the growth of jobs in the urban sector and the almost complete stagnation in the agricultural sector in Indian economy is to be judged.

2.4 Employment in Meghalaya

Meghalaya with its relatively less population pressure on land should have done better in planning its employment

programme. However, it is accepted that quite a large number of workers are forced to remain jobless both in rural and urban areas of Meghalaya.

The economy of the state is largely dependent upon agriculture which employs about 72.6% of the states total working force (Economic situation, Govt. of Meghalaya, 1989-90).

The growth of employment opportunities in the non-agricultural activities is not very encouraging in the state. It is mainly because in an essentially agrarian setting comprising of scattered rural areas in a sparsely populated terrain, the progress made in the setting-up of industries can hardly be measured by the normal yardstick to other developed states.

The major portion of the state's domestic product originates from agriculture and allied activities. Even then agriculture is very underdeveloped. Their mainstay of the economy is shifting cultivation. It might have been ideal system in the earlier days. But with growing pressure of population, it has become destructive and is unable to support the increasing population. Similarly, most of its forest growth is subjected to shifting cultivation.

However, a number of important changes are occurring in the socio-economic scene of Meghalaya as a result of

successive five year plans. The major thrust of the programmes so far has been for developing infrastructure. Investments are made for improving the structure but the growth is not impressive at all.

In the secondary sector, some beginnings have been made in cement etc. But the proportion of population in this sector has remained constant over the decades and may even decline as the household and village industrial sector faces new challenges from machine-made goods with the fast-opening up of the area (Sharma, 1984).

However, the tertiary sector in the region has grown at a very fast rate. The spread of education and health services is reasonable which is a welcome feature. However the rest of the tertiary sector comprises government and semi-government establishments. Much of these is strictly not necessary and partly unproductive although it has helped in absorbing the growing numbers of educated youth. But this has been instrumental in arousing wrong expectations and will lead to wide-spread frustration in the later years.

Thus Meghalaya's socio-economic scene is passing through a critical phase. It is highly imbalanced. There is an extremely weak primary sector, a near non-existent secondary sector. It's only support is large central subventions. There is no clear perspective plan for acquiring self-sustaining capabilities in near future.

Therefore, the planning frame for Meghalaya has to be distinctive. The investments should be made for productive purposes and future growth and all the programmes should be labour-extensive like forestry, plantation crops, horticulture, animal production, etc.

Industrial growth in the secondary sector, which has always got the last seat in Meghalaya budget, should be planned with a clear appreciation of its minor role in terms of overall employment potential in the foreseeable future. Simultaneously the traditional household and village industrial sector has to be provided protection and support so that the overall share of the secondary sector in the state economy does not decline.

How far the secondary sector will bring forth the economic growth depends upon the varied resource bases and developmental potential. Again resource-endowment and developmental potential vary between hills and plains.

S.S. Khankar's study on employment in Kumaun hills of U.P. (Kankana, 1986) can give us ideas about the possibility of such growth in the secondary sector in a hilly state like Meghalaya.

It is seen that there is dearth of productive employment opportunities in Kumaun hills to serve the local manpower. So poverty and unemployment are stalking the land.

Realising the widely held belief that the economic development of every region is mainly determined by the degree of industrialisation achieved (United Nations), the industrial sector is looked upon to generate employment opportunities to solve the twin problems of poverty and unemployment in the Kumaun hills also. The state government has declared it as 'special category' districts' for getting certain incentives and concessions to establish industries. As a result, there has been a special drive to locate the so-called material light and skill intensive industries, for whom, it is advocated, ~~that skill intensive hill areas offer the most suitable climate conditions.~~

His findings show that such boost for new technological growth is most welcome for employment growth and development. But it is not the only answer. In fact, when a sophisticated technology-based industry is located in a backward area problems of training and discipline arise (Kalbagh, 1985). It is not because^{of} the lack of industrial culture, but is really because of the lack of skills.

He also observed the poor infrastructural facilities available to this part of the country. The building of economic infrastructure such as roads, power houses, premises etc. in the hills has had an impact which is far from totally positive and thus hampers the overall regional development.

Also if the industries are not opened on real need basis but on the basis of political bargaining, the lurking victims are bound to come to the regional hedge. Such evils have been observed there in Bhimtal region of Kumaun, which has resulted in social tension between the local people and the outsiders.

In order to make the industrial technology more and more relevant to the overall regional development, some facts are to be kept in view. Should industrialization become necessary, comprehensive and perspicacious risk and technology assessment be undertaken and thorough social, economic and environmental cost benefit analysis be carried out before embarking on any industrial venture. In order to provide the maximum ~~may suit~~ industrial needs of the region, the lines of training programme should match with that of the recruitment of manpower in the industries introduced. Special features of the hill areas should also be taken into account in structural aspects of location and construction. Because it is one thing to balance an empty basket upon one's head and quite another to balance that when it is loaded. In sum, the very relevance of new industrial technology to the regional development would be to develop the region without destruction of nature and soothing social tensions; if not so, at least to maintain the hills status quo.

Therefore, appropriate industrial technology is always welcome, because an uniform egalitarian economic development must be balanced by locating industries to ensure objective of equitable distribution of consumption income.

Meghalaya has the potential of becoming a self-sufficient economy with investments in the proper field. This paper would try to study the growth of employment by sectors, first in order to get some idea of the industries that were reducing employment, and second to understand as best as we can the forces responsible for the employment absorption capacity of the various industry sectors in the past. This would facilitate an understanding as to why unemployment for the economy had increased. In addition, some plausible expectations about future employment-demand situations may enable us to specify the types of policies that should be studied or recommended.

To study the forces responsible for labour-absorption by industry, we can relate the growth rate of employment (G_n) to the growth rate of income and investment. There is one analytical advantage in relating the growth of employment (G_n) to the growth of income (G_y) and investment as there exists a causal relationship among employment output and investment.

In this paper, we shall concentrate on finding the demand for employment (which will be considered as a function of output and investment, and the trend factor in two separate

models) for various economic sectors. An understanding of the demand for employment is essential for the analysis of serious policy and planning question.

In Meghalaya, no such demand for employment growth or trend of growth of employment has been studied so far. This gives us the need as well as the scope of studying this problem in Meghalaya.

Chapter III

Data Base

3.1 This chapter deals with data and its source. The study is based on secondary data, collected from the various government departments. The main source of data has been the Planning Commission, the Directorate of Employment, the Directorate of Economics and Statistics, Government of Meghalaya, which publishes various statistical journals like Basic Statistics for Meghalaya, Statistical Abstracts, Statistical Handbook of Meghalaya, the Census Reports, Meghalaya 1971, 1981. So while collecting data, we had visited the above mentioned offices and had requested the officials to help us by supplying published data from their records. In complying with our requests they facilitated us in getting the necessary informations. ,

3.2 The present work aims at estimating the growth trend of employment as well as the employment demand by the different economic sectors of Meghalaya.

For estimating the quantum of employment in different economic sectors one needs information about the employment data, the gross state domestic product from different industrial groups, and capital utilised in different sectors or sectoral investments.

3.3 Data on Sectoral Employment

It was very difficult to obtain the secondary data (year to year) for the cultivators and the agricultural

labourers of Meghalaya. Keeping these aspects in view, it was decided to segregate our study into different sectors, e.g. while finding the employment demand for different industrial groupings we followed the following industrial classifications for which the year to year data are available :

- 1) Forestry and Plantation
- 2) Mining and Quarrying
- 3) Manufacturing
- 4) Electricity, Gas and Water Supply
- 5) Construction
- 6) Transport, Storage and Communication
- 7) Services

For classification of industries, we have followed the general stipulated industry-wise classification. However, for simplicity's sake, trade, hotel, restaurants, Banking, Insurances, Real Estates, Ownership of dwelling and business services, public administration and other services have been grouped together under one broad sector called the service sector.

Manufacturing sector consists of both registered and unregistered groups. Thus altogether we have the above seven broad groupings for all the sectors of the economy.

The Directorate of Economics and Statistics supplied us with statistical journals like statistical handbook etc. From these we have got information about employment in different industrial groups.

In this connection, a worker has been defined as a person who participates in any economically productive activity. Such participation may be physical or mental in nature. Work involves not only actual work but also effective supervision and direction of work.

While deciding whether a person is a worker or not, certain important points were kept in mind and they are :

- 1) a person who normally works but has been absent from work during the reference period on account of illness, holiday, temporary closure, strikes, etc. was treated as engaged in work.

- 2) Persons under training such as apprentices with or without stipends or wages were treated as workers.

- 3) A person who is merely been offered work but has not actually joined, was treated as a non-worker.

- 4) A man or woman who is engaged primarily in household duties such as cooking for any household, or a boy or girl who is primarily a student, even if such person helps in the family's economic activity, if he or she is not a full-time worker, was treated as a non-worker.

- 5) If a person is essentially engaged in some primary economic activity in major part of the year, but also attends to some household chores, he is categorised as a worker.
- 6) Pensioners and persons who receive rent as their source of livelihood were treated as non-workers.
- 7) A woman who is engaged in household duties but is also doing some economically productive work like rice pounding for sale etc. was treated as a worker.
- 8) Full-time public or social service worker who is actively engaged in public service activity or full-time political work like members of Parliament, State Legislature, local authorities were also treated as workers.

After defining the term 'workers' we attempted to collect data on employment in different industrial groupings. But here too we had problems regarding the completeness of data, because in the Statistical handbook of Meghalaya, prior to 1980, the industrial classifications were not made in the stipulated format. So, for data on employment earlier to 1980, we had to depend on the files from the Directorate of Employment. Besides the Statistical Handbook 1987, being the last publication of the Directorate of Economics and Statistics, the latest information were gathered from the files of the Directorate of Employment. However, the officials being very helpful and cooperative, we had no problems in collecting them. Thereafter, the raw data from the different sectors were grouped according to the classification of our study (Table 1).

The maximum employment is generated in the service sector. The most important sector for providing employment has been the construction sector. But from 1986 onwards, Electricity, Gas and Water supply is providing far more employment than Construction. Employment in manufacturing has increased from 1609 in 1976 to 2063 in 1988. However, employment in this sector reached its highest figure, i.e. 2412 in 1985 and then it gradually started declining. Employment in Transport, Storage and Communication showed an upward trend till 1983 and then there had been a steady declining trend till 1988. Employment in forestry and plantation has been growing but the percentage of growth is very low. Employment generated in Mining and Quarrying is quite insignificant compared to the total Employment figure. This sector, too, found an upward trend till 1985, then there was a fall for the next 2 years. However, 1988 showed some significant addition of employment in this sector.

3.4 For further remarks on sectoral employment growth in Meghalaya, we depended on 3 broad industrial groupings of workers. Here we have concentrated on three broad groups to present the distribution of workers into cultivators and agricultural labourers, workers engaged in household industry and other workers. The data used in this study are from the censuses (1971, 1981). Census data are arranged in table 2. It shows the percentage growth rate of work force in 3 different economic sectors. From table 2 (refer appendix), we

find the decadal rates of growth of employment in all the three sectors maintained more or less the same growth rate.

3.5 Data on Sectoral Income

In the Directorate of Economics and Statistics, we collected data on Nett State Domestic Products (New Series), for ~~one~~^{the} years 1980-81 to 1986-87. Published data on income from different sectors were given in the general industry-wise classification form, we grouped them according to our present classification. However, data earlier to 1980-81 could not be obtained due to its non-availability (Table 3) (refer appendix). So it had been projected from 1977-78 onwards.

From this table it is clear that the most remunerative sector is the service sector being followed by Forestry and Plantation, Construction works occupy the third position being followed by transport, communication and manufacturing respectively. Electricity and water supply is running at a loss mostly by earning negative income.

3.6 Data on Sectoral Investment

For this we have mainly depended upon the budget papers of the Government of Meghalaya. The source has been the Planning Commission, Meghalaya. But, once again we face some problems regarding the completeness of the data since the book we consulted was Budget at a glance and its latest publication was only till 1983 (Table 4, ref. appendix). However, here too the

maximum State Government expenditure is allocated to the service sector.

The next sector expenditure-wise has been Agriculture and allied, being followed by Transport and Communication, Industry and Minerals, Water and Power respectively. There is no separate classification for Mining and Industry or for Construction works.

3.7 Data on Educated Manpower

Table 5 (see appendix) gives the percentage of literate and educated persons by the level of education in Meghalaya. Here the source of data have been the Census Report Meghalaya, 1971, 1981.

Since employment and education are interrelated with each other, we have tried to examine the above table in the light of our present study to find the demand or need for changing the present educational structure.

For our data, a person who can both read and write with understanding is to be taken as literate. A person who can read not write is not literate (Census Report, 1971).

The test for education was that the person should have passed a written examination or examinations as proof of an educational level attained. The highest examination passed was taken as the level of education.

From this table we find that though there has been some increase in case of general education, the state lacks professional or vocational people.

Since the study is based on the secondary data, we did not have much problem in collecting them. But non-availability of many recorded figures as well as the non-availability of suitable tabulation of data^{were} recovered through our own projection and estimation.

Chapter IV

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Methodology and Empirical Findings

4.1 Introduction

The problem of employment has been the main concern of this study. We have tried to study the problem from different angles, and accordingly the first section of this chapter tries to find out employment growth as a function of investment and output. In the second section we have tried to find out the growth of employment as a function of the trend factor alone.

While discussing such functional relationships, we have made a study of the different sectors of the economy. Thereby, the third section deals with the problem of structural change in employment.

The last section is concerned with education and employment. A generalised concept of capital accumulation includes such diverse activities as 1) adding to physical capital, (2) increasing the health discipline, skill and education of human population, (3) moving labour to more productive occupation and location, (4) applying existing knowledge or discovering ideas to increase the efficiency of the production process. The concept of economic development as a general process of capital accumulation with the combination of capital of various types, should take cognisance of the complimentary and substitutive relationship between them. The complimentary relationship between human

and non-human capital becomes more obvious in a developing country where the introduction of modern technology in various sectors of the economy requires not only additional investment^{in capital goods}, but also additional investment in education and training to increase knowledge and skill for efficient participation in the production process. Examples abound in developing economy where introduction of modern technology without concurrent development of human skills and knowledge has led to delay, bottlenecks and slowing down of the pace of development. (Mishra, 1988). Therefore, the demand for education from the employment point of view has been discussed in the fourth section of the study.

4.1.1 Section I

The macroeconomic modelling exercise reported in this section, is primarily concerned with the growth of employment in Meghalaya (since 1977-78). Its focus is on the employment as a function of the rates of investment and output. Economists believe in the notion of a strong complementarity between growth and employment. If we desire to have a higher level of production, *ceteris paribus*, we have to employ more men. So also the increased investment, which is followed by increased production, means employing more people. Hence a higher level of income as well as investment are associated with a higher level of employment.

Thus the volume of employment can be determined with reference to the functional relationship among income (production), investment and employment.

In our study, we have attempted to compute the employment demand for Meghalaya as a function of output (income) and investment. For this we have taken 11 years data extending from 1977-78 to 1987-88.

4.1.2 Data

The basic data for this study consists of time-series on employment, output and investment, disaggregated by the industrial sectors.

In this connection it is to be noted that the employment totals have been estimated on the organised sector of the economy of Meghalaya. Data on Agricultural employment which is the prime occupation of Meghalayans (being in the unorganised sector) are not available on a year-wise basis either in the Directorate of Economics and Statistics, agricultural department, NEC or in the Directorate of Employment. Therefore, the author has been suggested by her supervisor to take 40% of the total population as the employment figure in agriculture. This figure is justified since most of the food items, i.e. atleast about 60% is imported from outside and most of the popular crops in Meghalaya are horticultural. Only in a few pockets, where wet cultivation is practised (which are very few) production of rice and other food crops are possible. Besides, here in Meghalaya, some crops could not be grown at all during the winter season and there exists a lot of seasonal unemployed. The fact is that the cultivators employ the agricultural labour only in the boom period

when weeding, harvesting of farm crops are at their peak. After that they are forced to return to their places where no employment opportunities are available. On sentimental and social grounds, tribals do not like to leave their native places permanently. Therefore they have little economic viability in view of the rampant unemployment, underemployment and the low rates of wages. So, we have considered only 40% of the total population engaged in agriculture as productive employment in truly economic sense.

It may be mentioned that for the purpose of the present study, we have analysed not the basic series but the adjusted series.

For the sake of convenience industrial groups like, wholesale and retail trade, restaurants and hotels, finance insurance, construction, real estate and business community, social and personal services and administrative services have been grouped under a broad heading called the service sector. For this matter, all the figures under these headings have been added together yearwise.

Data for mining and manufacturing too, are added together to form one group.

The employment data runs from 1976 to 1988, whereas the output and investment series starts from 1977-78. The data on employment relates to the calendar year, which ends by the 31st December. But, data on output and investment corresponds

to the financial year ending in the month of March. Thus the analysis required calculation of moving averages of employment data, so as to have similarity with the other data. Hence, we have 11 observations in all since our study focusses on the period 1977-78 to 1987-88.

Regarding the employment data, both organised and unorganised sectors are included. However, data relating to the number of job seekers, vacancies occurred and notified and shortage of manpower, are collected through the normal Employment Exchange operations. The information relating to the number of job-seekers may not reflect the actual picture of employment situation, as because, the registration with the employment exchanges is not compulsory. Besides, employed persons are also allowed to get their names registered with the employment exchanges for better jobs. Some of them may do so by not revealing their actual status of employment -- which may inflate the unemployment figure to some extent.

Besides it is difficult to calculate data in the private sector e.g. construction etc., due to the importance of casual employment and the considerable amount of unauthorised building activities in the private sector. Thus, the data on employment are likely to be under estimated in this category.

4.1.3 Data on Output

Data on output for different industrial groups are available from the year 1980-81. These data are reliable as they are calculated from the new series available from 1980-81 onwards. As our study involves the period from 1977-78, data prior to 1980-81 was projected graphically (~~shown in the appendix~~). Besides, for convenient calculation, data expressed in terms of lakhs of rupees have been converted to crores instead.

4.1.4 Data on Investment

The main problems faced were with the Investment data. Here the expenditure heads had been different than the other two data tables. Only 5 broad groupings were made. So, we had to reorganise our employment and output data accordingly. We had to restrict our analysis only to 5 sectors. Thus, instead of 7 industrial groups, 5 broad industrial groupings have been considered ultimately for this particular model.

4.2.1 Methodology for Empirical Analysis of Data

Regression Model

For econometrics of estimating economic relationship, the most important statistical tool is the regression analysis, since, the simple linear regression model aims at establishing one to one relationship between the dependent and the independent variables.

Income and investments are considered as important determinants of employment. So our respective demand function for employment has been estimated using the following model :

$$E = f(Q, I) \quad (1)$$

$$= a_0 + a_1 Q + a_2 I + U \quad (2)$$

where,

E = Employment

Q = Output

I = Investment

U = a random error variable distributed normally

a_0, a_1, a_2 = parameters of the model.

Total economy is disaggregated into the following 5 sectors, viz., 1) Agriculture and allied, 2) Mining and manufacturing, 3) Electricity and water supply, 4) Transport and communication, 5) Service sector.

No distinction is made between the Public and Private sectors as regard to Employment.

Since the focus is on the growth of demand for employment, it consists of equations (1) through (5).

Having estimates of the 'a' coefficients from the normal equations, we have estimated R^2 , which is given as :

$$R^2 = \frac{(E - \hat{E})^2}{(E - \bar{E})^2} \quad (3)$$

where $(E - \hat{E})^2 =$ regression sum of squares and $(E - \bar{E})^2 =$ total sum of squares.

The standard error of forecasts depends on the reliability of the regression coefficients a_i and on the size of the residual error variance σ_u^2 ,

$$\text{where } \sigma_u^2 = (E - \hat{E})^2/n \quad (4)$$

After estimating a_i 's in the linear relationship, we have assumed that the employment function is linear.

To find out the significance of the estimated parameters 'a', we have applied the 't' test at 95% probability level and with $n = 10$ degrees of freedom, the formula, for which is as follows :

$$t_{a_0} = \frac{\hat{a}_0}{\sqrt{v(a_0)}} \quad \text{or} \quad \frac{\hat{a}_0 - a_0}{\sqrt{v(a_0)}} \quad (5)$$

$$t_{a_1} = \frac{\hat{a}_1}{\sqrt{v(a_1)}} \quad \text{or} \quad \frac{\hat{a}_1 - a_1}{\sqrt{v(a_1)}} \quad (6)$$

$$t_{a_2} = \frac{\hat{a}_2}{\sqrt{v(a_2)}} \quad \text{or} \quad \frac{\hat{a}_2 - a_2}{\sqrt{v(a_2)}} \quad (7)$$

Testing parameters validates the conformity of the hypothesis with the sample of observed data.

4.2.1 Empirical Results

Employment demand function: Agriculture and Allied

$$E_{ag} = a_0 + a_1 Q_{ag} + a_2 I_{ag} \quad (8)$$

where

E_{ag} = Employment demand in the agriculture and allied.

Q_{ag} = Output from the agriculture and allied

I_{ag} = Investment from the agriculture and allied.

Using the data for 11 years starting from 1977-78 through 1987-88, the regression equation from the composite data is given below :

$$E_{ag} = 3.79 + 1.45Q + 2.94I \quad (9)$$

(33.67) (2.34) (1.07) $R^2 = .9694$

The figures within brackets are the respective t-values. While interpreting the estimates of the parameters and the criterion for significance, with $n = 10$ degrees ($11-1 = 10$ degrees) of freedom, for equation (9), the respective t value of a_i at 95% level of probability of significance, we found that a_0 and a_1 are highly significant but for a_2 , it is not so. However, this must not be taken seriously, since there may be sampling error in the observed data. Again, eleven years data are not sufficient to arrive at any definite conclusion.

Looking at R^2 , the co-efficient of determination which gives the percentage of fit of the regression equation, it is 0.96, which is very high. From that angle, we could see that the equation is a best fit, though the values of our parameter

a_2 , is not very significant. Therefore, another important thing we observed^{is} that both production (output) and investment are positively influencing employment. R^2 being .9694, we can say that changes in output and investment can explain as high as 96.94% of the total variation in employment demand in agriculture and allied group.

The estimated equations for all other 4 sectors are presented below :

$$E_{\text{min+man}} = 1.64 + 4.22Q_{\text{m}} + 0.21I_{\text{m}} \quad R^2 = .6023 \quad (10)$$

(5.06) (.57) (1.45)

where,

$E_{\text{min+man}}$ = Employment demand in mining and manufacturing group.

$$E_{\text{el}} = 3.4 + .15Q_{\text{el}} + 2.68I_{\text{el}} \quad R^2 = .8282 \quad (11)$$

(5.4) (2.20) (2.56)

where,

E_{el} = Employment demand in electricity sector

Q_{el} = Output in electricity sector

I_{el} = Investment in electricity sector.

$$E_{\text{t}} = 5.02 + 3.39Q_{\text{t}} + .22I_{\text{t}} \quad R^2 = .8229 \quad (12)$$

(.103)(2.99) (5.13)

where,

E_{t} = Employment demand in the transport sector

$Q_{\text{t}} + I_{\text{t}}$ indicate the output and investment in the transport sector

$$E_s = 30.45 + 7.97Q_s + 3.9I_s \quad (13)$$

(36.47) (3.50) (.098) $R^2 = .9569$

where

E_s = employment demand in the service sector. Q_s and I_s are the output and investment in the service sector, respectively.

Figures within brackets are the respective t values for all the equations.

Estimated equation for the manufacturing and mining group shows that excepting for a_0 , both a_1 and a_2 are insignificant, indicating that quantitatively neither investment nor output has much impact on employment demand in this sector.

For equation (11), all the parameters being significant it is quantitatively established that employment demand in this sector is determined by both output and investment.

The coefficients of both Q and I in equation (12) being significant, the employment demand can truly be called a function of both output and investment.

From equation (13) we find parameters a_0 and a_1 are highly significant but a_2 is insignificant statistically. That means here in the service sector the employment demand is determined more by output than by investment.

Therefore, for almost all the sectors, either output or investment or both are influencing the demand for employment.

As we have already mentioned the limitation of our study (since it comprises only 11 years data and there could be sampling error) which might have led us not^{to} find the exact functional relationship among the dependent and independent variables in some of the above equations.

In any case, the coefficients of determination or R^2 for all the 4 groups explained a very high relation between the demand for employment and investment and income in the respective sectors.

4.2.2 Graphical Representation

1) Looking at the graph (1) for agriculture and allied, we can possibly conclude about the proportion of response on employment increases with the increase in the size of investment and income. Our estimated employment demand curve has not varied much from the actual or observed employment curve. $R^2 = 0.96$ or 96% being a very high R probably explain for such a good fit.

2) The second graph is concerned with the manufacturing sector. Here too the trends of the two curves move in the similar fashion. However, we expect that the estimated line should be having a slope of higher magnitude making the line more steep.

This may be due to its R value which is only 0.6023 or 60.23%. This shows that the variation in investment and output

Eag = f(aI)

AGRICULTURE AND ALLIED

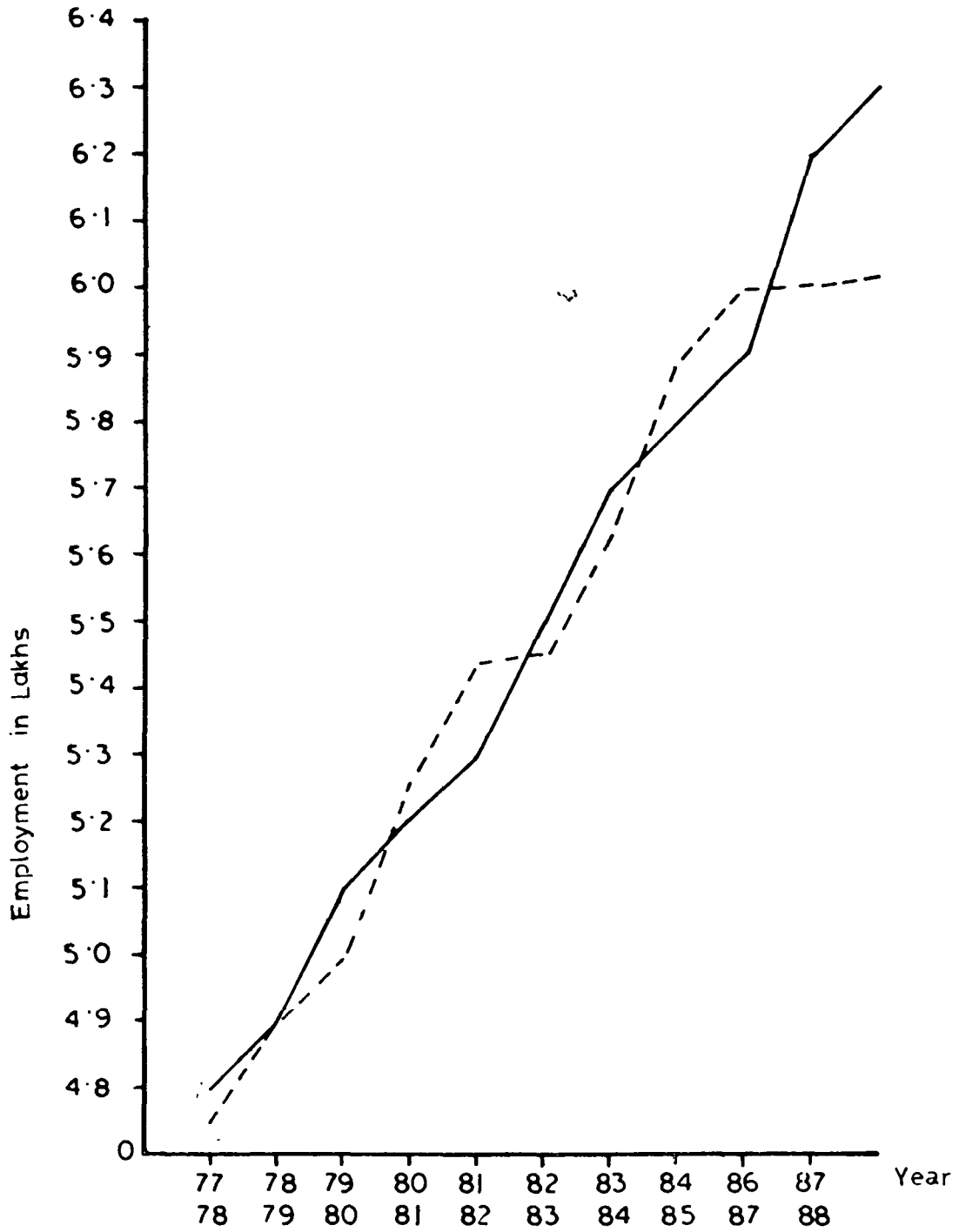
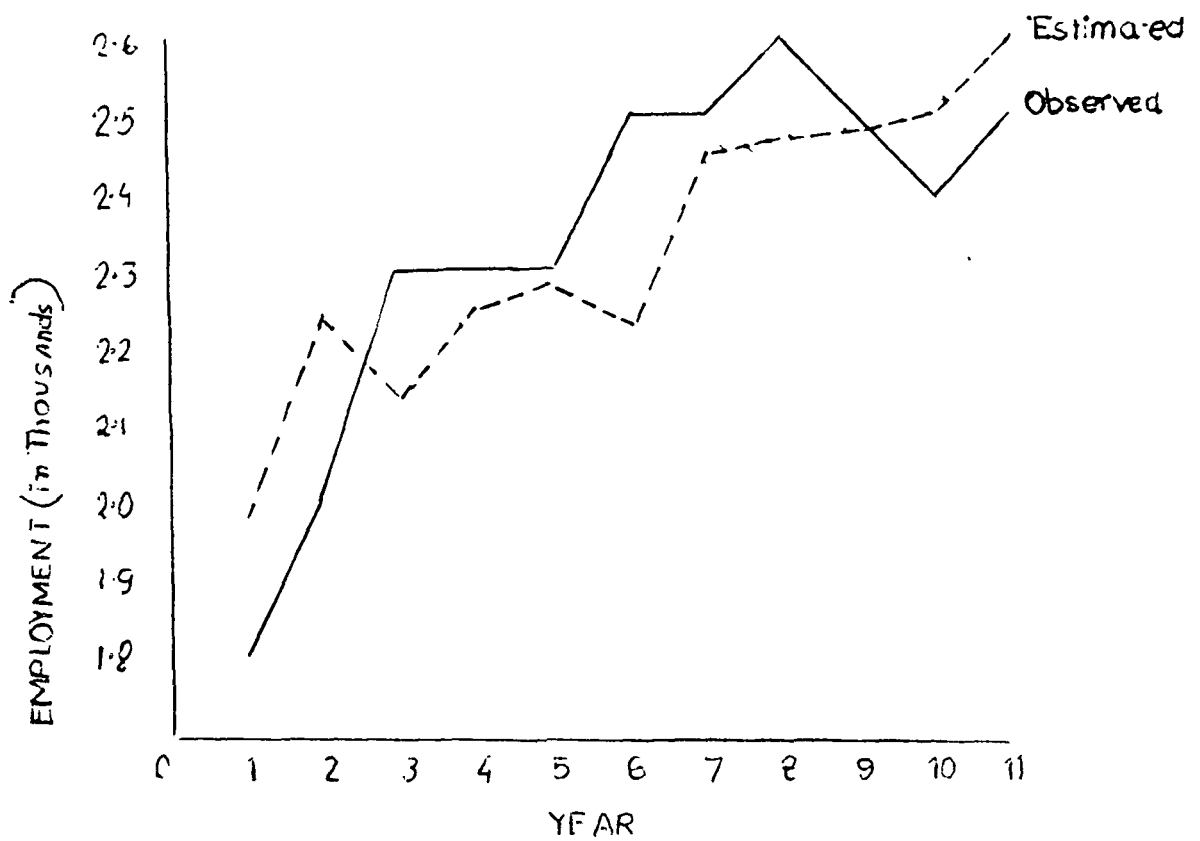


Fig.1

$$E_M = f(Q, T)$$

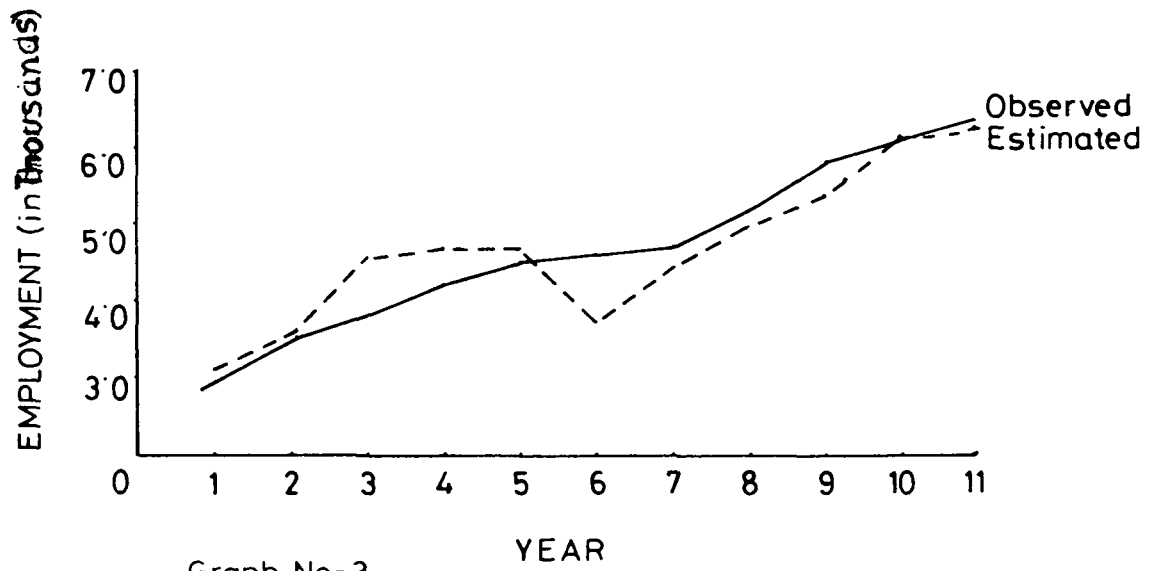
M.NING & MANUFACTURING SECTOR



Graph No-2

$$ELW=f(Q.I)$$

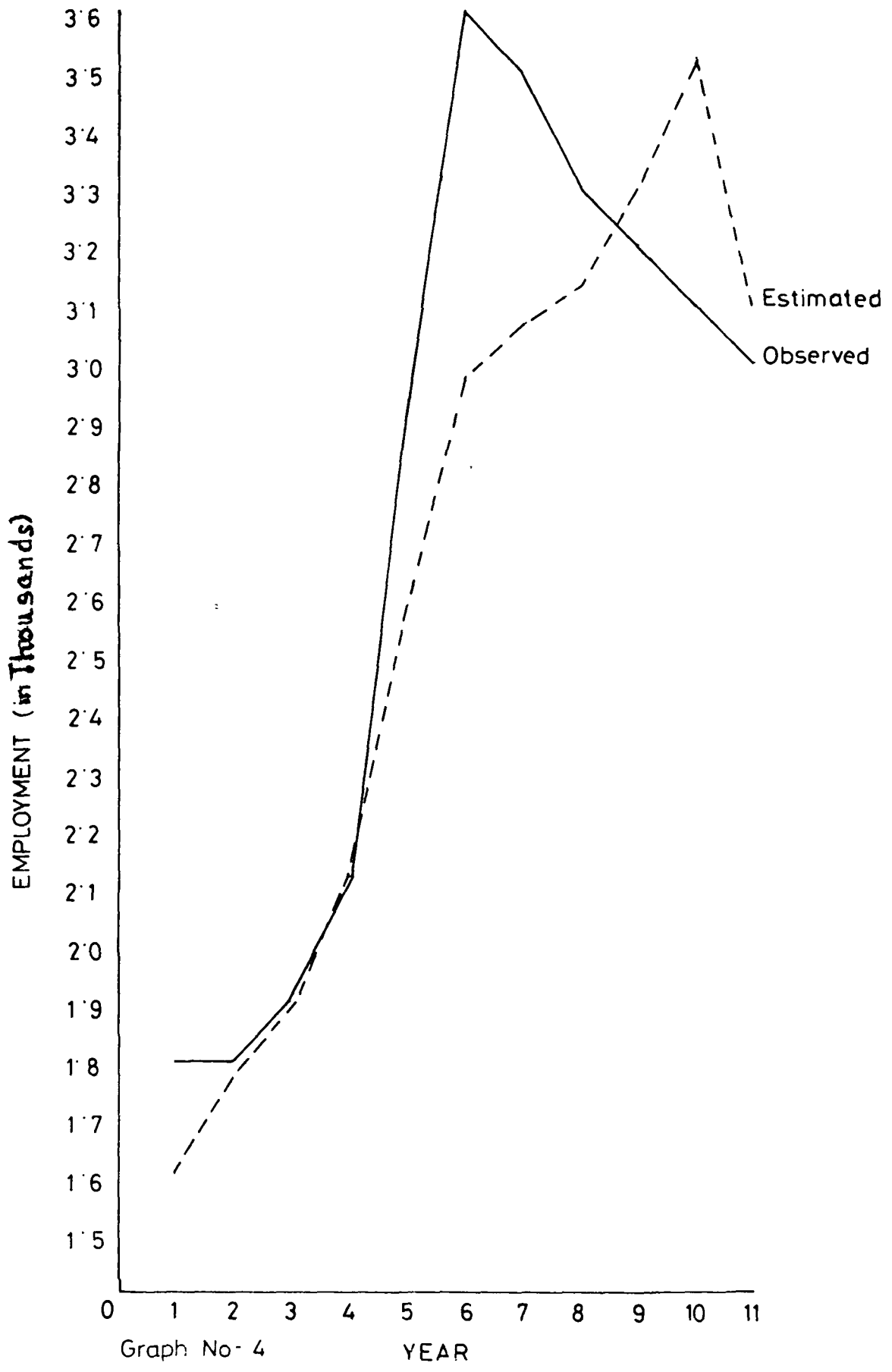
ELECTRICITY & WATER SUPPLY



Graph No-3

$$E_T = f(Q, I)$$

TRANSPORT SECTOR

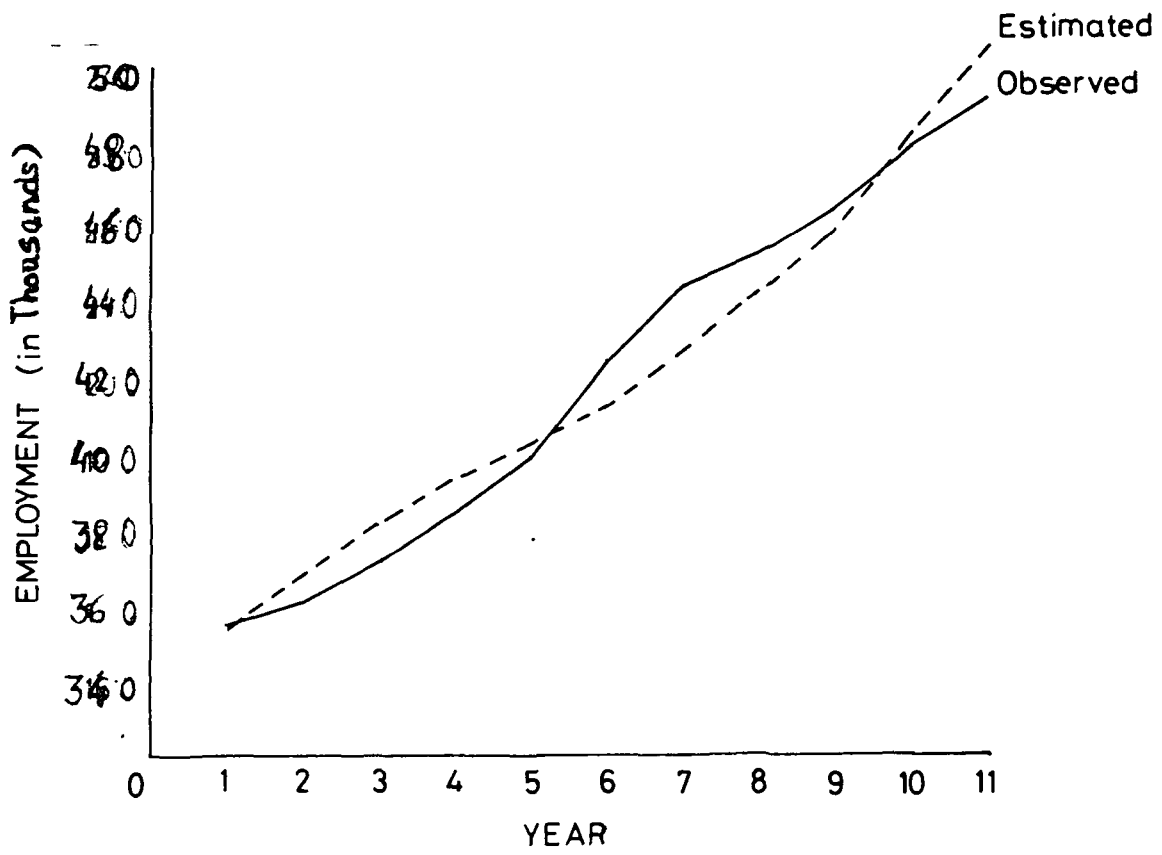


Graph No- 4

YEAR

$$E_s = f(Q, I)$$

SERVICE SECTOR



Graph No - 5

can only explain about 60.23% of the total variation in employment in this sector.

3) Graphs (3) and (4) show the demand relationship in Transport and Electricity groups. In both the cases, there is not much difference in the trend lines of observed and estimated data. This explains the existence of the demand relationship between the dependant and independant variables as a reality.

4) Looking at the graph (5) we may reliably conclude that the size of employment is determined by income and investment. It has a R value as high as 0.9569 or 95.69%.

Thus we can conclude that the size of investment and output is influencing employment in most of ^{the} sectors to a great extent whereas in manufacturing its influence is not as much.

4.2.3 Conclusion

1) Excepting for the electricity and transport sectors regression coefficients are not significant statistically for the rest of the groups. It means that the total variation in employment cannot be explained as a proportion of investment and output in case of the above 3 sectors. The statistical insignificance of these coefficients, however, seem to be the consequence of the small size of samples and other sample errors. If we could remove these constraints the regression coefficients could emerge as statistically significant.

On the whole, from all the above results, discussions, and graphical presentations, we can conclude to have a strong empirical support to our hypothesis of there being a positive relationship between investment and output and the demand for employment.

2) It is also interesting to note from the above analysis, that employment demand is affected by output and investment more in case of agriculture, service, electricity and transport than in case of mining and manufacturing.

This implies that the mining and manufacturing are gradually becoming more and more capital intensive. Thus increased income and investment are not being followed by increased employment.

4.3.1 Section II

Alternative method-1

In view of the inadequacy mentioned in section I relating to linearity of the previous empirical equations, we have decided to have another kind of functional relation, i.e., Employment as a function of trend factor alone. Thus, we have adopted the following model.

$$E = f(t) \quad (1)$$

$$= a_0 + a_1 t + u \quad (2)$$

Where,

E = Employment for different sectors

t = time factor

u = error term.

For employment, which is central to the model, here the economy is disaggregated into 7 sectors, viz., (1) Forestry and plantation,¹ (2) Mining and quarrying, (3) Construction, (4) Manufacturing, (5) Transport and communication, (6) Electricity, and (7) Service sector. No distinction is made between Public and Private sectors with regard to employment. Transforming employment function for seven different sectors, we have seven regression equations.

The employment demand function has been estimated by the same least squares method. Parameters have also been estimated from observed data.

Estimated regression equations from the observed data for all the sectors are given below :

Empirical Results (2)

$$E_{P\&F} = 1417.19 + 92.61t \quad R^2 = .9672 \quad (3)$$

(34.71) (18.00)

where

$E_{P\&F}$ = Employment demand for forestry and plantation.

¹ Here instead of using our projected data for agriculture and allied we have restricted ourselves to the forestry of plantation group for which the recorded data on employment were available.

$$E_{M\&Q} = 84.46 + 15.69t \quad R^2 = .3782 \quad (4)$$

(1.75) (2.59)

where,

$E_{M\&Q}$ = Employment demand for mining and quarrying.

$$E_{Const} = 4826.77 + 50.8t \quad R^2 = .5986 \quad (5)$$

(48.48) (4.05)

where,

E_{Const} = Employment demand for construction.

$$E_{Man} = 1733.99 + 51.86t \quad R^2 = .5200 \quad (6)$$

(14.54) (3.45)

where,

E_{Man} = Employment demand for manufacturing.

$$E_t = 1472.35 + 159.87t \quad R^2 = .6262 \quad (7)$$

(4.98) (4.29)

where,

E_t = Employment demand for transport.

$$E_{E1} = 2150 + 335.62t \quad R^2 = .9751 \quad (8)$$

(16.75) (20.75)

where,

E_{E1} = Employment demand for electricity.

$$E_s = 26025.46 + 1215.88t \quad R^2 = .9131 \quad (9)$$

(28.98) (10.75)

where,

E_s = Employment demand for service

where,

R^2 = Co-efficient of determination.

Values within the brackets are the respective t values for the parameters.

4.3.2 Empirical Results

The estimates of the above equations show that the Regression coefficients are positive and highly significant for all equations excepting for equation (4). Similarly, the R^2 values for all the equations are quite high compared to Equation (4). Therefore, changes in t or trend variable alone can explain the total variation in employment demand both quantitatively as well as qualitatively for all the sectors excepting for mining and quarrying.

It is only in case of mining and quarrying that employment has not grown as a function of the trend factor. The t value at 95% level of significance, however, shows that the estimate of parameter of trend to be linearly a reliable one.

We believe these results shed considerable light on our hypothesis that employment has been a function of merely the trend factor in Meghalaya.

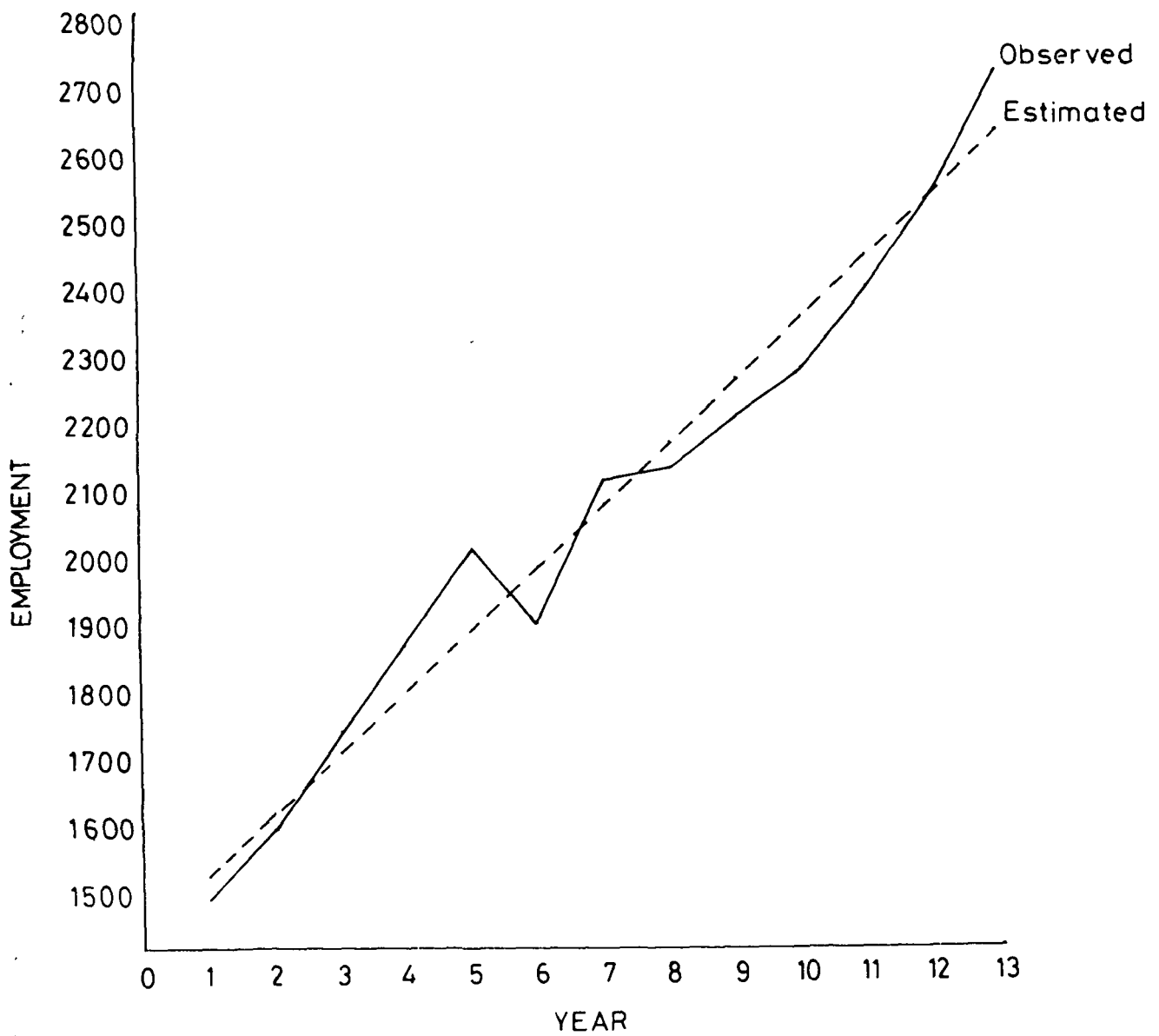
4.3.3 Graphical Presentation

1) Graph (1) explains the functional relationship between employment and the trend factor in forestry and plantation. Here R^2 being as high as 96%, we get a good fit of the model to the observed data. It means that the estimated trend does not vary significantly from the observed trend.

2) For Mining and Quarrying, the value of R^2 is as small as 0.3782 which explains to have only 37% of the functional relationship between employment and the trend factor.

$$E_{FP} = f(t)$$

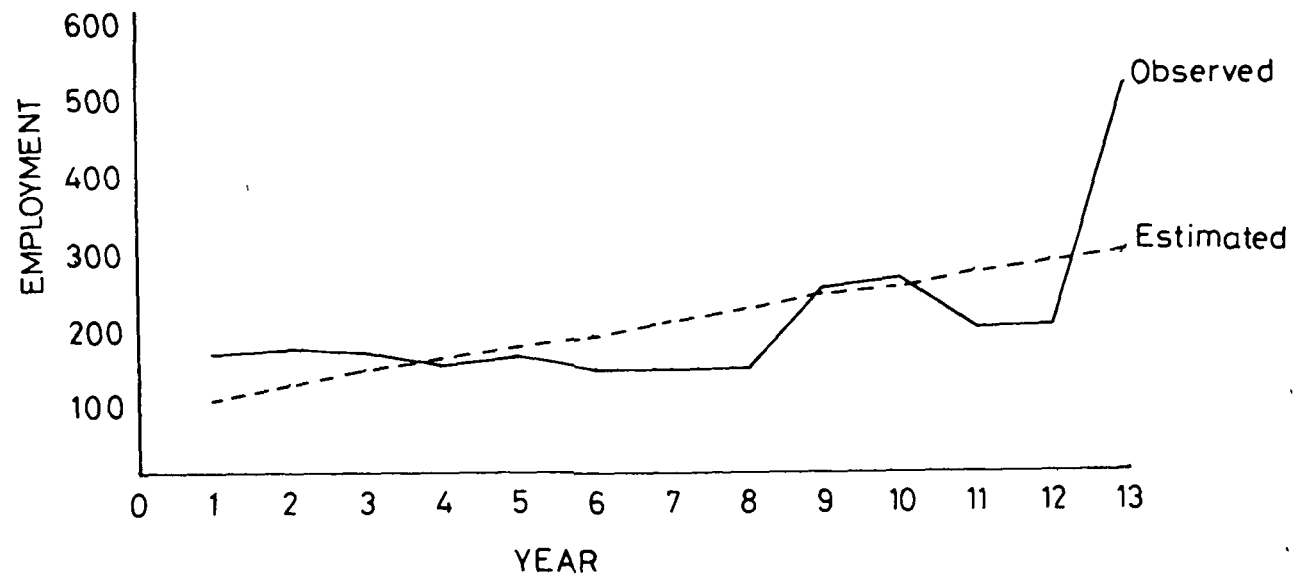
FORESTRY & PLANTATION SECTOR



Graph No-1

$E_{mq} = f(t)$

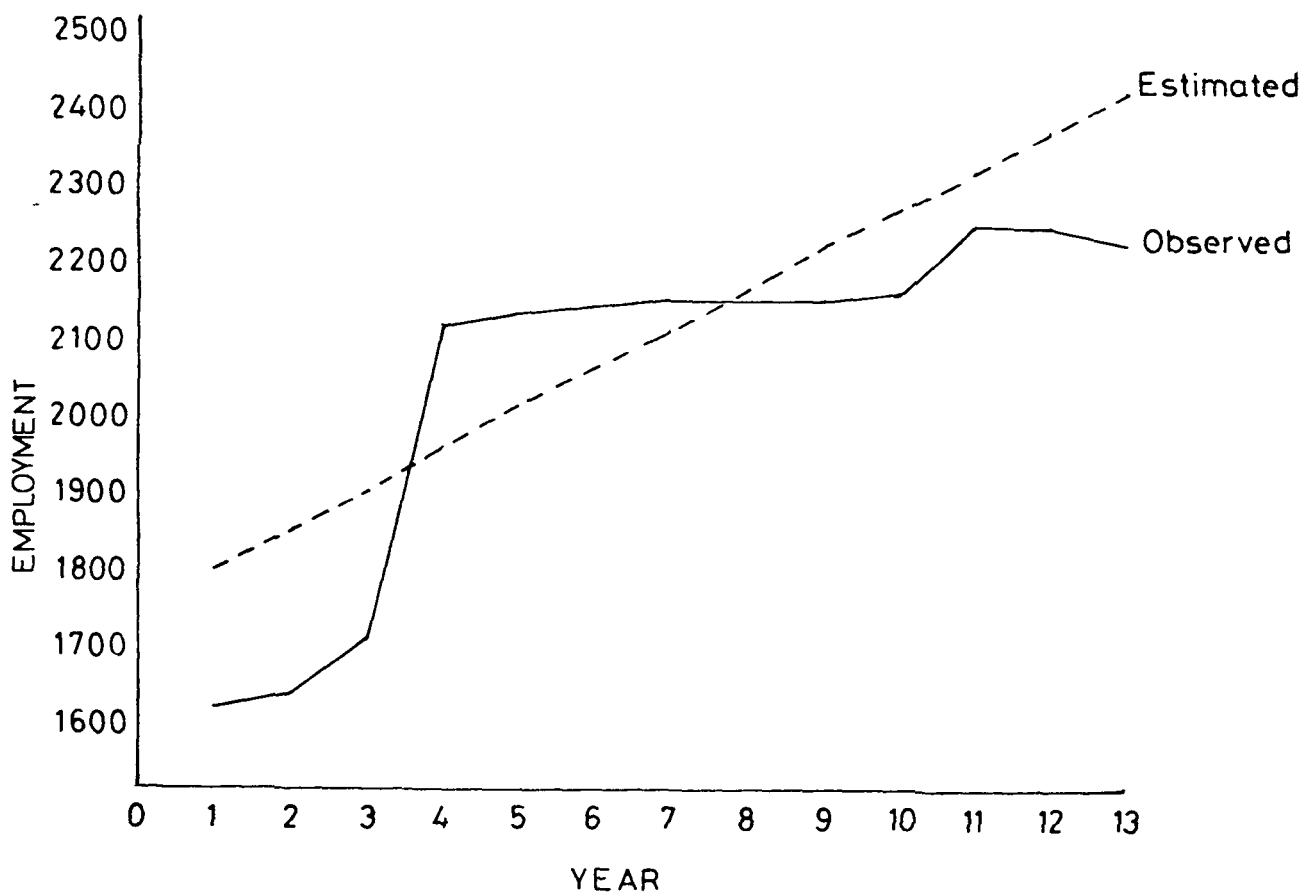
MINING & QUARRYING SECTOR



Graph No - 2

$E_M=f(t)$

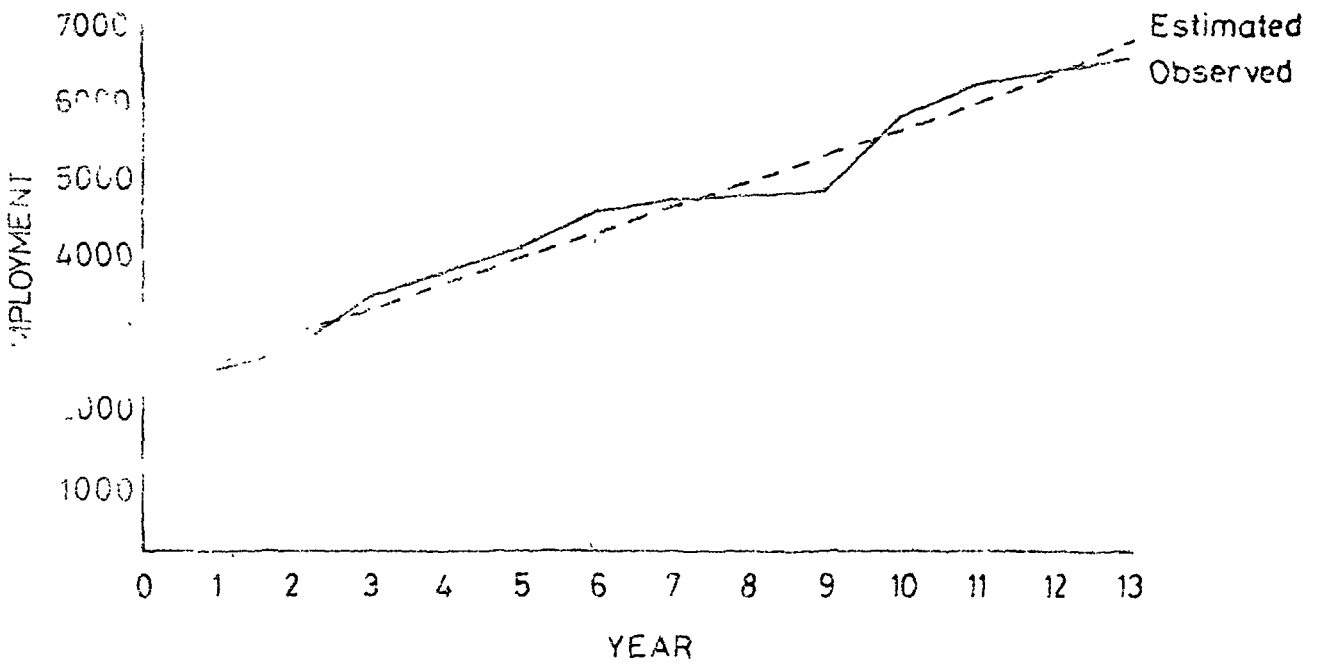
MANUFACTURING SECTOR



Graph No-3

$$E_L = f(t)$$

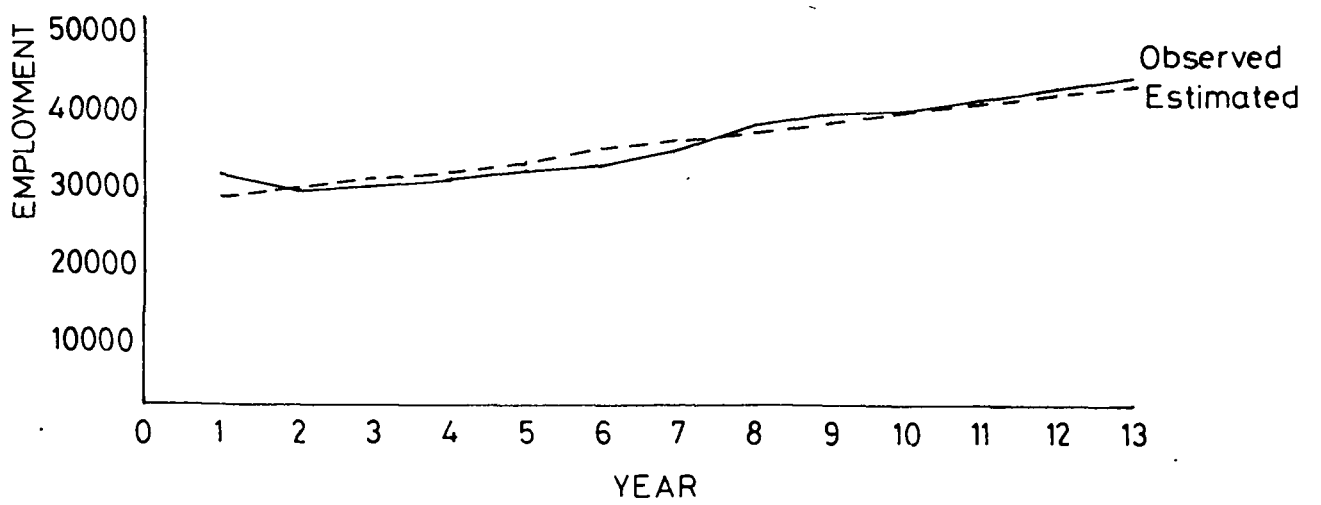
ELECTRICITY SECTOR



Graph No-4

$E_s=f(t)$

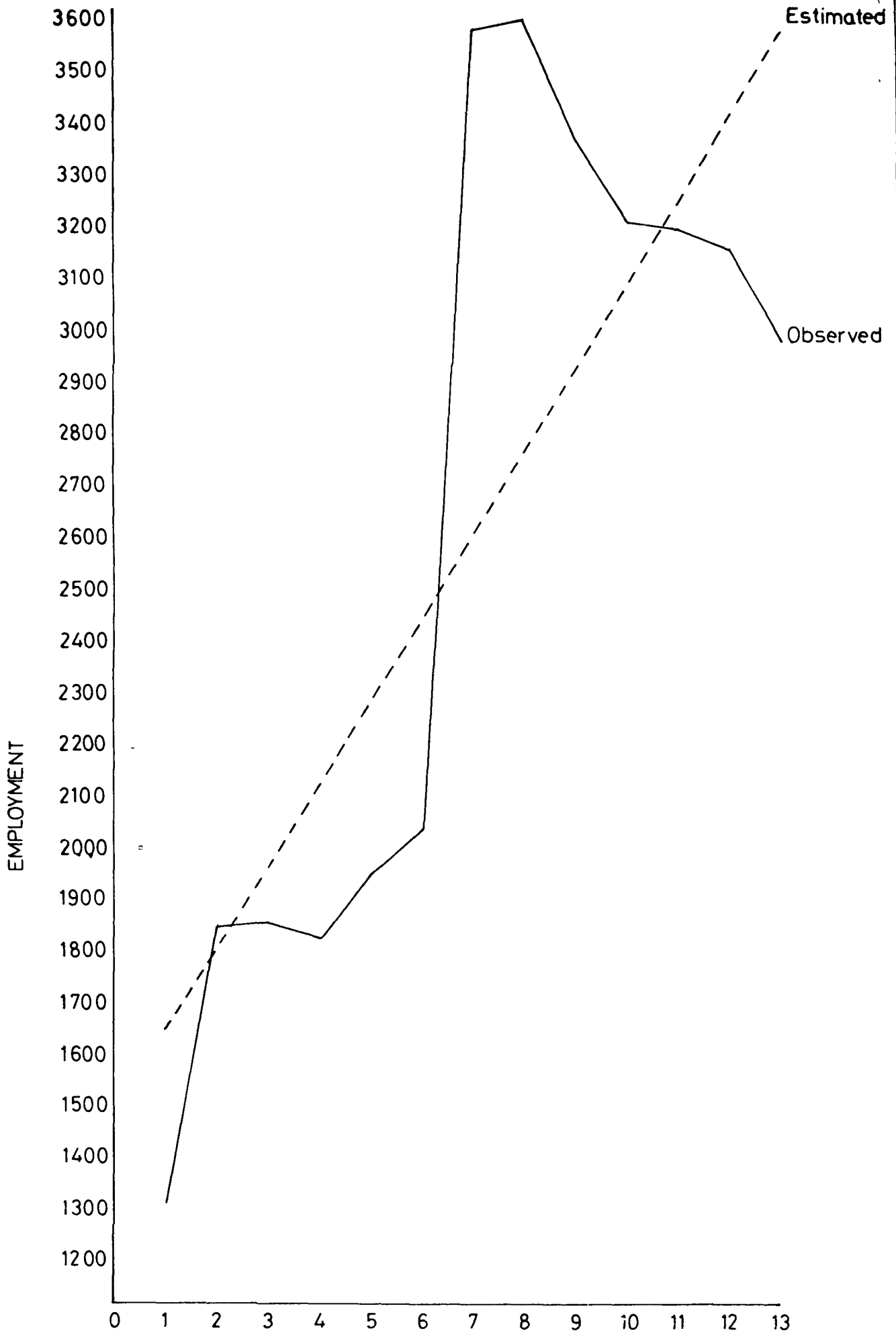
SERVICE SECTOR



Graph No-5

$E_t = f(t)$

TRANSPORT SECTOR

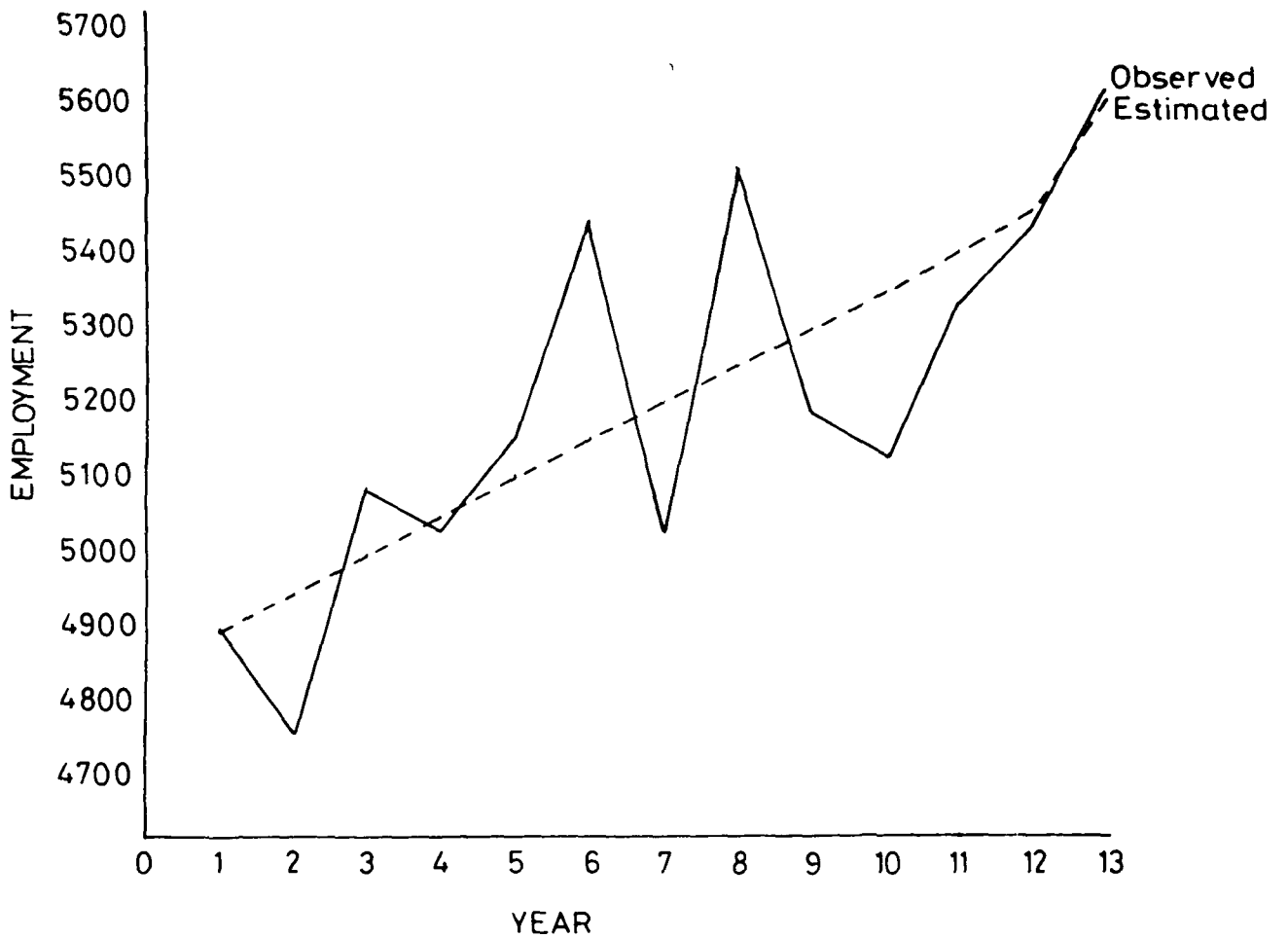


Graph No - 6

YEAR

$$E_c = f(t)$$

CONSTRUCTION SECTOR



Graph No-7

So the variation between the two trend lines (observed and estimated) is explained by 69% of the non-functional relationship between the dependant and independant variables.

3) Graphs (3) to (5) represents the functional relationship between employment and the trend factor in manufacturing, electricity and the service sectors respectively. The value of R^2 for all the sectors being reasonably high, the estimated trends have not differed significantly from the observed trends.

4) The trends of the estimated demand functions in Transport and Communication and Construction sectors have varied significantly from the observed data. Thereby, again we have used two different regression equations for these two sectors.

4.4.1 Alternative Methods-2

Accordingly, our respective demand for employment has been put in the following functional relation :

$$E_t = a_0 + a_1t + a_2t^2 + a_3t^3 \quad (1)$$

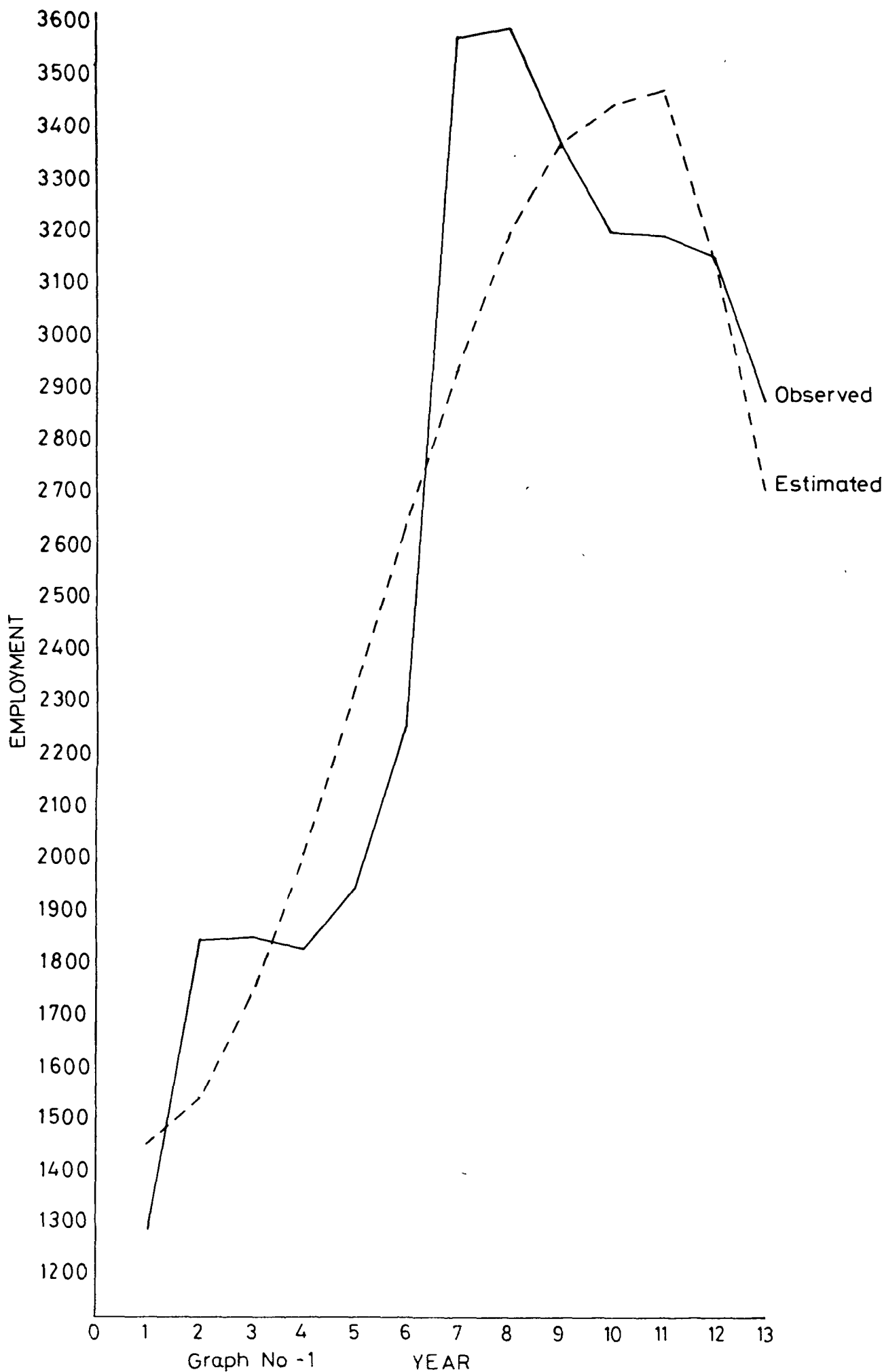
$$E_{con} = a_0 + a_1t + a_2t^2 + a_3t^3 \quad (2)$$

where,

E = Employment; t = trend values

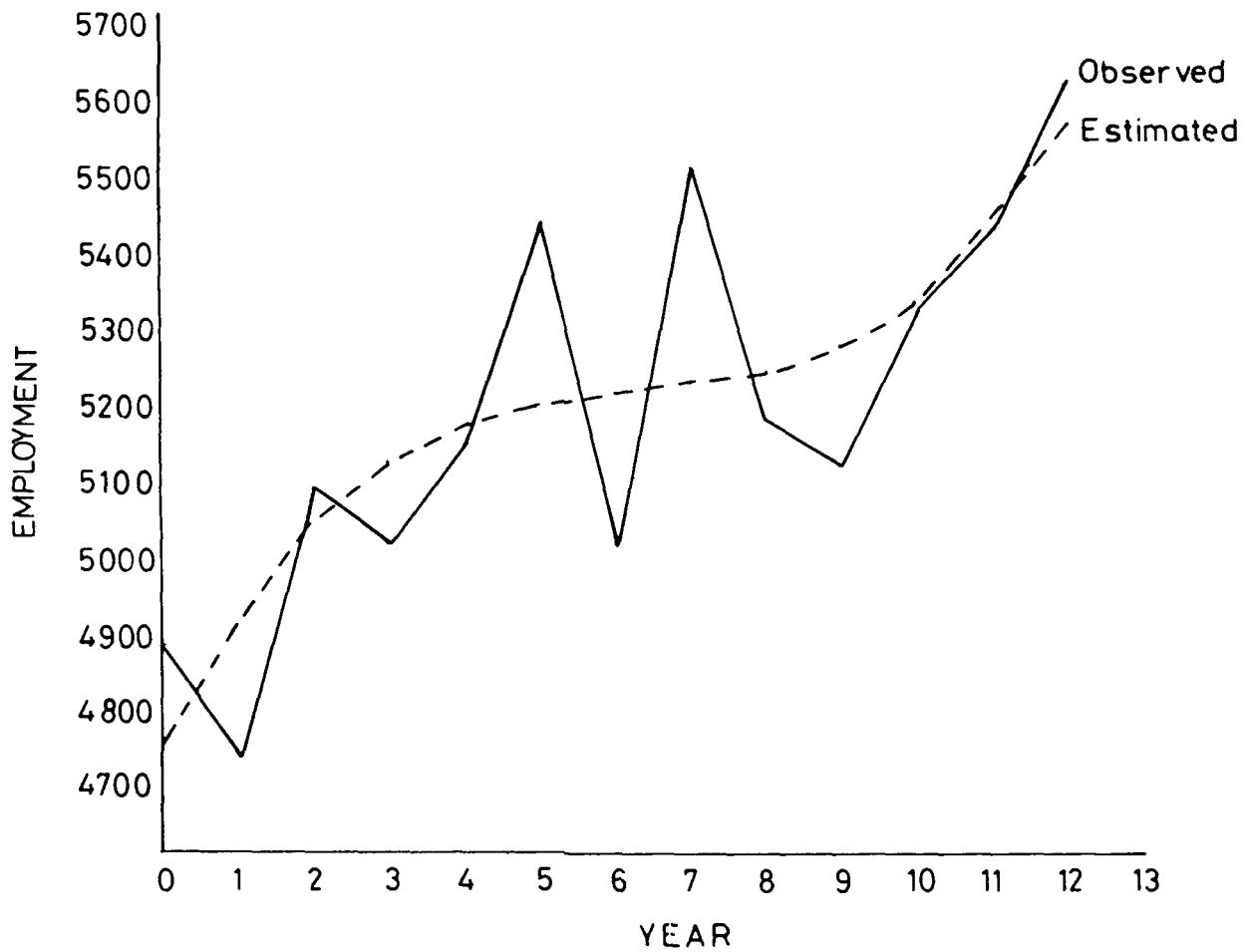
TRANSPORT

$$y_t = a_0 + a_1 t + a_2 t^2 + a_3 t^3$$



$$E_c = a_0 + a_1t + a_2t^2 + a_3t^3$$

CONSTRUCTION



Graph No -2

4.4.2 Empirical Results

$$E_t = 2927.1 - 4.99t_1 - 23.97t_2 + 284.68t_3 \quad (3)$$

(19.9)
(2.04)
(3.1)
(4.28)

$R^2 = .85$

$$E_{Con} = 5200.89 + 1.51t_1 - 1.32t_2 + 12.97t_3 \quad (4)$$

(72.59)
(1.27)
(.35)
(.39)

$R^2 = .66$

where E_t = Employment demand in transport sector

E_{Con} = Employment demand in Construction sector.

From the above empirical results we find that in equation (3), the regression co-efficients are significant but negative. But the R^2 is high enough (.85). Thus 85% of the total employment growth in transport sector can be explained by the trend factor alone.

But in equation (4), the parameters are mostly insignificant (i.e. only the value of a_0 is significant). Here too the value of R^2 is significant. Therefore, if we observe these values graphically, we find not much difference between the observed and estimated data on employment. From this we can conclude that employment demand in both these sectors could be determined by the trend factor.

4.5.1 Section 3 - Further Remarks on Employment Trends

The process of economic development is associated with a change in the distribution of the labour-force among economic sectors. The term denotes the shifts in the contri-

bution of different sectors to total output and also in the proportion of employment in agriculture in favour of other sectors. To analyse these changes, production has often been classified into primary, secondary and tertiary activities in national income accounting.

However, the criteria adopted for such classification appear to be somewhat arbitrary and vague. They are arbitrary, because one could think of alternative systems of classification and they are vague since unique and unquestionable definitions of primary, secondary and tertiary sectors have not emerged as yet (Mukherjee and Ghosh, 1984).

Colin Clerk (1940) set about popularizing the idea of segmenting the economy into the above three sectors. His primary production group included agriculture, forestry and fishing. His secondary production group embraced manufacturing, mining and construction. Tertiary production in his conceptualization, was broad enough and included trade, transportation, communication, utilities, banking and insurance, real estate and public administration and domestic personal and professional services.

However, for our study we have the following groupings for the economy of Meghalaya.

- 1) Agriculture (including both cultivation and agricultural labourers;
- 2) Household industry, manufacturing and processing;
- 3) Other workers.

A relatively recent historical phenomenon affecting labour-force participation is the structural change in the composition of employment that has^{been} in a decline in manufacturing employment and the emergence of the service industries as the dominant source of jobs. As employment in service industry continues to grow, an understanding of this relationship becomes more important not only because of its effects on the labour-force participation rate, but also because of its effects on economic growth and well-being.

4.5.2 Comparison between Indian Case and Meghalayan Case

The Indian economy has grown substantially in both its productive sectors, i.e. agriculture and industry. It was the non-agricultural sector mainly industry, which was supposed to be the main source of employment. But the rate of growth of employment in this sector has lagged behind the growth of output. In fact, there has been a fall in the manufacturing employment in the post 1965 period.

Rather the period 1950-51 to 1980-81 found some increase in the share of the tertiary sector. The dimensions of the shifts were more pronounced than before (Mukherjee and Ghosh, 1984).

The following might be the probable reasons for such shifts.

1) The relatively slow growth of employment in the modern sector may result from the sluggish growth in demand for the modern sector goods, the adoption of capital-intensive techniques and the prevalent high-wage rates in this sector. On the other hand, the excessive supply of labour may result in a more rapid expansion of the traditional sector which has a higher labour-absorption capacity due both to free entry and more flexible wage-rates.

2) The tertiary sector includes some activities in nature of domestic, personal and religious services, the supply of which may be relatively larger in the low income-countries partly on account of the dearth of opportunities for gainful employment in other fields. On the other hand, available empirical evidence seems to suggest that the advanced countries have comparatively a larger supply of health, education and business and professional services.

3) The service-sector provides opportunities for gainful employment with little or sometimes no investment. This explains the growth of stability of the service sector in the poorer countries in which the pressure on land is high and the capacity for absorption in manufacturing is limited.

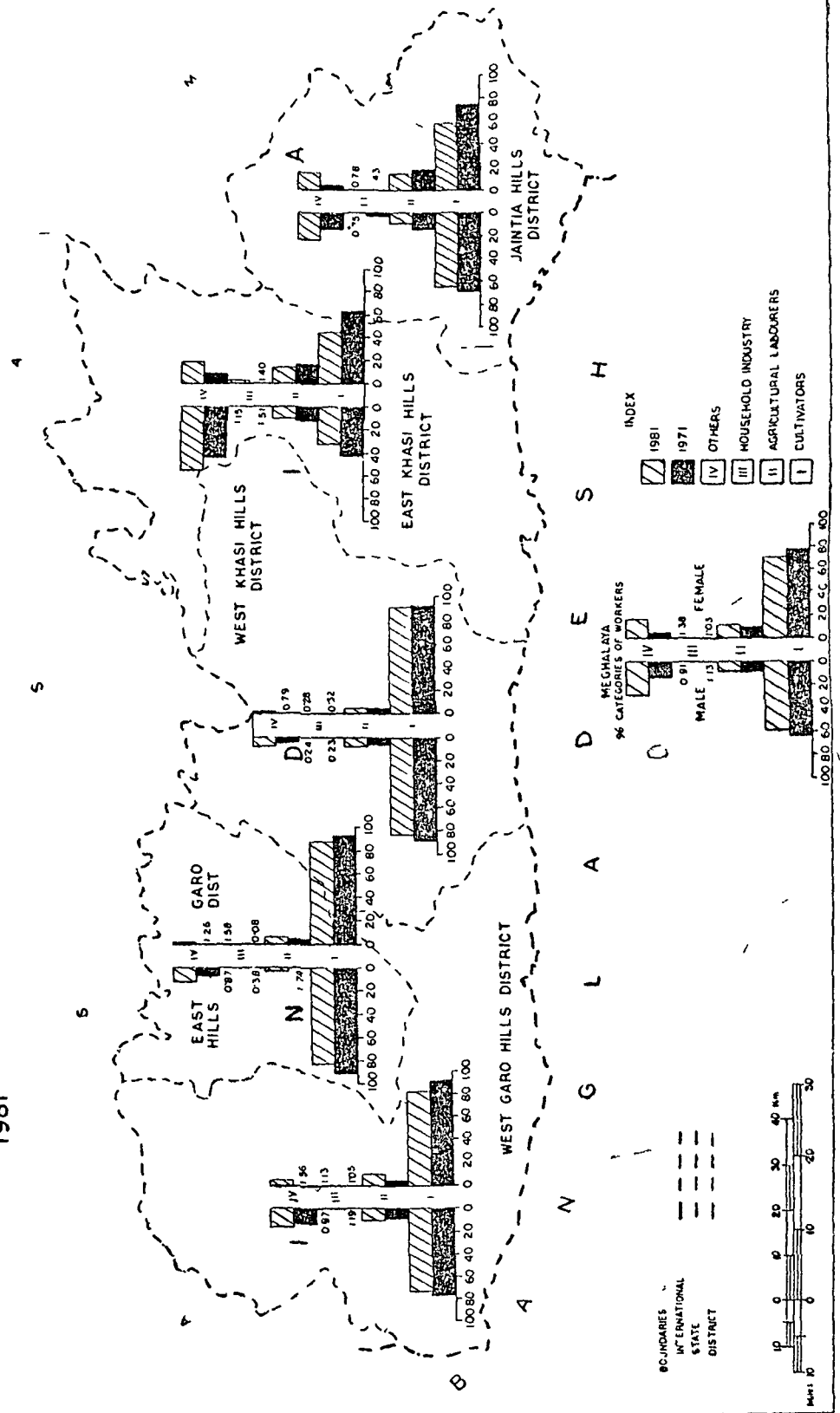
4) The most common view is that the rate of technological growth is lowest for the tertiary sector and highest for

the primary and secondary sector.² This would result, ceteris paribus, in a more rapid rate of absorption of labour per unit of growth in output in the tertiary sector, and a correspondingly slower rate of labour-absorption in the primary and secondary sectors. Comparing the work participation rate of Meghalaya to that of the national average, we find Meghalaya to have a higher rate. Specially in the rural field, work-force participation (among men) is highest in Meghalaya, i.e. 63.78, 66.60% and 67.33% (According to NSS Reports of 27th, 32nd and 38th rounds), whereas in case of urban field it had been 57.83%, 53.13% and 51.70% respectively. But while the work participation rate in the state is high, the question is which activity they are engaged in.

A closer look at the structure of Meghalayan economy shows that there has been no significant structural change in output and investment. In all the sectors G.D.P. is increasing more or less in the similar fashion. Regarding the work participation rate we can say that out of a total 5,87,158 workers, there are 3,73,180 people living on agriculture consisting 63.60% of the working population. Since there is no other way out, people in the rural area live on agriculture irrespective of the fact that whether they are productively employed or not. However, compared to the percentage of culti-

2 First, the tertiary production is typically small-scale. The benefits of innovation accrue only fractionally to the innovator, since his share of the overall market for the product is apt to be small. Second, much of the tertiary production cannot be traded; hence it is less subject to the stimulus of competition for innovation and has a small market.

MEGHALAYA CATEGORIES OF WORKERS 1981



vators to total workers in 1971, i.e. 69.15% there is an uniform fall in 1981.

Table - 2

	1971		1981	
Main workers	4,46,828		5,87,158	
Percentage of the total population	44.17%		43.43%	
Workers classified by broad industrial category	1971	%age dis-tribution to total working force	1981	%age dis-tribution to total working force
1) Cultivators	3,08,978	69.15	79.03	63.60
Agricultural labourer	44,131	9.88		58,236
2) Household industry, Manufacturing and Processing	10,519	2.35	6,403	1.09
3) Other workers	83,200	18.62	1,49,339	25.43

SOURCE: CENSUS REPORT

Though there is no change in the scope of the word 'cultivator', yet it appears that unlike 1981, an illustrative list was not given in the instruction booklet in 1971. This may have resulted in treating of those engaged in cultivation of potato, turmeicand, ginger as cultivators and hence the higher percentage of cultivators to total workers in 1971. The concept 'cultivation' has been restricted to the growth of

- 1) Cereal and millet crops like Paddy, Wheat, Jowar, Bajra, Maize, Ragi, Barley, Grams, etc.
- 2) Pulses like, Arhar, Moong, Masur, Urd, Khegari, etc.
- 3) Oil seeds like Sesamum, Groundnut, Rape-seed, Mustard and Linseed, Castor, etc.
- 4) Fibre crops like raw-cotton, jute, mesta, etc.
- 5) Sugar-cane among the cash crops only.

Accordingly, rubber, coffee, tobacco, pepper, cardamon, cashew-nuts, bananas, grapes, orange, cinchona and medicinal plants, batel-leaves, flowers, potato, tapioca, sweet potato, chillies and spices, vegetables, turmeric, which are the major crops of Meghalaya has been excluded from the purview of the word 'cultivation'. This partly explains the unfirm decrease in the percentage of cultivators in 1981, for all the districts. In 1971 there were 3,08,978 cultivators.

Agricultural Labourers

Compared to 44,131 persons returning as agricultural labourers in 1971, there are 58,236 agricultural labourers in 1981. The increase in absolute terms is 14,105 persons over the decade. Thus, there is a slight increase in the percentage of agricultural labourers in the state.

Industrial Sector

The number of persons engaged in household and industrial sector is 6403 in 1981. Instead of increase there is a decrease of 1.26% of employment in this sector during the decade. This

advocates for very negative growth of employment in this sector.

Other workers

Against 83,200 persons classed as 'other workers' in 1971, there are 1,49,339 in 1981. The increase is 66,439 over the decade and the percentage of increase is 62.34%. It will also appear that there is appreciable increase in the number of other workers for all the districts in 1981 as compared to 1971.

So in Meghalaya, instead of a decline of employment in agriculture, there has been slight increment in the agricultural employment. Unlike the other two sectors, a relatively greater increase in the proportion of employment in the other workers category is revealed over the decade.

This may be due to the expansion of administrative organisation, industrialization and expansion of development activities, which have attracted a sizeable population of wage earners and this may have contributed to the increase in other workers category.

The lack of growth in employment in the industrial sector has been due to a very slow rate of technological growth in Meghalaya. Besides, the growth of the modern industrial structure requires the expansion of commercial and government services so that an increase in secondary output and employment can generate multiples of that increase in the tertiary output

and employment. In addition to it, the state does not have enough absorbing power, this may again be categorized into regional imbalance in employment and income distribution and disturbing political factors in the north-east as a whole.

4.6 Section 4

Education and Employment

Under the modern industrial conditions, with the progress of technology, and with the increasing importance of skill in labour force, the traditional distinction between labour as an original factor of production has been unrealistic. The limitation of material capital as an explanation of economic growth has drawn attention of economists to concept of human capital as complementary explanation.

Therefore in this connection it is necessary to consider the educational needs and demand for educated manpower. The needs are primarily generated by the economy but it may also be generated by other sources including the state for recruiting administrative personnel and for the political motive for pushing educational development. The demand for education comes from industries, which collectively determine the total demand. This determines the supply of educated personnel. The prospect of the demand for educated manpower by the economy and the government may not be always tuned to the time. Disequilibrium may arise from either side. Needs may precede the demand leading to a shortage of educated manpower. But in many cases, demand exceeds need leading to an excess of supply over demand.

4.6.2 Mis-matched Educational Hypothesis

Those who advocate for the mis-matched educational hypothesis (Myrdal, 1968) argue in the following manner :

Education, as it is managed and imparted in our country, is largely irrelevant and unrealistic. It is not only bookish, but also is completely examination-oriented, where students are keen only in obtaining the credentials. It develops no skills which could be used either in agriculture or in industry. As a result, the educated are to a greater extent unemployable. The values and attitudes imparted through the present education want white-collar jobs with high salaries and bright promotion prospects (Eswara, 1979).

Thus the employment problem is essentially one of a mismatched bet^{ween} job expectations generated by our educational systems and job opportunities produced in the labour-market.

4.6.3 The Case of Meghalaya

In Meghalaya, both needs and demands for education have expanded vastly since its origin and planned economic development.

Historically, in the course of the development process, the shares of secondary and tertiary sector employment in the total employment increases and that of primary sector decreases.

But here in Meghalaya, we have seen no such decline in the labour-force employed in the agricultural sector. The increase in employment in the secondary sector too has been very insignificant and it is only the other workers category which has taken a major role in providing employment to the increased population. The following table shows the percentage employment in different sectors :

Table 2b

Year	Percentage share of employment in agricultural sector	Percentage share of employment in industrial sector	Percentage share or employment in other workers
1971	79.03	2.35	19.88
1981	73.48	1.09	26.3

Source : Census Report, Meghalaya

We have already explained the reasons behind the fall in employment statistics in agricultural sector in 1981 over 1971. But actually there has been slight increase in the employment figures of agricultural labourers. The insignificant growth of employment in the industrial sector has been attributed to smallness of modern sector and slackening of its rate of growth. It is only the other workers sector, which has grown substantially over the decade.

Now let us, therefore, examine the trends in the demand for the different levels and types of education as evident by their respective rates of growth and find out whether there has

beer. balance between the demands and supply.

The growth rate of the student population of all levels for 1981 has been 4,42,949 against 298,312 in 1971. So the literacy rate has increased from 29.49% in 1971 to 34.08% in 1981.

The figures show that the growth rates are the highest for the lower stages of education and the growth rate for primary being the highest. The figure for total literates includes other levels of education for which percentage is not available.

Table 5

Educational level	1971		1981	
	Total literate in different educational levels	Percentage	Total literate in different educational levels	Percentage
Primary Education	96623	32.39	1,30,076	29.37
Middle Education	73325	24.58	1,06,823	24.12
Matriculate or H.S.	22671	7.6	52,369	11.82
Non-technical diploma or certificate not equal to degree	1551	.52	17	.003
Technical Diploma or certificate not equal to degree	507	.17	580	.13
Graduate and above	9575	3.21	16,284	3.68
Total literate (298,312)		Total literate (4,42,949)		

Source : Census Report 1971, 1981.

In case of primary education, the rate of growth was 32.39% for 1971 and 29.37% for 1981. Since the inception of the state, the main thrust had been the extension of educational facilities in the backward areas and the enrolment of out of school children. The Revised Master Plan for Elementary Education (1980-83) observed that the unenrolled children are mainly from the rural areas of the state where there are no schooling facilities. Though with the efforts of the authorities there has been an increase in the enrolment of out of school children, the imbalances have not yet been removed. The educational facilities have not fully reached the backward areas of the state and the enrolment has been upset with a high rate of drop-outs. As has been indicated by NCERT (1985), the dropout rate of primary stage in Meghalaya is the highest in the country for the period 1975-76 to 1979-80, the figure in Meghalaya being 84 while for India as a whole being 60.

Added to this, which hinders the development of primary education is the practice of jhuming, because jhumias migrate from place to place and find it difficult to continue their children's education.

In case of higher education, the rate of expansion has not been significant because of the slow expansion of the secondary and tertiary sector, which mainly require university graduates.

There has been increase in the enrolment for general education, i.e. 3.21% in 1971 and 3.68% in 1981, the enrolment for professional courses has been increasing at the rate of .13% and .17% in 1971 and 1981 respectively (Census Report, 1971, 1981).

The structural changes in education has been marginal as the changes in the occupational structure has been very slow. This reflects the distortion in the growth process, where, the production sector, i.e. primary and secondary register a slower rate of growth than the tertiary sector. For accelerating economic development, there is an imperative need to have a much faster growth of these 2 sectors.

In view of the changes in the plan strategy envisaged in different plans to eradicate poverty and unemployment with a major thrust on agriculture and rural development, it is needed to recognise the role of education of proper type and content to provide the requisite knowledge and skill to absorb the new technology in agriculture and rural agro-industries. This calls for greater efforts to increase the enrolment ratios at primary and lower secondary stages and vocational training specifically among the backward groups and regions. There appears to be close link between adult literacy rates and universalization of primary education.

Another reason for the imbalance between educational needs and demands is that the need of large sections of people has not been attended to while the demand for education has come only from the upper income groups, who seek white-collared jobs for their children. The courses designed in schools and colleges are meant to meet their preference and has no reference to the needs of economic development and employment situation.

Thus there is not only imbalance between overall needs and demands for education, but also between the needs and demand for education of different sets. This lack of harmony is reflected in unemployment and under-employment and sub-employment of educated manpower.

The percentage of educated persons in the labour force is an index of economic development. In Meghalaya, large proportion of the labour force in the unorganised sector is (74.02%) illiterate or marginally illiterate.

Educated labour is concentrated in a few selected occupational groups. It is only in the urban areas that a concentration of educated persons with varying levels of higher education such as university degrees and technical and non-technical degrees and diploma are found, because of the facilities for education and the need for suitable levels of education in several urban pursuits and professions.

Thus, there is not only wastage and misdirection in generating educated manpower but lack of educational development of employed manpower to increase their efficiency and competence. Adequacy of due education and training of the already employed workers is an urgent task, which must be undertaken to accelerate the process of development.

4.6.3 Steps Undertaken for Development of Education

1) A special TV plan has been taken up by the North-Eastern Council (NEC) to bring the remote inaccessible and border areas of NER under TV coverage through a network of low-power transmitters.

2) In Meghalaya, ET (Educational Technology) cells in the SCERT (State Council of Education Research and Training) were set up in October 1978. These cells have conducted many researches and materials to ET were produced which are used for teaching-learning process. Serious efforts are required on the part of these cells to motivate and grow awareness for the education and ET among the people and students of Meghalaya. Hence, proper co-ordination among the ET cells and the schools are necessary for implementing the new schemes and strategies for effective teaching and learning process. Many schools in the capital town of Shillong have TV sets, computers, etc.

3) The Indira Gandhi National Open University (IGNOU) has started functioning the diploma courses, viz. Management,

Distance Education, Under-Graduate Courses, Rural Development Courses with most modern and well-built instructional packages like printed material, audio and video programmes through the following centres - Guwahati, Shillong and Imphal.

However, we need to concentrate on rural education, as 80% of Meghalayans belong to rural areas. For speedy, uniform and overall development of education in rural and urban areas, use of appropriate ET is most essential which demands proper and firm management information system.

Technological advancement leading to mass literacy and consequent availability of low-cost ET materials is essential. There is a need to find ways and means of getting better education and recreational facilities for all so that their educational needs can be fulfilled.

Chapter 5

Conclusion and Suggestion

5.1. The main objective of this study was to provide a comprehensive description of the nature and determinants of the growth of employment in Meghalaya since 1976.

The major causes of employment growth, according to age old doctrine of Economics are to be found in the changing composition of investment and output.

If there is spare capacity in the economy, a stepping up of the level of investment and income leads to a stepping-up of employment. Therefore, our first model is related to the examination of employment growth in Meghalaya as a function of investment and output.

The analysis based on the time-series data, indicates the existence of such relationship in Meghalaya's different economic sectors. Though quantitatively, such relationship is not proved for all the sectors, qualitatively the analysis shows the existence of more or less direct relationship between our dependent and independent variables.

The second model for our analysis tries to prove the functional relationship between employment and the trend factor. The application of regression analysis to the available data has shown that the rate of growth of employment is directly related to time. The results also suggest that there has been no significant growth in any of the sectors of the economy to attract the labour sufficiently towards that sector. The growth of employment has followed a pattern.

The third part of our study deals with the sectoral change in employment in Meghalaya. As economy grows, it is the non-agricultural sectors mainly the industries, which are supposed to be the main source of employment. However, it is also found that during the early stages of economic development, the decline in employment in the primary sector is absorbed mainly in the tertiary employment, with a smaller effect on the secondary sector. The expansion of economic and social infrastructure in the early stages of economic development induces a rise in tertiary employment. In Meghalaya too we find such increase in employment in the proportion of other workers category. But it is not at the cost of a decline among agricultural or industrial employment, which has remained more or less the same. So the economy of Meghalaya still is primarily an agrarian economy with a miniscule percentage of the labour-force employed in secondary as well as other sectors of the economy.

The fourth section of our analysis deals with the problem of education and employment. Most of the educational institutions are located in and around the main towns and capitals and educational facilities in the rural areas, specially are very poor. In the rural areas, most of the schools are primary and the attendance is very low.

So, a careful appraisal of the present educational system, specially towards job oriented education is needed.

5.2. Although rich in natural resources, Meghalaya can be rightly described as an island of poverty and unemployment in the midst of plenty. The state is endowed with abundant and rich natural resources and potentialities in the form of

attractive mineral wealth, forestry and horticultural crop, which by proper planning can be developed and exploited for the economic progress of the state.

It is estimated that there are limestone deposits of both cement and chemical grade to the tune of 3,000 million tonnes in the state, coal deposits of 550 million tonnes, sillimanite of the best quality and the largest single deposit known in the world is estimated at about 2 million tonnes in Khasi Hills District, 100 million tonnes of clay suitable for the manufacture of high grade glass. Besides, a very large area of about 8.5 lakhs hectares of forests exists with abundant potentialities (J.N. Mongia, 1978). With all these potentialities it is interesting to study the growth of employment in Meghalaya, which could be increased with more investment. But there are constraints on resources. Even after getting a lot of grants from the central government, we are finding the lack of it. So to augment the growth rate of the economy, the saving has to be stepped up, and the savings must be transformed into productive investment.

Much of the savings in our country originate in the H.H. sector, and remain scattered through out the country. Financial institutions like Commercial Banks and the Life Insurance Corporation mobilise part of savings that has to be activated into productive investment. In recent years small and medium scale industrial units have increased but most of them are concentrated in and around urban areas. Consistent efforts made

by the state government have proved somewhat successful. The maximum employment in these factories was 1609 in 1976 and it has reached the figure of 2063 in 1988. But the fact remains that Meghalaya is still a far cry from being called ~~an~~ industrialized state.

In order to utilise the investment potentials that are found in H.H. savings in thousands of villages around the state, the government may consider creating an appropriate environment which could undertake industrial projects.

Therefore, next in priority are the agro-based industries. These industries are helpful for both human resources and other natural resources available and has ~~a~~ much scope in the state. This will provide the landless labourers and their kindred type the necessary where-withal on a more permanent basis and help mobilise the rural labour-force in the construction of rural capital works. Any other step that gives them temporary work like the 'crash employment' programme is a palliative and not a cure. 'Revolving Employment' in the initial phases of capital construction will give rise to 'sedimental employment' later on when production commences in these industries.

There are possibilities of having so many industries in the rural as well as semi-rural areas of Meghalaya, e.g. deposits of ceramic raw materials in Meghalaya hold a promise of prosperity. But not a single deposit is exploited till now.

According to market survey carried out, the region has a good market for ceramic products (Barcoah, 1988). Other states of India have taken various plans and programmes from time to time to develop the state's ceramic industry. Unfortunately, there are no local ceramic industries, though there are abundant raw materials for such industry. Stress should also be given to set up ceramic industry in the small scale sector to open units in rural areas.

In the past, perfumes and essential oils were regarded as luxury items, but today these are in wide-spread use in a variety of consumer goods industries including soaps and detergents, cosmetics, toilet products, pharmaceuticals, food and confectionary items, insecticides, paper, paint and varnish and many other industries. None of these consumer goods industries is existent at present in Meghalaya mainly because of lack of requisite infrastructure and enterprise.

The rich flora of Meghalaya, its highly appropriate agro-climatic conditions and total absence of any consumer goods industry based on essential oils and rosin offer tremendous scope and bright prospect for development of essential oil based industries in Meghalaya.

Some forests in Meghalaya and other north-eastern states, constitute the only region in the country, where agarbearing trees, producing agarwood oil are available. These agar trees contain an essential oil which is one of the most precious oils

in the world and is much prized by the European perfumer for mixing with their best grade scents.

Khasi pine (Pinus kesiya), which grows fairly fast and occurs abundantly in the forests of Meghalaya is still awaiting requisite attention for production of rosic and turpentine oil which are so essential in a number of industries such as paper, soaps, and detergents, paints and varnishes, cosmetics and rubber and pharmaceutical industries.

Cinnamon leaf oil is extensively used in the country in flavour of confectionary industries and partly in medicine. In Meghalaya Cinnamomum tamala grow extensively. But no cinnamon leaf oil industry is existent in the state. Some years ago Meghalaya Industrial Development Corporation had set up few units for extracting cinnamon leaf oil, but these are now defunct.

In the temperate hill areas of Meghalaya lemon-grass grows wild which could be utilized for extracting lemon-grass oil. Among other essential oils are ginger oil, Mentha citrata - a mint species rich in linalool and linalyl acetate which are high value essential oils presently imported in the country.

Thus we see there is a very great potential for such oil-based industries in the state. Whatever attempts have been made so far have only remained confined to cultivation and production of crude essential oils. There is hardly any industry for fraction and conversion to costlier derivative and perfumery products.

The essential oil industry in India has been thriving mostly on the strength of its export potential and more popularity in the international market ~~at home~~. But the current trend does not speak of a healthy picture, so far as our share of export of essential oil and perfumery chemical were concerned. This unhappy situation has arisen mainly because of the continued decrease in indigenous production, indiscriminate exploitation of wild aromatic plants and lack of scientific replenishment of export-oriented essential oil crops.

With this background we can see the tremendous scope Meghalaya can offer for such industries.

In Meghalaya stones available in big slabs can be used to decorate walls etc. So popularisation of these stones can open up market in the neighbouring states.

Bamboos grow wildly in Meghalaya, which can be used for opening paper mills. Barren hills in the state can be utilised for growing bamboos and grass needed for such mills.

Besides, sheep-raising in a cold climatic condition of Meghalaya can offer not only the possibility of meat but also most essential items of woollen goods.

The growth of small-scale agro-based industries, which have a very high employment prospects for the rural Meghalayans has been very tardy inspite of various facilities and incentives offered. Main reasons are lack of

adequate infrastructure, entrepreneurial shyness etc. These entrepreneurs suffer from what may be called an 'isolation paradigm'. In isolation they do not dare to invest their funds in industrial activities, which have risks atleast initially. Therefore to have such industries set up in the rural areas, the government may consider creating an appropriate environment for undertaking industrial projects.

If the government sets up some model industrial units, I believe it would create a conducive environment for potential entrepreneurs to come forward to exploit the unexploited natural resources.

There are a number of organisations at State, Regional and National levels operating in the Region, who are directly or indirectly contributing to entrepreneurship development. However, there is lesser amount of coordination among these organisations. As a result the development has not taken place properly. So the entrepreneurs should follow up duty to pull the incentives and facilities from the authorities concerned. Because many times, they were promised but not offered such incentives. This will help in steady and sure growth of entrepreneurship among the tribals. Once the first generation of entrepreneur are developed and promoted it will have spread effect leading to emergence of tribal entrepreneurship naturally from within (Malu, 1989).

Self-employment scheme had got enough importance in the state. This new programme was aimed at generating productive jobs with multiplier effect (Bagchi). But it must be borne in mind that for the entire output of such self-employed ventures, the market has to be necessarily local.

Meghalaya with its remoteness both from the main production centre and the major markets in the country remain free, to a large extent from the industrial impulses experienced elsewhere. Unless, the producers can get remunerative prices for their products, there will be little incentive for them to improve technology and increase productivity. This underlines the need for the development of marketing facilities. For this purpose, setting up of collection and trading centres at important places would be helpful. This will help even small farmers to get better prices for their products. However, these facilities cannot come up on their own. The state will have to take the lead in organising them in a big way. The consortia approach in marketing these industrial products may also be considered. NSIC can play an important role in this regard. For consortia approach in marketing identification of product and also production base is important. The district industries centre can identify product and production base or special study may be commissioned for identification of production and the products for consortia approach in marketing. Funding for such studies may be done by NEC/or IDBI.

It is the neglect of agriculture that has kept down the growth of other sectors. Unless agriculture develops to provide the necessary bases, no self-employment venture would ever succeed. Agricultural development would not only generate larger income in the rural set to be expanded on the newly created industries, business and service sectors, but also will itself absorb a considerable labour-force lying hitherto unemployed and under-employed.

Meghalaya has the added advantage of a vast area of hitherto inactive land which can be opened up for productive use. There is ample scope for substantial increase in agricultural yield in the state. From the physical and climatic point of view the area is better suited for raising high value crops. The fruits grown could have a market in the neighbouring states. Thus it is quite logical to hope that a change in the cropping pattern of cultivation in favour of cash-crops and horticulture would help in raising the farm income and productivity growth and thereby leading to employment growth too.

However, in the development strategy for small industry development, certain realities are to be accepted and action taken accordingly. There are a number of industries, where local labour are conspicuous by their absence. Local labourers are either not employable or not interested in such kind of work. For instance, in Assam there are hardly any local labourers in steel re-rolling mills, brick fields, construction industries but these kinds of industries are necessary for economic development in the state. As such, such kind of

industries may be mechanised or labours from outside may be allowed to be engaged. Along with these, measures may also be taken to develop skill and also to motivate local labours to work in such kind of industries.

The promotion of employment in the urban areas could be possible through the creation of efficient relatively small sector unit which can suitably be linked up with more capital intensive industries. It would therefore appear that the increase in production and employment should be secured through the use of different techniques. Labour-intensive techniques by stages could yield place to capital intensive techniques over optimal periods.

While dealing with employment growth we need to use the techniques which monitor the productive employment generation rather than employment expansion in isolation. An employment oriented technology should be able to achieve the dual objectives of increased employment and increased productivity. No programme of employment expansion can sustain, unless additional employment generated is productive.

Therefore, studies on employment generation cannot be separated from income generation aspects and they should evaluate the employment expansion along with the productivity criterion. Such an approach would be useful to identify the technological possibilities for increasing the labour input, without reducing the marginal productivity of labour (Hebber and Bisabiah, 1985).

The modern technology is to be harnessed for the benefit of the economy. Labour-intensive techniques are to be preferred wherever possible. Because poverty and unemployment are the 2 major problems we are facing today. Man is no longer helpless in front of the machine, for the Ricardo effect¹ can be neutralised through proper management of the economy.

Therefore, the new planning strategy should consist of :

- 1) Employment intensive sectoral planning;
- 2) Regulation of technological change to protect and enhance employment;
- 3) Expansion of infrastructure and social service;
- 4) Production of wage-goods by the use of labour-intensive techniques.

1 Throughout the 19th Century the relation between the application of modern machines and the volume of employment was a subject of heated exchange. It was known as the compensation controversy. David Ricardo startled and annoyed many of the friends by his conclusion that machines destroyed jobs in the short-run, in particular, John Stuart Mill dismissed the so-called 'Ricardo Effect' as a rare practice, or feeble in magnitude, soon to be swamped by the positive impacts of faster capital formation. By contrast, Marx saw in machines the seeds of the 'Reserve Army of Labour' that was supposed to swell in ranks over time.

After a long silence in the literature the question was re-opened systematically by John Hicks in 1932 and received at that time an untenable formulation at his hand. Subsequently John Robinson, Paul Samuelson, Charles Kennedy and again John Hicks among others, have dealt with it. The topic also appeared in a big way in the debate on the choice of technique in development planning (Ranjit Sau, 1985).

The public sector should on its own initiative, take up a programme of establishing at least one medium or small-scale industrial units in every district, every year. So that in five years' time, there would be at least 5 such units in each district of Meghalaya. This would have a catalytic effect and rural entrepreneurs would come forward with their savings for investment in industrial projects, which should be supported by financial assistance through term-lending institutions.

For administrative purposes; this proposed public sector in small and medium scale industrial enterprises may be kept under the jurisdiction of the state governments. The financial and other implications of the proposed state public sector in small and medium scale industry could be worked out, once the basic approach is found worthwhile. It is believed, it would ensure rapid economic growth by balancing investments with savings, increased industrial production and rural educated employment, facilitate regional balance and on the whole, create a favourable atmosphere for rural transformation, which would naturally mean more productive employment generation for rural Meghalayan.

In employment-oriented planning the pre-requisites are availability of specific skills, a broader capital base of a relevant consumer goods sector.

The experience of planning and the implementation of plans in the past has shown that even well-considered and

technically sound plans have often failed to fulfill the expectations with which they were launched mainly because the administrative apparatus was not adequate to the new task. Sound administration has a key place in the structure and articulation of educational system. In near future we might have to make a hard choice for the development of human resources for economic growth. At all levels, choice has to be made between quantity and quality. It may also take many forms such as between primary education for all and a fairly higher quality secondary and higher education and vocational training for a comparatively small number. In general, social and political pressure will emphasise on quantity, however, economic growth would emphasise quantity at the base but quality at middle and higher levels of education. In building technical skills or craft level, a choice is to be made between placing the primary responsibility for it on the formal educational system or on employing institutions. In practice, it has to be joint responsibility of both, the modality for which have to be carefully worked out.

The approach to rural employment has to be different. The construction of rural works, and creation of industry in these areas should be so designed as to provide employment round the year.

To ensure better employment opportunities, no doubt the stock of capital should be increased. But if this is achieved in the aggregative sense of a national stock, the purpose of reducing unemployment burden may not be served. We should take

into account region and sectorwise distribution of investment and capital assets. A theory of employment should merge with a theory of regional development (Das, Nabagopal, 1978).

All these should imply that there should be planning at the grass root level. Every blocks of every small scale unit of factory must draw up its production plan in a manner which will open up scope for full utilization of the available labour-force in the locality. Instead of imposing plans and projects from the top, these should be done at the grass root level so that the physical mental and emotional powers of the labour-force in a locality can be properly harnessed.

The major weakness of the planning exercises in Meghalaya has been that significantly enough employment generation did not form an integral part of the planning strategy in the state. Removal of poverty has not been accepted at any time as a time-bound programme. No deliberate techniques of investment have been adopted so far, that are labour-intensive. The employment expansion was not sought as a direct goal of our planned activities.

But the problem of unemployment in Meghalaya is keenly felt. Meghalaya has a population of 13,28,343 and of which the total non-working population comprises 7,21,273, i.e. 54.3%. These non-workers include both unemployed as well as old, students, etc. However, such a great percentage of non-workers threatens the explosion of employment problem in near future.

May be it is not as severe as it is in the rest of the country. Still it is time to have a micro-level planning to eradicate the problem of unemployment and poverty, before it becomes too late. So that the problem can be nipped in the bud. .

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Table 1(a) : Industrywise classification of labour
December 31st)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Agriculture and allied	1447	1580	1728	1854	1997	1887	2096	2186	2190	2263	2388	2525	2710
Mining and Quarrying	153	157	152	144	150	138	136	134	240	251	185	186	500
Manufacturing	1609	1623	1695	2106	2148	2125	2325	2345	2350	2412	2233	2227	2063
Electricity	2340	2628	3275	3669	3924	4444	4582	4627	4700	5636	6018	6234	6414
Construction	4875	4737	5065	5012	5132	5423	5008	5498	5169	5114	5315	5418	5607
Transport	1296	1832	1838	1813	1929	2238	3551	3573	3350	3190	3179	3039	2861
Service	30969	28473	28613	29475	30699	31337	33629	36552	37635	38518	39956	41203	42038
Total	42689	41030	42365	44073	47920	49699	51077	54615	55634	57382	59274	60832	62163

Source : Directorate of Employment and Statistical Handbook, 1987.

Table 1(b) : Industrywise Classification of Labour
(in thousands)
(Moving averages)
(December 31st)

	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
Agriculture and allied	484.15	494.29	506.93	516.94	531.99	552.14	567.18	579.73	594.83	617.46	625.12
Mining and Manufacturing	1.8	2.0	2.3	2.3	2.3	2.5	2.5	2.6	2.5	2.4	2.5
Electricity	3.0	3.5	3.8	4.2	4.5	4.6	4.7	5.2	5.8	6.1	6.3
Transport	1.8	1.8	1.9	2.1	2.9	3.6	3.5	3.3	3.2	3.1	3.0
Service	33.4	34.1	35.2	36.3	37.7	40.3	42.4	43.2	44.5	45.9	47.1
Total	524.15	535.69	550.13	561.84	579.39	603.14	620.28	634.03	650.83	674.96	684.02

Source : Directorate of Employment

Table - 2

	1971		1981	
Main workers	4,46,828		5,87,158	
Percentage of the total population	44.17%		43.43%	
Workers classified by broad industrial category	1971	%age dis-tribution to total working force	1981	%age dis-tribution to total working force
1) Cultivators	3,08,978	69.15	3,73,480	63.60
Agricultural labourer	44,131	9.88	58,236	9.92
2) Household industry, Manufacturing and Processing	10,519	2.35	6,403	1.09
3) Other workers	83,200	18.62	1,49,339	25.43

	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
Agriculture and allied	47.1	53.3	60.00	68.93	75.67	76.83	86.98	101.86	106.78	109.95	113.00
Electricity	4.9	3.92	2.91	.37	-1.11	3.06	3.4	1.97	-0.27	-3.66	-4.8
Transport	.1	1.85	4.00	3.93	6.07	8.18	12.29	13.7	15.15	22.84	23.1
Manufacturing and Mining	1.4	4.00	6.7	6.84	9.52	11.41	13.03	17.88	24.42	27.62	27.61
Service	34.5	51.90	69.00	82.28	93.86	106.43	124.65	140.62	163.22	197.27	218.00
Total	88.0	114.97	142.61	163.35	184.01	205.91	240.35	276.03	309.3	354.02	376.91

Source : Directorate of Employment and Statistical Handbook, 1987

Table 4 : Total Expenditure (Revenue Expenditure and Capital Outlay)

(Rs. in crores)

	1977-78	1978-79	1979-80	1980-81*	1981-82	1982-83	1983-84*	1984-85*	1985-86*	1986-87*	1989-88
Agriculture and allied	9.37	11.42	12.85	16.1	18.88	18.60	19.47	21.10	22.71	24.40	26.11
Mining and Manufacturing	1.70	3.05	2.85	3.3	3.60	3.50	4.55	4.99	5.35	5.75	6.15
Electricity	.16	.26	.59	.45	.35	.31	.62	.67	.72	.78	.83
Transport	7.05	7.89	9.72	11.8	13.94	14.81	16.38	17.70	19.4	21.4	22.0
Services	28.02	29.95	36.23	52.8	60.89	74.14	74.5	82.00	89.7	96.55	141.0
Total	46.3	52.57	62.24	84.45	97.66	111.36	115.52	126.46	137.88	148.88	196.09

* Projected figures

Source : Directorate of Employment and Statistical Handbook, 1987

Educational level	1971		1981	
	Total literate in different educational levels	Percentage	Total literate in different educational levels	Percentage
Primary Education	96623	32.39	1,30,076	29.37
Middle Education	73325	24.58	1,06,823	24.12
Matriculate or H.S.	22671	7.6	52,369	11.82
Non-technical diploma or certificate not equal to degree	1551	.52	17	.003
Technical Diploma or certificate not equal to degree	507	.17	580	.13
Graduate and above	9575	3.21	16,284	3.68
Total literate (298,312)		Total literate (4,42,949)		

Source : Census Report 1971, 1981.

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