

**ECONOMIC DEVELOPMENT AND STRUCTURAL CHANGES IN
EDUCATED LABOUR MARKET, IMPLICATIONS FOR
MANPOWER POLICY DECISIONS :
AN ECONOMIC ANALYSIS OF THE INDIAN CASE**

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DECLARATION

Certified that the dissertation entitled -
"Economic Development and Structural Changes in Educated
Labour Market, Implications for Manpower Policy Decisions:
An Economic Analysis of the Indian Case", submitted by
Mr. Debasish Mohanty is in fulfilment of eight credits
out of the total requirement of twentyfour credits for
the Degree of Master of Philosophy of the University.
This dissertation has not been previously submitted for
any other degree of this University or of any other
University, and is his original work.

We recommend that this dissertation may be placed
before the examiners for evaluation.

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(Supervisor)

**"Any plan which exploits the raw materials
of a Country and neglects the Potentially
more Powerful manpower is Lopsided and
can never tend to establish human equality".**

**- Mohandas Karamchand Gandhi
(The Mahatma)**

C O N T E N T S

	<u>Page</u>
ACKNOWLEDGEMENT	i
INTRODUCTION	1
CHAPTER - I Structural changes in Demand condition in Employment pattern and Inter-sectoral shifts	12
CHAPTER - II Changes in supply structure Increase in Educated labour force and change in unemploy- ment pattern	30
CHAPTER - III Other changes in the job market structure, workforce, partici- pation rate, Public sector vs Private sector	55
CHAPTER - IV Policy Issues Implications of the structural changes on manpower policy decision	75
CONCLUSION - A Generalisation	97
APPENDICES	106
BIBLIOGRAPHY	

LIST OF TABLES

- Table - 1** Inter-sectoral shifts in Educated Employment structure (1971-1981)
- 2** Achievements at different levels of Education
- 3.** Employment Exchange Statistics
- 4** Graduate and post-graduate job seekers classified by Sex and area of study (1971-81)
- 5** Change in Sex and Educational composition of job seekers (1971-1981)
- 6** Occupational composition of work seekers 1970-71 and 1980-81
- 7** Occupational Distribution of vacancies notified in 1981
- 8** Number of vacancies open to freshers (Graduates and Diploma Holders)
- 9** Percentage of Educated Non-worker to Total Educated labour force
- 10** Education specific works participation rates of Male Main Workers by Age and Rural-Urban categories
- 11** Educational occupational distribution Public Sector
- 12** Educational occupational distribution Private Sector
- 13** Total Employment by Industry Division
- 14** Annual growth rate for Service Sector of countries by economic grouping
- 15** Sectoral Distribution of Incremental work force
- 16** Distribution of Male Main worker by occupational Division (1971 and 1981)
- 17** Educational Profile of Unemployed

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INTRODUCTION

Economic development can be viewed as a set of interrelated changes in the structure of different components of an economy. These changes are both the result of and causes for its continued growth. They involve the composition of demand and supply of different factors of production. The employment structure of an economy is considered as one of these structural changes that define the transformation of a modern economic system. Labour market of any economy goes through a process of change over the years of development both structurally and functionally. Specifically speaking for developing economies these changes are rapid radical and having important implications for long-term manpower planning and short-term employment policies.

My present study seeks to focus on a particular important sphere of the labour market i.e. educated labour market in the context of developing economies. In general the goal of studying human resource development on the analysis of educated labour market is to provide guidelines for public and private policy which will help develop and utilise the labour forces as well as solve other related problems. What are the changes brought about in the process of economic prosperity to the educated labour market ?

What could be the policy implications behind these changes or how far these changes can be manipulated towards the interest of an economy? These are some of the basic questions I am trying to answer in forthcoming chapters.

The market for educated manpower is complicated by a number of factors. First, demand and supply are interrelated to the extent that the amount supplied to the market (in the form of degree/diploma holders) determines in part the degree of utilisation by those, demanding the service of educated persons. This in itself becomes very difficult to predict and quantify the demand. The supply of highly educated manpower also tends to be inelastic in the short-run, causing the burden of short-run adjustment to be placed upon salary increase or substitution of less-qualified personnel. Analysis of 'supply' and 'demand' conditions also is complicated by the fact that few labour markets are 'closed'. Since workers cross international boundaries, it is not possible to restrict market analysis to factors influencing domestic demand and supply conditions.

If one wishes to understand the labour market problems in developing countries, then one has to ask how this term is to be interpreted and what the peculiar constituent characteristics of the labour market of a

developing economy are. In the industrial economies this market differs in a number of different ways from the market in developing countries.

The following comments refer only to the developing countries.

- The employment problem of developing countries does not solely consist of overt unemployment, but also of underemployment. Since the majority of the labour-force earns a living or barely survive by engaging in independent family oriented and small business activities, the notion of the labour market has to be defined differently and more broadly than in the case of industrial countries.

- There are some specific situations that involve frequent changes in the demand for labour (particularly in agricultural sector).

- Also the matter of our concern here is the change from self-employment to salary earning from one job to another from passive unemployment to active reserve from one career to another. These fluctuations considerably impair 'transparency' and all the more so, given the inadequacies of appropriate information system.

- In a number of developing countries (including India)

substantial parts of the production and service sector consists of a mixture of private and public sector companies, operating in a considerable number of cases largely under state control or under state ownership. This state of affairs undoubtedly determines the demand function of these sectors of the economy in a specific way.

- Apart from this the labour market in the modern sector manifests a number of deficiencies from the general perspective of developmental policy because among other things it has a pronounced 'oligopolitical' character. The expression 'oligopolitical' is to be understood in a double sense, on the one hand early concentration processes have reduced supply to relatively few potential employers, on the other hand this supply is largely restricted to urban areas.

- Finally it should be pointed out that there exists a second labour-market in the form of the so called informal sector which to all purposes is impossible to gauge.

And now considering these important peculiarities of labour-market in developing countries, our present concern is to study the specific changes in the educated labour-market structure along the path of economic development. The representative character of India, as a third world developing country and the easy availability

of statistics relating to its economy are the reasons behind the choice of India as my case study.

EXISTING LITERATURE REVIEW

Although the labour market as a whole, has been studied in its widely varied aspects, very little progress has been made so far in this particular aspect of educated labour market. Considering about Indian educated labour market, so many authors including, Mark Blaug P. R. G. Layard, and M. Woodhall (1969) have studied the Indian case in view of the unemployed educated labour force. But particularly speaking, no specific work has been made so far in the aspects of "structural changes in sectoral occupational distribution in educated market".

This would be the most important point of attention in this dissertation.

Many authors including Colin Clark (1940)¹ Gunnar Myrdal (1968)², Priyatosh Haitra³ (1969), G. L. Bansal⁴ (1958)

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1. Colin Clark, The condition of Economic Progress (1940) London, (Macmillan).
 2. Gunnar Myrdal, Asian Drama; an inquiry into the Poverty of Nations (1968).
 3. Priyatosh Haitra, Changes in Occupation Pattern and Industrialisation in India 1901-1961, in Trends of Socio-economic changes in India (1871-1961), Indian Institute of advanced studies, Simla (1969).
 4. G. L. Bansal - Industrial Development in India (1958).

and Planning Commission of India (1972) had studied the hypotheses that there is a close relationship between development of an economy on the one hand and occupational structure on the other, and that economic progress is generally associated with certain distinct necessary and predictable changes in occupational structure. But in these papers no reference was made, to the proportion of educated labour to the total share of workers in that particular sector. A.G.B. Fisher, like all the previously mentioned authors reaches the conclusion: "We may say that in every progressive economy there has been a steady shift of employment and investment from the essential primary activities to secondary activities of all kinds and to a still greater extent into tertiary production."⁵

But empirically it is found that along with the process of development, education tends to expand, especially in developing countries. And this results in a spurt in the supply of educated manpower mismatching the demand for it, which ultimately leads to "diploma depreciation". At this particular level of development, some other socio-economic changes takes place as a consequence

5. Economic Progress and Social Security (1945), pp. 5-6
Quoted by H.A. Khan in "Problems of Growth of an Under-
developed Economy, p.121.

of the interaction of different market forces. The pressure of unemployment and growing stability and increasing profitability in other non-service sectors act respectively as push and pull factors which diffuse educated labour market. And a new pattern of occupations is experienced among educated workers which is different from the set occupational patterns.

Apart from this, scientific developments, technological advancements, mechanisation, green revolution, urbanisation, changing socio-political processes, democratic values, socialist pattern of society, and protection to weaker section, all these factors play some distinctive roles in bringing about these structural changes. In fact it goes in a circular way of interaction.

Industrialisation not only creates innumerable new job opportunities but also throws up new occupations, in the wake of development of improved technological processes and new raw materials. Technological improvements and related changes may also cause employment to decline in some occupations and simultaneously to increase in certain others.

The latest development of the industrial revolution,

automation when ushered in India and other developing countries on a large scale will have a still greater impact on the occupational world and educated employment market.

Urbanisation always results in greater housing, educational, transport and recreational activities, and thus throws up innumerable service industries and occupations to cater to the demand of urban educated population.

PLAN AND PURPOSE OF THE STUDY

The purpose of my study is three-fold. First to study the nature and determinants of sectoral changes in educated employment during the course of economic development from traditional to modern sectors in initial state or vice versa in later stages of development. Second, to examine the implications of this structural changes for a developing country like India. Third, to study the impact of educational factors on occupational structure.

In very general terms the plan of this study is that a deductive outline of the problem involved will lead to the construction of a model which can be generalised for developing world. For the sake of concreteness and to render the problem more manageable, the study will then be confined mainly to India. The reference period

is here 1970 to 1980 roughly. This particular study then can be set in broad picture of what happens in developing world as a whole. To add depth of understanding of the socio-economic process of change a comparative study of the Indian states will also be made.

In this study the independent variables that govern the analysis are socio-economic changes in educated labour market. Four different categories of such changes may be distinguished; namely, sudden or gradual, particular or general. Sudden change is often associated with conscious innovation such as use of computer or rapid educational expansion. Gradual change is more usually associated with changing attitudes that are perhaps unconscious such as women's participation sectoral shift etc.

The hypotheses which will be tested include the following :

1. In the process of development there is a tendency in educated labour force to shift to economic sectors characterised by high wage employment and stability.
2. There is no proportional relationship between the share of educated employment and degree of economic development.

METHODOLOGY AND CHARACTERISATION

The first two chapters deal with the quantitative changes in demand for labour are analysed and the structural changes in sectoral level are studied. The second chapter takes care of the supply side of the market. In this chapter an attempt is made to discuss the educational development in India over plan period (especially in reference period), employment in public and private sectors, employment by zones and states, employment in selected industries/occupations etc.

The study in the first chapter is based on the analysis of a combination of national cross-section and time series data. Data on labour force and educated employment by economic sector are collected. For 1971 and 1981 from census reports. National Sample Surveys also publish abstracts containing this figures, by sectoral origin. Where the number of educated employment is not available it will be taken as an approximated proportion of total employment in that sector. Total employment as well as educated employment will be disaggregated on the basis of occupation to examine how the process of industrialisation is likely to redistribute the total labour force and total volume of educated employment among different economic sectors and occupational groups.

The third chapter deals with the other mainly qualitative, changes in the educated labour market. Since the possibility for fully utilising an existing labour force and the supply potential are not determined only by general economic and technical factors but also by social, cultural, institutional and political factors, as they relate to a particular society, analysis will be made to highlight these aspects. These factors include sex composition, migration, employers' behaviour, 'devaluation of posts' and break-up of occupations etc.

The pen ultimate chapter will look into the implications of these changes for a development planning and manpower policy. The manpower imbalances and their impact on labour market is discussed in this chapter also.

Finally in the conclusion chapter some general conclusions will be drawn from the overall study of other developing countries as well as India.

And of course some appendices on data source and economic models and a select bibliography are added at the end of the dissertation.

CHAPTER - I

STRUCTURAL CHANGES IN DEMAND CONDITION

- Changes in Employment pattern
and Inter-sectoral shifts.

All the changes in a labour market should ideally be analysed in terms of demand and supply. So in this very first chapter the overall attention is focused on demand that is the overall pattern of jobs and other economic activities. But apart from that the importance of this chapter is that the core matter of the whole exercise lies here. What are the changes that took place in the sectoral pattern of employment of educated labour force over the period of our reference. Is there any marked change in educated workforce participation rate? What were the changes in the ratio of educated labour to total labour force that the country experience through the years of economic development? These are some hitherto unanswered questions about Indian educated labour market which will be analysed by this paper. Before starting I must begin with a confession that the nature of this chapter will be only exploratory and then the findings shall be analysed with a view towards policy implications. But not much attention is paid towards the causal analysis.

Change in the sectoral composition of employment is a frequently used measure of structural change in labour market. Similarly changes in the sectoral composition of educated employment can be used as a measure

of change in educational occupational pattern in educated labour market. Moreover these changes have important implications for perspective manpower planning and for growth of the economy. Because rates of growth in different sector can diverge widely, sectoral share in employment also changes during the course of economic advancement. These relative shifts or structural changes can also arise from the contraction of one sector and the simultaneous expansion of other. The sectoral composition of educated employment, I am using here, as the means for comparing structures of economies with different levels of development.

Now, before we look at the sectoral shifts, we shall consider briefly the factors which may cause such a shift. Here we are obviously referring to the labour market as a whole. While examining the structure of production, Fisher and Clark observed a Progression in the allocation of labour from Primary to Secondary and Tertiary employment, which they explained largely on the basis of changes in domestic demand.¹ The Fisher.

1. The changes in the industrial distribution of the labour force and employment are said to have been observed first by Petty in the Seventeenth Century. See C. Clark: The conditions of economic progress (London, MacMillan, 1940) 3rd edn., 1957.

Clark hypothesis is in essence a theory of the determination of sectoral output, linked to an observed regularity in the movement of sectoral employment, assuming output pattern determine employment pattern.²

But this argument is primarily demand centred, relying largely on income effects. The sequence in sectoral employment shifts is normally explained as follows. Per capita income determines the pattern of consumption in accordance with sectoral income elasticities of demand (Engel's Law); the pattern of consumption in turn determines the pattern of sectoral output, and the pattern of sectoral output itself determines the pattern of sectoral employment. However the hypothesis ignores the effects on output arising from factor prices and the sectoral differences in elasticities of factor substitution and differences in the relative growth of factor supplies. Because of these reasons the Fisher-Clark hypothesis fails to predict the contrary movement of output and employment between sectors. For instance Ramos (1976) in a study of several Latin American countries observed a strong shift in employment

2. See Joseph R. Ramos : Labour and Development in Latin America (New York, Columbia University Press, 1970).

from the primary in to the tertiary sector bypassing the secondary sector.³ According to Ramos this inadequacy in the Clark-Fisher hypothesis may stem from two factors. On the one hand differentials in the growth of sectoral output may not correspond to sectoral differentials in income elasticity of demand, and on the other hand, sectoral employment may not increase in proportion to sectoral output.

The non-proportional relationship of sectoral output and sectoral employment may be due to several reasons. First, there may be sectoral differentials in factor intensity. Generally manufacturing production is more capital intensive than tertiary production. As a result an increase in manufacturing output will provide less additional employment than a similar increase in output of the tertiary sector. Second, there may exist differentials in sectoral elasticities of factor substitution. The greater the sectoral elasticity of factor substitution, the greater will be the extent of substitution of capital for labour in that sector. In their famous article, Arrow, Chenery, Minhas and Solow have shown that the elasticity of

3. Joseph, R. Ramos, op. cit., p.141.

substitution between capital and labour is the greatest in the primary sector and the least in the tertiary sector.⁴

Therefore an increase in the proportion of capital to labour will induce the greatest substitution of capital for labour in the primary sector, and the least in the tertiary sector, with the result that, employment will decrease the most with an unit increase in output, in primary sector, and increase the most in the tertiary sector. No doubt, this proposition is true in case of general labour. (But we should consider the fact that, the capital which will displace ordinary labour from the sector, would need a greater proportion of skilled or educated labour to handle the capital equipments in production process). Third, there may be also sectoral differentials in the rates of technological growth. Assuming technological growth to be a neutral factor, the greater a sector's

4. K. Arrow, H. Chenery, B. Minhas and R. Solow: "Capital Labour Substitution and Economic Efficiency", in Review of Economics and Statistics (August 1961). Their estimates of the elasticity of substitution, 'b' between capital and labour for different sectors of the economy, from data on relative factor inputs and prices in Japan and the U.S. were

b = 1.16 for Agriculture and mining

= 0.90 for Manufacturing

= 0.40 for Services

rate of technological growth, the slower will be its growth of employment, with an unit increase in output.

Here, assuming, educated labour market and general labour market as separate entity, quite contrarily we are going to show in intra-sectoral analysis of educated labour market that with an unit increase in output the proportion of educated labour will be higher in those sectors. The most common view is that the rate of technological growth is lowest in tertiary sector and highest for the primary and secondary sector.⁵ 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. But since use of capital and modern innovations demands the use of educated labour, the case for educated labour market is just the reverse direction though not in the same degree. In order to test the hypothesis I have chosen here the

5. This may be because of the fact that much of the tertiary production can not be traded; hence it is less subject to the stimulus of competition for innovation, and has a small market; Secondly, 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.

empirical case study for India. Both the general labour market and the educated labour market are compared as separate entity.

The period of reference is "1970's to 1980's. The choice of the reference period obviously is not arbitrary.

(a) Firstly, the Indian economy has experienced a quite substantial growth rate over the period of reference, and this period is fairly free from abnormalities and not influenced by outside factors.

(b) Secondly, in order to make a scientific comparison we need comparable statistics. Census operation of India was standardised and inter-censal data were made possible for comparison only after 1971 census (Because of change in the definitions of different concepts).

(c) Thirdly, why I did not include 1961 which obviously would have provided more insight, is that 1961 census does not carry the educational level break-up of occupational pattern, for all the sectors under our study. Particularly speaking, cultivators and agricultural labourers were not included in the educational level break-up of the desired statistics. And also the

definition of "economically active population" and different 'sectors' was changed after 1961.

Now before going into the statistical analysis for testing the hypothesis, we should define different terms for our purpose.

'Worker' - A worker is a person whose main activity is participation in any economically productive work by his physical or mental activity. Work involves not only actual physical work but also effective supervision and direction of work.⁶

'Educated Labour' - A worker having educational qualification of matriculation level or above, i.e. Higher Secondary, Technical and non-Technical degree and diploma, and Technical and non-technical post-graduation.

'Primary Sector' - The employment under this sector includes three categories of people -

- (i) Cultivators
- (ii) Agricultural Labourers

6. Persons busy in household duties, dependents, students, beggars, inmates of institutions like jail, are not included under worker category. They are categorised under 'non-worker' while the participation rate is calculated.

- (iii) People under livestock, forestry, fishing, hunting, plantation, orchards and allied activities.

'Secondary Sectors' -

The activities under this sector are :-

- (i) Mining and quarrying,
- (ii) Manufacturing, processing, servicing and repairs, (a) Household industry,
(b) Non-household and industries,
- (iii) Construction.

'Tertiary Sector' -

The following activities are grouped under tertiary sector :-

- (i) Trade and Commerce,
- (ii) Transport, storage and communications,
- (iii) Other services, which include most of the government jobs, administrative, executive and related, clerical, sales, banking and insurance etc.

Data on educated employment both for 1971 and 1981 are taken from the General Economic Tables of the Census report. The Census table shows the classi-

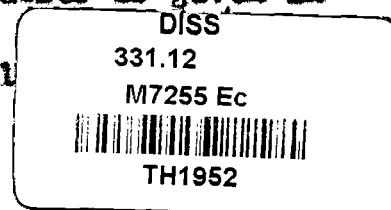
fiction of workers and non-workers according to main activity by educational level for rural and urban area separately for eleven different activities and for male and female both.⁷

First, these raw data are classified and are made comparable for three sectors separately. Then two different ratios (in terms of quotients) for the educated employment are derived for each sector. One of these quotient say ' α ' (Alpha) is defined these as the sum of educated employee or educated persons active under the particular sector, divided by the total economically active population under the particular sector. The second quotient ' β ' (Beta) is defined as the total number of active educated manpower in a particular sector divided by the total existing educated labour force.⁸

The analysis based on national time series data indicates characteristic pattern of change in the sectoral distribution of educated labour force. The Process of industrialisation and economic development alters labour force distribution status in favour of

7. The format of the Census tables is given in Appendix section.

8. See Table 1 and Diagram - 1



educated employment (i.e. the proportion of uneducated employment diminishes). This also shows that the proportion of self and family employment under unorganised sector diminishes in each economic sector, as well as in the economy as a whole.

But the most important conclusion that we reach is that there is also a tendency for educated labour force to shift to sectors of economic activity, characterised by innovations or technological potentials. Secondary and tertiary educated employments, though rose in absolute terms over the 10 year period, relatively those two sectors showed a decline in share of educated employment in proportion to the total educated labour force. However the data indicate that during economic development the decline of educated employment from the tertiary sector corresponds to an equal rise in primary sector, and to some extent in secondary sector. This is interesting to note that once a certain stage of development has been reached, the tertiary sector's share in the overall educated employment declines. This is quite contrary to the normal expectation as it behaves in case of general labour market.

My calculations shows that over the period of reference the share of primary and secondary sectors

both increased in terms of educated employment. And to compensate this rise, the share in tertiary sector came down. Rural and urban figures, taken together, the share of primary sector was 15.28 per cent of total educated employment in 1971. It increased upto 21.22 per cent in 1981. Similarly in secondary sector the ratio % rises from 16.64 per cent to 19.32 per cent. As a result the % for tertiary sector decreased from 67.07 per cent to 59.45 per cent.

In 1961 as H. Blaug⁹ calculated "two thirds of all graduates and nearly two-thirds of matriculates were employed in the public sector, of them two-thirds of all graduates and a half of other matriculates were working in service sector (it even excludes trade and transport). So, giving the predominance of the public sector in services as well as its importance in other sectors, the conclusion we can reach is that till 1961, majority of educated labour force were employed in tertiary sector. So now looking into our findings, the conclusion we reach is that there is a steady fall in share of educated employment, in tertiary sector over the period of economic development.

9. Blaug M. and Others, op. cit., Causes of graduate unemployment in India (1969), London, p.100.

There is of course rural-urban differentiation along expected lines i.e. in primary sector, rural areas have a larger share of educated employment than urban areas. This gap is wide also. In 1981, in the primary sector, rural areas absorb 44.15 per cent of rural educated labour force, service sector accounts for 10.26 per cent only and rest 45.57 per cent for tertiary sector. But the direction of movement of ratio over 10 years is same for both rural and urban areas (see Table 1).

Then coming to the proportion of educated labourers in total workforce in that sector i.e. ratio ' π ', we found ' π ' for all the sectors moved upward for both urban and rural areas. This shows of course the expansion of education and a rise in worker's participation rate. (In the next chapter special emphasis is given in this ratio). Also quite expectedly this ratio shows, in urban areas the number of educated workers grows faster than in the rural areas.

THE CASE OF GENERAL LABOUR VIS-A-VIS EDUCATED LABOUR

For general labour market, the tendency for growing proportions of the labour force to be employed in the tertiary sector is largely due to its low

Table No.1

Inter-Sectoral Shifts in Educated Employment Structure
1971 - 1981

year		Primary			Secondary			Tertiary		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
1971	Ratio α	36.88	2.62	16.28	8.26	22.19	16.64	54.86	75.17	67.07
1981	Ratio α	44.15	3.69	21.22	10.26	26.25	19.32	45.57	70.06	59.45
1971	Ratio β	1.37	4.66	1.47	4.03	15.68	9.94	20.87	31.07	26.80
1981	Ratio β	3.38	9.03	3.60	8.23	24.24	16.74	33.36	42.69	39.06

Note

$$\text{Ratio } \alpha = \frac{\text{TEWS}}{\text{TEW}} \times 100$$

$$\text{Ratio } \beta = \frac{\text{TEWS}}{\text{TWS}} \times 100$$

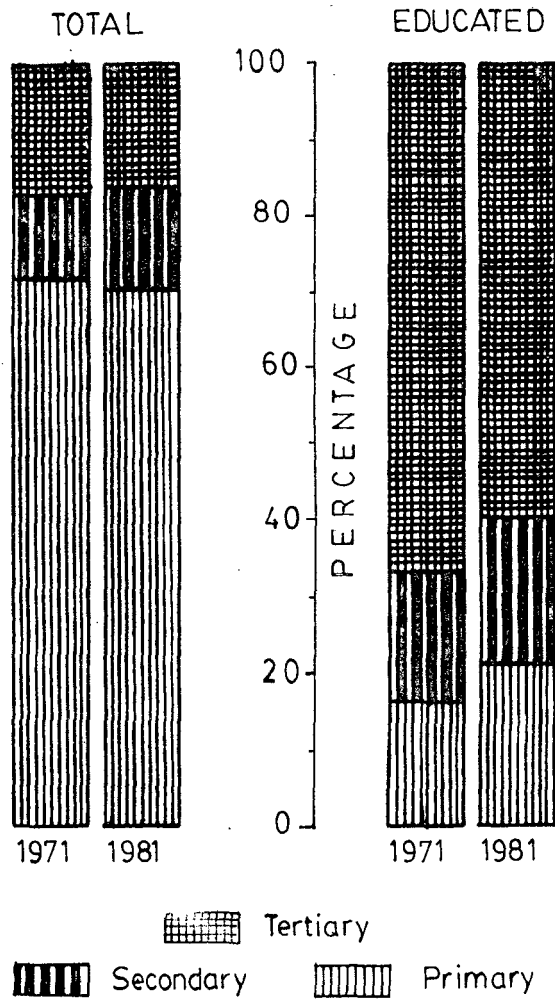
where

TEW = Total Educated Workforce

TWS = Total Workforce in a particular sector

TEWS = Total Educated workforce engaged in a particular sector.

CHANGE IN WORKFORCE STRUCTURE (1971-81)



elasticity at faster substitution, its slow rate of technological growth and the rapid expansion of economic development. But surprisingly the same factor can be accounted for the reverse shift in case of educated labour market. The primary sector and secondary sectors have higher elasticities of factor substitution and higher rate of technological growth, which demands for the substitution of capital in place of manual labour. So manual labour is pushed out of the sector by machines and new technology. Hence arises the need for educated manpower in these sectors in lieu of unskilled labour. Secondly, the factor inputs are substituted in these sectors in latter stages of development.

Since, for India, all these conditions hold good the ratio of educated employment showed a reverse shift. This can be generalised for other developing countries too.

Thirdly, we can not ignore the fact about speedy educational expansion that India has experienced over the period of our reference.* The supply of educated manpower exceeds every year the demand for it.

* See Table - 2 in the chapter II.

The pressure of unemployment also is no mean force to diffuse the educated labour force to other, hitherto not crowded sectors, specially the primary sector.

Fourthly, due to the effect of green revolution, expanded energy and irrigation facilities, technological possibilities of large scale production of primary sector products, off late, it has become profitable to be active economically in agriculture and a allowed fields.

Finally, the diffusion of educated labour force and deviation from set pattern of employment may be due to the effect of education and development taking together. Educated people are more aware, conscious and mobile. Though in the initial stage of development educated people hesitate to go to primary sector, in the latter stages this outlook changes due to so many factors.

Educated employment as a proportion of total employment in each occupation tends to rise with economic development. The rise is most significant for those occupations characterised by high training and educational requirements. And those occupational groups (White-collar workers) that indicate the high

quality labour content in an economy are precisely the same categories that assume importance with industrialisation and economic development.

In the process of economic development, the relationship between the occupational and industrial distribution of the labour force is also modified as a result of increasing diversity of occupational specialisation within industries, reflecting the growing complexity of economic organisation and technology. Further study on the occupation-industry relationship is required to gain knowledge on the factors which affect employment opportunities in various occupations including the effects of changing technology and shifting demand on the products of various industries.

We have also observed that the shifts in the sectoral composition of the labour force and the rural-urban distribution of population are closely related. Among other factors, increasing urbanisation and rising levels of income, through changes in the pattern of demand, lead to an increase in the share of modern sector in GDP. But due to the backward linkage effect it demands higher output in primary sector also, and this is the reason why the shift of educated employment from modern to traditional sector is slower in urban areas than in rural areas. On the supply side, urbani-

sation offers the occupational distribution of labour force through the spread of education and the transformation of economic and cultural aspirations.

There are other factors which have not been emphasized here but may be deemed important in varying circumstances as determinants of structure of employment. These may include the type of political authority, its social institutions etc. Likewise there is the question of income distribution and its probable effects on educated employment levels and structures.

CHAPTER - II

CHANGES IN SUPPLY STRUCTURE

- (i) Theoretical background
- (ii) Output from Educational System
- (iii) Unemployment Structure, changes over the reference period.

In this chapter, the focus of attention is on the supply analysis with relation to the structural changes in educated labour market as experienced by India. At the beginning of this chapter, not going into its validity upper volta's,¹ former Education Minister Joseph Kizerbo's statement is worth mentioning here: "The School in many underdeveloped countries is a reflection and a fruit of the surrounding underdevelopment, from which arises its deficiency, its quantitative and qualitative poverty. But little by little and their lies the really serious risk, the School in these underdeveloped countries risks becoming in turn a factor of underdevelopment."²

For the development of human skills and knowledge as a product in the educated labour market, the principal institutional mechanism is the formal educational system. Almost in all developing countries the educational system are influenced by the whole nature, magnitude and character of their development

1. Now known as Brokina Frasso.

2. Quoted in H.P. Todaro: Economic Development in the Third World (New York) Longman, 1983, p.289.

process. On the other hand it does influence the development process too.

In order to study the changes in the structure of educated labour market in developing countries, the supply side analysis is essential. Since unemployment can be defined as the excess supply over demand, so 'unemployment' would be a good index to measure the changes in supply structure. Our purpose in this chapter is also to explore the relationship between quantitative and qualitative educational expansion and the job market specially through the unemployment structure in the reference period.

It is claimed that quantitative expansion of educational opportunities would accelerate economic growth, and it would raise levels of living especially for poors. Keeping in view the limits of our scope, we are not going to question these claims,. But the claim that "it would generate widespread and equal employment opportunities for all" will come under our discussion.

How far the maxim that the supply creates its own demand is true in context of the job market? Why then is there rising educated unemployment in India? We

could say, that is because the supply widely mismatches the demand for it. But this answer is not an end in itself. Why do then the supply goes on increasing year after year despite a huge back log of unemployment. Mark Blaug tried partially to answer these questions.³ Probably the students in a country like India attach so much prestige to a degree that they persist in staying on at colleges regardless of career prospects; in consequence market forces fail to eliminate unemployment.

But assuming perfect competition in the labour market, the question arises, why is it that the existence of educated unemployment does not cause salary differentials to fall so as to increase employment in the short-run? Though practically this situation is not possible, it can be explained theoretically by "Dynamic Surplus Model" as put forward by Blaug, Layard and Wood Lal,⁴ In this model they infer that "if the elasticities of demand and supply remain constant and the equilibrium wage keeps on falling at the same rate as the going wage, the rate of unemployment will remain constant. Thus from one assumption, namely constant elasticities of

3. In "Education and Unemployment in developing countries".

4. Blaug and Others, op. cit., in Introduction Chapter.

demand and supply and two facts namely a constant rate of educated unemployment since 1950 and a falling rate of real pay for educated people", they infer a conclusion "that the supply of educated people has persistently overshoot the demand for them."⁵

This gap is inevitable between economically motivated demand and politically responsive supply which determines how many school places are provided, what kind of instructions are promoted, and who gets access to these places. In fact the educational expansion, on the supplyside, is determined largely by political processes, often unrelated to economic criteria. Because of mounting political pressure for greater number of schools and colleges throughout the developing world, it can be assumed that the supply is fixed by the level of government educational expenditure. Now let us examine more closely the economic determinants of this derived demand, for it is the demand for education that largely determines the supply.

The following four factors jointly determines the demand for education which gives licence for the entry into modern sector job market.

5. Detailed explanation of the Model and its mathematical analysis is given in the appendix.

(1) The Wage/Income Differential

Entry into modern sector jobs depends initially on the levels of completed education whereas income earning opportunities in the traditional sector have no fixed requirement. So the greater the inter-sectoral income differential the greater will be the demand for education, and so will be the supply.

(2) The Ease at which One can find a job

It can be said that the demand for education will be inversely related to the existing unemployment rate among the educated labour force. The more the number of job seekers competing with each other for the same type of jobs, the less will be the probability of success in finding one such job, and accordingly the demand for that particular level of educational requirement will diminish.

(3) The direct private cost of education

The demand for education would be inversely related to these direct costs, that is higher the educational fees and associated costs the lower would be the private demand for education everything else being equal.

(4) The opportunity cost of schooling

By continuing his education at Secondary level, a child who has completed his primary schooling is in effect foregoing some income he would have earned otherwise with his family business or farm.

**DISTORTIONS IN JOB MARKET
DEMAND-SUPPLY MECHANISM**

And to sum up about the functioning of labour market we must find the causes that hold back the invisible hand from doing its normal function.

(1) The rate at which new school/college leavers enter the market, is faster than the rate of increase in modern sector employment opportunities.

(2) The modern - traditional or urban-rural wage gap is of wide magnitude.

(3) There is a growing tendency among employer to choose candidates from higher educated pool of labour just because "they are there". The educational requirement for a particular post is determined by the highest level of education among the educational levels of applicant. "The irony is that the more unprofitable a given level of education becomes as a terminal point,

the more demand for it increases as an intermediate stage or precondition to the next level of education."⁶

(4) Supported by the trade union pressures and as a political pottatives, Governments tend to bind the wage to the educational attainments of job holders rather than to the minimum educational qualification required for the job.

(5) In many cases the state exchequer bears a large proportion of the students cost at successively higher levels. School and College fees are also often nominal or non-existent.

The above conditions infact hold good for the job market in many developing countries including India.

In Indian condition it is rather hightened where education system is in effect an "absorber of last resort"⁷ for the greater numbers of educated unemployed. The level of education among the unemployed even reaches upto the "research" level in higher education in India. In most of the cases 'research' has become a mere waiting place for a job suitable or not,

6. Todaro - op. cit., p.304.

7. Mark Blaug, et al - Causes of graduate unemployment in India, op. cit.

and the amount of money given in the disguise of scholarship or fellowship by the government to finance research has in effect turned out to be a sort of 'unemployment' allowance.⁸

Now not going for a debate over whether additional education in Indian circumstances is in fact a paying proposition, either to the individual or to the society, we shall see what changes have taken place over a planned decade of developments in the unemployment structure. But before that we shall analyse the quantitative changes in output structure of educational system in India. That is the most authentic index of verifying the supply flow in to the labour market over economic development.

Table -2 shows the achievement at different levels of education in India, from 1950-51 to 1982-83, over the period of five plans. The number of pupils at the University stage (Arts, Science and Commerce) has increased almost 16 times. The population increase over that period was only 25 times over 25 per cent. Number of colleges also has shown an increase of more than 15 times.

8. The case of U.G.C. Financed Fellowship Scheme started recently is an example to be noted. In most of the cases those who succeed in getting through the test are the same either who have already spent some time waiting for a job or are potential job getters. Both the conditions will lead to a high 'Drop-out' rate.

The planned educational expansion at primary level, while resulted in rising literacy level and thus helped in the process of economic development through rising productivity, lowering down fertility rate, at the same time, the misplan in higher education caused only mushrooming of educational institution, adding extra burden to the existing unemployment backlog. The fact is that most of these newly added institutions have been adding to the educated labour force only labours of sub-standard quality.

Since educated work force (matriculates and above) form an important segment of the live register of employment exchange it is desirable also to study the unemployment pattern from employment exchange analysis. Table -3 shows clearly that unemployment is steadily increasing. In 1981 the total No. of applicant on the live registers of exchanges stood at 17,838,300 as against 5,099,900 in 1971 and 18,32,700 in 1961 and which ultimately increased to 21,963,300 in 1983-84. There has been a inconsistent movement, at times a decline, in the volume of employment in the country during the period of the 'plans' when the employment should have been on the increase. The position infact appears to be that "while the various schemes under the

the plan have created new employment opportunities to a considerable extent, the progress on this respect has not been commensurate with the requirement arising out of the large volume of unsatisfied demand for employment and the annual growth in the labour force in the country. In other words employment and unemployment has increased both but disproportionately. In 1981, the percentage of applicant placed in employment out of number of vacancies notified was 66.21 per cent but the number placed in actual employment out of the number of registration was 12.22 per cent. In 1971 the percentage of applicant placed in employment out of the total number of vacancies notified was 61.31 per cent but the number placed in actual employment out of the number of registration was 9.88 and the number of vacancies notified out of total number of registration was 15.85 per cent.

It is clear from these figures that the opportunities for employment were comparatively less while the inflow of 'supply' increased during the reference period. Unemployment in case of educated persons is seemingly more acute than in the case of uneducated persons, as most of the educated people are interested in white collar jobs.

EDUCATIONAL COMPOSITION OF JOB SEEKERS

Table -5 indicates the detailed break-up of educated job seekers according to their educational level and sex. For the reference period, it is disclosed from the table that the educated work seekers have increased by 311 per cent from 1971 to 1981. The increase due to the normal population pressure is 24 per cent. Rest can be accounted to the fast expansion of educational opportunities, and economic development. During 1980-81 number of educated job seekers increased from 76.62 lakhs to 84.49 lakhs thereby recording an increase of 10.3 per cent against a rise of 10.5 per cent in the previous year. Highest increase has taken place in the case of matriculates whose number went up from 11.91 lakhs as in 1971 and 42.22 lakhs as in 1980 to 46.57 lakhs in 1981. Over 10 years the increase was 3.9 times of the base year figure. But for the year 1981 the increase over the preceding year is 10.3 per cent. In the case of under-graduates, including intermediates, although in absolute terms it increased by 330 per cent, between 1971 to 1981, the rate of increasing was falling towards last part of the decade. Of course this may be due to the fact that educational demand goes up higher and higher. In case of graduates

and post-graduates, rate of increase was significantly moving up. In absolute terms over 10 years it showed an increase of 3.80 per cent. But towards the last part of the decade, the rate of increasing was falling.

CLASSIFICATION OF GRADUATES AND POST-GRADUATES BY SEX AND FACULTY OF EDUCATION

The details of the job seekers according to faculty, have been given in table 4. It also gives the break-up of graduate and post-graduate job seekers by sex. The period shown here is 1971 to 1981. The percentage of graduates increased from 370 to 490 in respect of men and women respectively. In the case of post-graduates the absolute number rose up to 4.1 times for both male and female from 1971 to 1981. In the case of male graduate and post-graduates facultywise, the highest were in 'Arts' and 'Commerce' respectively. Over the ten years period number of Arts graduate job seekers increased 6.05 times and commerce post-graduates increased 6.6 times. But in terms of increase over last year i.e. 1980 - in case of male graduates the highest rise was in the case of Engineering Graduates (24.4 per cent) followed by Medicine graduates. Commerce (7.8 per cent), Science 6.8 per cent). There is a decline of 22.4 per cent in the male job seekers in other areas of study from 1980-1981. At the post-graduate level increase in

the number of male job seekers was the highest in the case of engineering (343.6 per cent) followed by Education (53.0 per cent), Others (44.1) per cent, Arts (23.7) per cent, Agriculture (21.0) per cent, Commerce (13.7) per cent and Science (6.2) per cent. The highest increase of female job seekers over ten year reference period was in Arts graduate and Post-graduates. But when calculated as the change over 1980, it is the highest in case of Agriculture graduate (38.9 per cent) followed by commerce (34.7 per cent), Medicine (30.1 per cent), Others (21.8 per cent), Science (17.9 per cent), and Arts (17.2 per cent). At the post-graduate level the number of women job seekers recorded the highest increase of 250.0 per cent in the case of 'Engineering' faculty followed by Commerce (66.5 per cent).

From the above analysis it is clear that though over 10 years reference period, the arts graduates and post graduates job seekers have moved up in numbers towards the end of the decade, the case is different. It is engineering and medicine graduates, these figure in the unemployment list, increased relatively faster than arts graduates. So we can infer from the fact that, it is a transition period characterised by the

influence of demand over supply for manpower. The fields with high job potentials attracts prospective skills to be processed through that particular channel. Here engineering and medicine fields are those high job potential fields. After some period when unemployment will gather momentum of these fields, the invisible hand will start operating and as a result the over crowd in these sector will be diverted to other fields.

But for developing countries this is not a healthy trend, particularly these fields are characterised by high capital investments. States have to spend heavily, extracting money from their resource crunched development budget. From the trend analysis a layman can fore cast that it would take another decade or so for supply to match demand again. Within this period the unemployment pressure would find a safety valve which will ultimately cause severe "internal braindrain". Doctors will have to manage firms, Engineers to take up teaching profession, technician will accept salesmanship not minding the heavy loss the state exchequer already has borne on their skill formation. The case of external 'brain drain' as a result of this mismatch, is much highlighted, which does not require to be mentioned separately.

OCCUPATIONAL COMPOSITION OF JOB SEEKERS

The job seekers, classified by broad occupational group for both the year 1971 and 1981 is given in Table-6. We shall see that during the last year of the decade under our review more than 78 per cent of total work seekers has no technical training or previous work experience and therefore were not classified by occupations. In 1971 the percentage of those people were 50.0 per cent. Though the long-run trend of this ratio over the years of planned development was falling, it has increased in the last part of 1950's. The occupations in which the share of job seekers to total job seekers has increased are production and related workers, and transport equipment operations. In all the rest of occupations the ratio decreased. Professionals and technical workers (including teachers) constituted 4.7 per cent of the total job seekers in 1981 against 4.8 per cent during the previous years. Unskilled workers were 4.2 per cent of the total number of job seekers registered with the employment Exchange against 4.6 per cent during the previous year.

VACANCIES BY OCCUPATIONAL DIVISION (1981)

In order to have a comparative analysis of demand and supply, break up of vacancies by broad

occupational division is given in Table - 7. As in the past, during the last year of our reference period, the highest number of vacancies were notified for the skilled workers numbering 2.62 lakhs. or 29.2 percent of the total number of vacancies notified followed by production and related category of workers and transport equipment operations (1.44 lakhs or 16.1 per cent of the total vacancies notified). The number of clerical and sales services excluding typist was 1.30 lakhs or 14.5 per cent of the total notified vacancies, professional and technical workers excluding teachers were 1.12 lakhs or 12.6 per cent.

VACANCIES OPEN TO FRESHERS

An important aspect of labour market situation is the number of job opportunities which are open to freshers (Fresh educational output coming to job markets). All the vacancies which are notified by the various employment exchange are not open to freshers. Because most of the job eligibility requires some experiences. Other than the 'exchange' jobs, such as those are filled up the U.P.S.C., State P.S.Cs. or Staff Selection Commission, have also bearing on the number of vacancies open to freshers. Table-8 shows

the breakup of vacancies in between 1979-81 and also those which are open to freshers (graduate and diplomas) during the same period. Besides the 'exchange' figures, these include the jobs under the U.P.S.C., State P.S.C. and Railway Board etc. From this table we can notice that the proportion of vacancies open to freshers which had gone up to 77.1 per cent during the preceding year from 72.9 per cent during 1978-79, again declined to 76.0 per cent during the last year of the reference decade. Breaking up the percentage of vacancies open to freshers by faculties, we can see that except for 'teaching' and 'others' categories all other faculties recorded decline in the proportion of vacancies open to freshers as compared to last year.

Table 2

Achievements at Different Levels of Education (1950-1983)

1.	2. 1950-51	3. 1955-56	4. 1960-61	5. 1965-66	6. 1968-69	7. 1978-79	8. 1982-83
Number of pupils in classes I-V (lakh)	191.5	251.7	349.9	504.7	543.7	689.6	770.4
Percentage thereof to total population in age group-6-11	42.6	52.8	62.4	76.7	78.1	81.6	87.2
Number of pupils at the university stage arts, science and commerce (lakh)	3.6	6.3	8.9	14.9	17.0	38.2	47.5
Percentage thereof to total population in age group 17-23	0.8	1.4	1.8	2.7	3.3	4.9	NA
Percentage of students reading science at University stage	37.8	33.0	28.9	29.5			
Number of primary/senior basic schools	209671	278135	330399	391064	400621	472519	50374
Number of high/higher secondary schools	7288	10838	17257	27477	33487	6874	52279
Number of teachers training schools	782	930	1138	601	231	118	1419
Number of arts, science (including research) and commerce colleges	542	772	1122	1788	2141	8698	8011
Number of Universities	727	32	45	64	92	1251	1371

Contd...p/

Contd... Table 2

1.	2. 1950-51	3. 1955-56	4. 1960-61	5. 1965-66	6. 1968-69	7. 1978-79	8. 1982-83
Number of teachers in primary schools.	537918	691249	741515	944377	1005282	1296639	1389356
Percentage of trained teachers in primary schools	58.8	61.2	64.1	70.5	76.9	87.1	86.9
Number of teachers in high/higher secondary schools	126504	189794	296305	479060	581618	818507	993115
Number of teachers in university, arts and science college	18648	27883	41759	66882	91069	249399	NA

1. Includes deemed to be university and institutions of national importance.

2. NA stands for not available.

Source : "Educational Development in India", Ministry of Education.

Table No. 3
Employment Exchange Statistics 1961-1983

Year	No. of Exchanges	No. of Registration ('000)	No. of Vacancies Notified ('000)	No. of Applicant Placed in Employment ('000)	No. of Applicant on the Register ('000)	Percentage of col. IV to col. III	Percentage of col. V to col. III	Percentage of col. V to col. IV
I	II	III	IV	V	VI	VII	VIII	IX
1951	126	1375.3	483.5	416.8	328.7	35.57	30.30	85.67
1956	143	1670.0	296.6	189.9	758.5	17.73	11.36	64.00
1961	325	3230.3	708.3	404.0	1832.7	21.92	12.50	57.04
1966	396	3871.1	852.4	507.3	2622.4	22.02	13.10	56.51
1971	437	5129.9	813.6	507.0	5099.9	15.85	9.88	62.31
1976	517	5619.4	845.6	496.8	9784.3	15.04	8.84	58.75
1981	592	6276.9	896.8	504.1	17838.3	14.28	8.03	56.21
1982	619	NA	819.9	473.4	19753.1	-	-	57.73
1983	652	6755.8	823.0	495.9	21953.1	12.22	7.19	58.82

Source : Employment Review 1961,71,81 (Ministry of Labour and Rehabilitation)

Table - 4

Graduate and Post Graduate Job Seekers Classified by
Sex and area of Study
(1971-1981)

Faculties	1971 in('000s)		1981 in('000s)		1981 figures as %age of 1971 figures	
	Men	Women	Men	Women	Men	Women
Graduates (Total)	250.46	49.91	1179.0	294.2	605	590
Arts*	94.06	26.16	569.9	148.7	363	568
Science	74.21	10.77	269.5	56.7	499	526
Commerce	43.16	0.88	215.6	19.4	136	2200
Engineering	16.14	0.24	22.1	0.5	520	200
Medical	2.56	0.70	13.4	3.4	560	480
Education	10.91	10.58	61.9	59.9	186	560
Agriculture	6.53	0.04	12.1	0.1	490	250
Others	2.90	0.54	14.4	5.5	410	1000
Post Graduates (Total)	23.91	9.15	100.0	37.8	440	410
Arts*	12.46	4.99	55.2	25.8	280	510
Science	6.76	1.40	19.5	7.6	660	540
Commerce	2.37	0.03	15.8	0.9	500	300
Engineering	0.26	**	1.3	**	120	**
Medical	0.05	0.03	0.6	0.1	150	330
Education	2.27	0.23	3.5	2.3	127	X1000
Agriculture	0.55	**	0.7	**	380	**
Others	0.88	0.47	3.4	1.1	470	230
Total	274.37	59.05	1279.0	332.1	466	562

Note- * including Law
** insignificant

Source - Employment Review, 1971 and 1981, DGE&T, Ministry of Labour
New Delhi.

Table No.5

Change in Sex and Educational Composition of Job Seekers (1971 to 1981)

Educational Level	Number in Lakhs						Percentage change over Ten years		
	1971			1981			Men	Women	Total
	Men	Women	Total	Men	Women	Total			
Matriculation	9.93	1.98	11.91	38.42	8.14	46.57	3.86	4.11	3.91
Under graduate (Including Intermediate)	4.68	0.61	5.29	18.27	3.55	22.81	390	581	430
Graduate and PG	2.74	0.59	3.33	12.79	3.32	16.11	453	562	481
Total	17.35	3.18	20.54	69.48	15.01	84.49	410	470	411

Source : Based on Employment Review Statistics 1971 and 1981.

Table - 6(a)

Occupational Composition of work-seekers (1970-71)

		(in thousand)	
Sl. no.	National Classification of occupations (1971)	1970	1971
1.	2.	3.	4.
1.	Professional technical and related workers	323.0 (8.9)	340.7 (7.6)
2.	Administrative and executive workers	6.9 (0.2)	7.5 (0.2)
3.	Clerical and sales workers	156.5 (4.3)	190.1 (4.2)
4.	Farmers, fishermen, hunters and related workers	14.1 (0.4)	15.5 (0.3)
5.	Miners and quarrymen workers	3.5 (0.1)	5.1 (0.1)
6.	Transport and communication workers	92.8 (2.6)	108.9 (2.4)
7.	Craftsmen, production, process workers	222.5 (6.1)	252.0 (5.6)
8.	Service, sports and recreation workers	130.5	26.1
9.*	Labourers with work experience not elsewhere classified	119.4	1302.0*
10.†	Persons without professional or vocational training or previous work experience	3621.3 (100.0)	4494.6 (100.0)
Total		3621.3 (100.0)	4494.6 (100.0)

*Unskilled manual workers.

Note: 1. Figures in brackets are percentages to total.
2. The figures do not add up to the total due to rounding off.

Source: Employment Reviews, 1970-71/1980-81 Directorate General of Employment and training, Ministry of Labour, New Delhi.

Table 6 (b)

52

Number of Jobseekers on the Live Register of Employment Exchanges as on 31st December 1981 classified by Broad Occupational Groups.

(Figures in thousands)

Occupational Division/ Code	Brief Description	No. on Live Register as on 31-12-1981	percentage change to total
1	2	3	4
0-1	Professional & Technical Workers (excluding Teachers)	425.3	2.4
150-159	Teachers	411.1	2.3
2	Administrative and related workers	10.2	0.1
3 & 4	Clerical & Sales Workers (excluding Typists & Peons)	466.8	2.6
321	Typists	427.1	2.4
5	Service Workers (excluding Watchmen, Chowkidars and Sweepers & Water carries)	87.6	0.5
7, 8 & 9	Production & related workers and Transport equipment operators (excluding loaders and unloaders)	1188.8	6.7
358, 541, 542, 574, 630, 640, 971 & 999.	Unskilled Workers	758.1	4.2
6	Farmers, Fishermen, Hunters, Loggers and Related Workers (excluding Agricultural and Plantation Labourers)	79.7	0.4
X	Workers not classified by occupation --		
	(i) Below Matric (including illiterates and others)	6244.3	35.0
	(ii) Matric and above but below Graduates	6405.8	35.9
	(ii) Graduates and above	1333.2	7.5
	Total	17838.1	(100.0)

Source: Employment Reviews, 1970-71/1980-81 Directorate General of Employment and training, Ministry of Labour, New Delhi.

Table - 7

Occupational Distribution of Vacancies notified
in 1981

(Figures in thousands)

Occupational Division/ Code	Brief Description	No. of vacan- cies notified between January 1981 to December 1981	percentage to total
1.	2.	3.	4.
0-1	Professional & Technical Workers (excluding Teachers)	112.5	12.6
150-159	Teachers	98.9	11.0
2	Administrative and related Workers	4.0	0.4
3 & 4	Clerical & Sales Workers (excluding Typists & Peons)	130.0	14.5
321	Typists	22.4	2.5
5	Service Workers (excluding Watchmen Chowkidars and Sweepers & Water carries)	41.3	4.6
6, 8 & 9	Production & related workers and Transport equipment operators (excluding load- ers and unloaders)	144.4	16.1
358,541,542,574, 630,640,971 & 999	Unskilled workers	261.8	29.2
6 & X	Others	81.6	9.1
	Total	896.8	(100.0)

Source : Same as table 4.

Table 8

Number of Vacancies Open to freshers (Graduates and Diploma holders) during 1980-81

Faculty	No. of vacancies* notified during 1980-1981		Percentage of vacancies open to freshers to the total number of vacancies notified during		
	Total	Freshers	1980-81	1979-80	1978-79
1.	2.	3.	4.	5.	6.
1. Engineering	20,704	14,612	70.6	73.3	67.5
2. Technology	821	263	32.0	41.2	43.3
3. Agriculture	2,824	3,103	81.0	83.2	78.5
4. Medicine	7,788	5,480	70.4	71.3	72.4
5. Natural Science	3,609	2,751	76.2	84.9	74.7
6. Social Science (excluding teacher)	7,571	5,351	70.7	75.5	71.7
7. Teaching	13,711	11,832	86.3	72.1	77.8
8. Others	11,469	9,425	82.2	89.5	83.0
Total	69,497	52,817	76.0	77.1	72.9

*Including vacancies notified to UPSC, State Public Service Commissions, Railway Service Commission and Subordinate Service Commissions etc.

Note :- This table is based on the data collected by the D.G.E.&T. for its Bulletin on job opportunities and covers only vacancies open to degree and diploma holders notified to the Employment Exchanges and other recruiting agencies.

Source - Same as table 4.

CHAPTER - III

OTHER STRUCTURAL CHANGES

Part A - Changes in the participation rate with special reference to women's participation.

Part B - Organised and unorganised sectors; changes in the labour force distribution between Public and Private sectors of Indian economy.

In the previous chapter, an attempt was made to analyse the changes in the supply condition of the educated labour market. However it would be necessary to assess the depth and dimension of other changes that have taken place either as a result of planned economic development in the economy or as the chain reactions of effects due to the planlessness in the labour market. The participation rate of educated workforce is considered one such important factor than affects supply.¹ It would also be necessary to analyse the changes in employment pattern in the public and private sectors of the economy, since the distribution of workforce between organised and unorganised sector has one important implications for the educated labour force. An attempt is made in this chapter to analyse these aspects of changes in the educated labour market in India in its totality.

From an economic planning' point of view, there are primarily two reasons for needing a reliable estimate of actual and potential labour supply. First it

1. Though the participation rate comes under the concept of 'supply' decidedly it is discussed in a different chapter because it has some other implications also.

would enable planners to gauge the economy's productive potential and thereby to assess the opportunities available for increasing employment. Second, the directly related to the first, it would make it possible to assess the likely consequences on both the size of the labour force and the level and distribution of unemployment of policies designed to stimulate employment. Just as the level of employment affects the level of labour force activity, having a particularly pronounced effect on certain groups, so the propensity of specific groups to participate in the labour force affects the recorded levels and distribution of unemployment.

IMPACT OF EDUCATION ON PARTICIPATION

The growth of education is one correlate of economic growth and the transformation of traditional economies. Schooling becomes more widely distributed, literacy rate rises and the average number of years of formal schooling increases. Many policy makers in recent years have been convinced that human capital investment is one of the most effective means of stimulating economic growth, and as a result the growth of education has accelerated.

But in most of the developing countries certain groups have benefited considerably more than others where in many secondary and tertiary educational institutions, opportunities have been reserved almost exclusively for the wealthy. Moreover there has been a powerful tendency for males to benefit to the exclusion of females. And once the patterns of education have been set, behavioural reactions have tended to perpetuate the situation. Thus, for instance, because female non-domestic work opportunities have been limited or because women have been expected to take an economically inactive role in society, families have been deterred from investing in girls education. Because women have not been expected to work in the labour force they have been deprived of education; because they have been deprived of education, their employment opportunities have been restricted; and because of that their limited access to education has been rationalised and perpetuated. Similar pattern of behavioural reinforcement explain the failure of most of the poor to make use of even their restricted educational opportunities. Because they foresee a life of intermittent employment requiring little or no education they have little incentive to pursue formal schooling, and as a result that affect the overall educated labour supply.

A general expansion of education necessarily raises the average age of labour force entry, and to that extent education tends to lower the overall level of participation. But there are three sets of issues which arise, the first concerns the inter-relationship between the labour force role and education of children, the second is the effect of education on the participation pattern of adult males; and the third is effect on the extent of female participation. Considering educated labour market as a separate entity, the female labour force participation rate is alarmingly low in case of developing countries. It is in the context that the present chapter will briefly consider the relationship between education and labour force participation particularly in so far as women are concerned.

FEMALE ECONOMIC ACTIVITY AND EDUCATION

According to the human capital school of thought education is a process of investment from which returns accrue both to society and to the individual concerned. As regards the impact of education on labour force participation, a positive correlation has usually been postulated. There can be three separate, albeit related, hypotheses, formulated from this assumed relationship.

First there is the opportunity cost argument of neo-classical economics; second, the association may merely reflect the effect of education on relative employment opportunities; and third the association could be due to the effect of education on income aspirations.

Now coming to the practical aspect of the proposition, we observe, particularly in industrialising economies, the relationship between education and women's economic activity are complex. Certainly Elizaga's² assertion is worth noting here, that it is well known that women's labour force participation rates are positively correlated with their level of education. In the process of industrialisation, education becomes a facilitating condition for female economic activity in so far as it improves women's competitive position in the labour market. It also implies fuller information about labour market opportunities and, to the extent that it broadens horizons and encourages migration in search of employment, it can be expected to encourage participation. However we can argue in the other way, with economic upliftment the 'Status' question comes into consideration. In particular educated women may be reluctant to accept low-status jobs or participate in the informal

2. J.C. Elizaga: "Elizaga participation of women in the labour force of Latin America; Fertility and other factors", in International Labour Review, vol. 109, No. 5-6, May-June 1974, p. 528.

sector. We can claim it to be true at least in case of India, where educated women seek only service sector jobs.

However, the relationship between participation rate and education is liable to be strongly influenced by the level and structure of aggregate demand for labour force. The association may be positive at both high and low levels of demand but negative at some intermediate levels. In conditions of high degree of unemployment employers are most likely to indulge in rigid screening practices, restricting selection to the more educated job seekers. In a relatively tight labour market, educated women are more likely to secure jobs for which they have been prepared by the educational system, and the persistence of a tight labour market will tend to weaken the barriers preventing them from acquiring such jobs, thus ensuring a positive association between educated and female labour force participation. But at intermediate level of demand such barriers may be considerable and in these circumstances the job and income opportunities available to educated women may fall short of their aspiration levels, thereby neutralising any positive association.

In case of developing countries, some previous

studies found that there was existing a positive relationship. In a regression analysis a positive correlation was found between the female activity rate and female education in Pakistan.³ Similarly Nagi (1971) and Sechan (1976) studied respectively the cases of Egypt and Sudan. They found that the ability to read and write greatly increased the chances of women finding work outside the household.⁴

At the same time there are some other studies which also have found some non-monotonic relationship between participation rate and education. The most common type of nonlinearity has been a 'U' shaped relationships whereby those with very low levels of education have had higher rates of participation than those with some what higher levels. But beyond some level, the relationship has become positive again. Sinha (1961)⁵ suggested some such non-linear relationship for India and he argued that the labour force participation women declines with literacy but female education above

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3. G.M. Farooq, "An aggregate model of labour force participation in Pakistan" in *Developing Economics*, vol.10, No.3, September 1972, pp.967-989.
 4. M.Nagi, *Labour force and employment in Egypt* (New York, Praeger, 1971). G.Shechan, *Labour force participation rate in Khartoum*, (Quoted in Guy Standing's *Labour force - Participation and Development*, (U.N.) (120), 1967.
 5. Sinha J.N., "Dynamics of female participation in economic activity in a Developing Economy", vol.IV, *Migration, Urbanisation and Economic Development* (New York, UN, 1967).

the matriculation level favours higher rates of employment."

Only haphazard association has been demonstrated so far by empirical researches. There is not a priori justification for expecting the more educated to have a higher probability of participation than the less educated though under demand-determined participation level argument, it is probable that the more highly educated will be relatively more likely to enter the labour force.⁶

What we have discussed in previous paragraphs are only some theoretical argument regarding education's impact on the workforce participation rate. Now coming to our case study, we shall analyse the changes in participation rate in Indian educated labour market over the reference period.

Let us consider the total educated population as the total supplied labour force in educated labour market, (assuming it as a separate entity). After the division of workers by occupations for each educational level there remains a group categorised under "non-

6. In fact there are some exogenous factors which interfere with the 'Education participation' relationships. For example, for higher income groups, higher levels of female education is only for the 'status symbol' only.

workers'. Quotients are derived for the 'non workers' as a percentage of total educated labour force under different category, for rural and urban and for male and females. Now let us see in the table 9, how it changed over the ten year reference period from 1971 to 1981. Table 9 shows the per cent of educated non-workers to total educated labour force. Here non-workers mainly consist of aged people, unemployed, students, and house wives. The children are excluded from the calculation since the concept educated labour market which considers only matriculation and further levels of education, does not include children. The table shows that overall ratio of educated non-workers has increased from 1971 to 1981. The proportion of non-workers was 44.81 in 1971 which turned to be 46.67 per cent in 1981.

So far as the female participation rate is concerned it has improved a lot. The ratio of non-worker has gone down from 81.96 per cent on 1971 to 63.59 in 1981. It is interesting to note that the urban rural break up of female workforce participation showed a wide gap that too in the reverse direction of commonly expected line. While in urban areas the situation worsened from 82.81 per cent in 1971 to 84.59 per cent in 1981, for rural areas the non-workers ratio has gone down significantly. Though the 1981 census figures

cannot be relied upon since it is only a 5 per cent sample data, which might have lead to such a conclusion, still there are some valid reason which could be assigned to this change in rural areas. Firstly, non-workers among women consist of house wives as a major part of it. But for a socio-economic causal analysis we can say, that there is a tendency among educated girls (matriculation or above) to marry men having higher education and a employment in salaried sector. So as a result, after marriage most of the educated girls in rural areas migrate to urban areas as house wives from where they are counted for census.

Secondly, the degree of female education expansion is higher in urban areas than in rural areas. Since our definition of educated labour only takes into account person with education upto matriculation and more. Such a lower ratio for non-worker educated labour force is quite probable.

In case of male participation rate it was improved up from 1971 to 1981. In 1971 the ratio of non-workers to total educated labour force was 39.64 per cent which has come down to 33.4 per cent in 1981. Under this category both rural and urban figures showed improvement.

Table - 10 shows the education specific work participation rates of male main workers by age and rural-urban division. It suggests that for all-ages higher the educational level, higher is the participation rate, only with an exception between Higher Secondary and Matriculation levels of education. For matriculation level the urban participation rate is 68.00 per cent whereas the participation rate for Higher Secondary is 54.19 per cent. The table also shows that for the age group (25-29) the participation rate for urban male is consistent for all levels of educations which stands fluctuating near 90.00 per cent.

In the category of middle age group (15-24) rural India has a better participation rate taking all educational levels together than the urban areas. This may be due to the fact that a large proportion of boys under this group in urban areas are students. Educational levelwise, Technical Diploma holders have the highest participation rate, followed by graduate and post-graduates.

PART - B

This part of this chapter will be devoted to examine another change in the labour market in India.

Organised sector formed only a small segment in terms of employment. Since it is an organised sector which has more employment potential, we shall see how the share of organised sectors changes over period of economic development.

In this section emphasis will be given to highlight some of the issues relating education-employment relation with special reference to public and private sectors of the economy (organised sectors) educational profile will be analysed separately for private and public sectors in the context of Indian Economy.

Considering total employment the pattern of growth in public and private sectors was similar in the sixties and seventies. In both the sectors there was a deceleration in the growth of employment during the seventies. But growth of employment in the Public Sector "tends to be higher than that of the Private sector, for any given point of time. For example growth rate of employment in the Public Sector was 9.3 per cent between 1961 and 1971, and 3.7 per cent between 1971 and 1981. For Private Sector the corresponding figures were 2.9 and nearly one per cent respectively. In fact private sector witnessed a negligible small rate of growth in the seventies. During the

period 1961 to 1981, Public Sector increased its share in the total employment in the organised sector. In 1961, the distribution of employment between public and private sectors was roughly in the ratio of 3:2 while the ratio is 2:1 in 1981. Within the Public Sector, services is the dominant employing sector specially for educated labourers, and in Private sector manufacturing is its counterpart. In fact 53 per cent of the total employment in the public sector is in service sectors, while 60 per cent of employment private sector is in manufacturing. Since it is the service sector which absorbs the highest percentage of educational labour, the Public Sector has a greater role to play in the educated labour market in order to clear up the existing imbalances.

Classification of Employment according to their Educational Level in Public and Private Sectors:

Educational profiles are available for the employees in both the sector of economy.⁷ Table-11 and Table-12 indicates educational occupation distribution for Public Sector and Private Sector respectively.

7. This information is compiled by the Director General of Employment and Training (DGEAT) for three occupational division namely '0' and '1', 2 and 7, 8 & 9. The figures are published under the title, occupational-Educational pattern in India, Ministry of Labour, DGEAT, New Delhi.

For Public Sector, occupationwise, the professional and technical category (occupation code 'O' and 'I'), have registered the largest increase. Nearly 45 per cent of the total increase in the employment in the last two decades can be attributed to this category. It is interesting to note that 'teachers' account for most of this category. On the other hand, the employment in the unskilled categories came down where as that in the 'clerical' and 'craftsman and production' processes categories witnessed only marginal changes. So far as educated labours are concerned sixty nine per cent possess some type of educational qualification and the remaining have some kind of experience only. Within these educated categories 43 per cent possess professional qualification and 27 per cent general education. Between the period mid sixties and late seventies the following shifts in this occupation division is observed.

1. a decline in the share of degree holders (professional and general)
2. an increase in the proportion of diploma holders.

In the occupational division the pattern was different. It is basically general education based

occupation. Nearly 90 per cent is having general education, within this category nearly half of them are matriculates and only one third are graduates.

The share of graduates increased in the seventies in the occupational category. The proportion of graduates (both technical and general) was almost doubled. And consequently the proportion of matriculates was reduced by half.

The scene in Private Sector is little different. In the Private Sector there is a tendency of showing preference to higher educated (both professional and general). In 1977 there is a decline in the proportion of professional diploma holders and science graduates in this occupational division. In this sector, however, the proportion of both the category, graduates and matriculates increased. In the occupational division 2 (administrative, executive, and managerial) most of the employees have general education. However over the years a tendency of this category to attract professionally qualified workers, especially graduates is evident (Table-12).

Table - 9 (a)
Percentage of Educated Non-Workers to Total
Educated Labour Force (1971 and 1981).

	1971			1981		
	Urban	Rural	Total	Urban	Rural	Total
Female	84.59	11.19	63.59	82.81	79.32	81.96
Male	32.24	34.79	33.40	33.48	36.24	34.64
Total	48.76	74.66	46.57	46.45	42.13	44.81

Table - 9 (b)
Educated Non-Workers Among Educated Labour Force -
(Absolute Figures) 1971 and 1981.

	1971			1981		
	Female	9007158 (7619281)	3609459 (404048)	12616617 (8023329)	3567434 (2954227)	1137283 (962100)
Male	19676570 (6343930)	16368909 (5645354)	36045479 (12039284)	9997494 (3347724)	7179022 (2602279)	17176516 (5950003)
Total	28733827 (14013306)	19978368 (8722863)	48712195 (22736169)	13564928 (6301951)	8316305 (3504379)	21881233 (9806330)

Note - Figures in brackets show educated non-worker,
Figures outside the brackets show total educated labour force.
(Calculated on the basis of Census figures).

Table No.10

Education Specific Work Participation Rates of Male
Main Workers by Age and Rural-Urban Residence 1981

Educational Levels	RURAL			URBAN		
	All ages	Ages 15-24	Ages 25-59	All ages	Ages 15-24	Ages 25-59
Illiterates	51.26	90.57	96.65	33.29	75.70	91.27
Literates	41.60	60.54	96.11	29.93	67.93	92.68
Primary	60.43	69.86	96.13	52.41	60.52	93.16
Middle	59.10	33.66	94.32	56.14	38.51	91.47
Matric	66.27	38.21	91.63	68.00	34.39	92.79
Higher Secondary	55.79	26.86	84.92	54.19	19.66	89.09
Non-Technical Diploma	76.00	36.36	91.55	73.91	30.00	96.77
Tech. Diploma	75.95	38.20	90.00	78.92	31.86	94.04
Graduates and Above	71.70	31.26	83.21	77.07	35.71	90.92
Total	52.62	69.19	95.56	49.54	47.19	91.84

Source: Census of India 1981, Series I (India)
Part II - Special Report and Tables
Based on 5 per cent Sample Data.

Table No. 11
Educational Occupational Distribution : Public Sector

	Professional, Technical and Related Workers		Administrative, Executive and Managerial	
	Occu.	Division 0 and 1	Occu.	Division 2
	1966	1978	1966	1978
Graduates and above (Professional)	25.56	16.18	8.83	15.84
Diploma/Certificates	42.98	57.39	0.32	4.98
Non-Matriculates	8.05	6.87	17.03	1.23
Matriculates	13.03	13.82	45.55	24.85
BA/MA	6.70	3.30	22.52	44.19
B.Sc./M.Sc.	3.66	2.41	4.10	8.89
Total	100.00	100.00	100.00	100.00

Source: Occupational-Educational Pattern in India (DGE&T), Ministry of Labour and Rehabilitation, New Delhi.

Table No.12

Educational Occupational distribution : Private Sector

	Professional, Technical and Related Workers		Administrative, Executive and Managerial	
	Occu.	Division 0 and 1	Occu.	Division 2
	1970	1977	1970	1977
Graduate and above (Professional)	32.79	36.93	6.93	9.52
Diploma/Certificates	35.18	31.61	13.30	8.91
Non-Matriculates	1.39	Negl.	17.88	4.39
Matriculates	3.56	7.47	34.20	35.16
BA/MA	14.11	16.16	22.30	28.25
B.Sc/H.Sc	11.96	7.85	5.38	6.77
Total	100.00	100.00	100.00	100.00

Source: Occupational-Educational Pattern in India (DOEAT), Ministry of Labour and Rehabilitation, New Delhi.

CHAPTER - IV**POLICY ISSUES**

- Significance of educated labour market in economic planning.
- Implications of structural changes studied in previous chapters on manpower planning.

This chapter will analyse the possible policy implications for manpower planning, in the light of the changes in the structure of educated labour market. But at the beginning we shall discuss briefly the general importance and dimensions of manpower policy for developing countries.

In present day economics the role of labour as a factor of production is becoming increasingly important. The pattern of labour force distribution is changing along with economic development. The shift from one sector to another, and the increasing pace of technological change are making manpower the key ingredient to the nation's wellbeing and growth. In a service oriented era the quality, quantity and utilization of human resources become matters of central importance. Capital and natural resources endowments are vital factors in advanced countries but it is the labourer - the human resource, who contributes the most to wealth of developing nations. This expansion and improvement of the workforce are the sine qua non of continued increases in this output. Labour is the major beneficiary of as well as the chief contributor to prosperity and growth. The bulk of the national

product is distributed in wages and salaries to individual workers and the expansion of GNP in a way improves the welfare of these workers. Manpower policies are therefore of Central importance to developing economies. It embraces a broad range of areas which are of vital concerns to not only social scientists and policy formulators but also to all individuals.

The manpower situation at any given time is the result of interplay of following dynamic forces -

1. the growth of population and the working force
2. the development and diversification of the nations' economy and the pattern of employment,
3. the development of education and training.

Keeping this in mind we can identify some main categories of interest for the policies to be formulated for educated labour market.

FACTOR AFFECTING THE SUPPLY OF AND DEMAND FOR LABOUR

Demographic Forces determine the total pool of available workers as well as their age, and to a large extent, their distribution in the labour force. Cultural, economic, educational and demographic factors affect the rates of labour force participation - that is

the proportion of able bodied persons who seek work. Even broader social factors affect the workers level of commitment and the willingness of those outside the labour force to participate in world of work.

ALLOCATIONS OF WORKERS AMONG JOBS AND JOBS AMONG WORKERS

Changes in the industrial and occupational distribution of employment have important implications for the welfare of individuals and for public policy. In geographic areas or occupational categories where workers are in short supply, measures have to be taken to overcome shortages. And in areas of jobs characterized by an oversupply of workers, alternative opportunities may be needed. To the extent that any worker is "underemployed" in a job that does not fully utilize or develop his abilities, measures that would tap his potential would benefit not only the individual but also the whole economy.

PRODUCTIVITY OF THE WORKFORCE IN ITS VARIOUS ECONOMIC APPLICATIONS

The skills and abilities of the labourforce determines the level of total output and the standard of living it will support. In order to realize the full

potential of a nation's human resources and to ensure that each worker reaps a just reward for his labour, it is vital to understand the impact of education, vocational training, work experience, and related factors on the productivity of workers.

EFFICIENCY OF LABOUR MARKET INSTITUTIONS IN UTILISING AVAILABLE HUMAN RESOURCES

Many workers may be trapped in jobs for which they are over qualified as the discrimination which qualifies workers for jobs on the basis of educational attainment that may unrelated to performance. Other institutional imperfections may also limit the best match-up of supply and demand.

IMPORTANCE OF SERVICE SECTOR FOR POLICY MAKERS

Service sector which has the largest share of educated employment is of an interest from the manpower policy point of view. Clearly in the process of economic development structural changes involving the agricultural or manufacturing sector will have an impact on the development of the service sector. Unfortunately little is known about the precise nature of inter sectoral linkages particularly in case of services. Many hypotheses have been advanced to explain the role

and importance of the service sector. According to one early hypothesis an economy passes through three stages of development. First, it is dominated by the agricultural sector, second, it reflects an agricultural cum manufacturing structures and finally it assumes an agricultural-manufacturing-services configuration.¹ This hypothesis was followed by a more rigorous one which held that at the higher stages of development, tertiary activities dominate by virtue of its share in GDP and employment. The continued growth of services had been largely explained in terms of the high income-elasticity of demand for services. According to the Engel's Law at higher level of per capita income, economic growth would result in proportionally smaller increase in the demand for food, and proportionally greater increase in the demand for manufactures. Accordingly economists originally believed that as per capita income rose the demand for services would also increase. However the share of services in the GDP and labour force of many developing countries is already high, a fact which is inconsistent with the view that services would expand only at later stages of development. A number of factors have contributed

1. E. F. Roselitz (ed.) "Theories of Economic Growth", (New York, The Free Press 1960), pp.193-238.

to the growth of the service sector in the developing countries. These include low levels of per capita income, an unequal distribution of this income, the nature of production itself and the educational development.²

Finally it should be borne in mind that the measurement of services' contribution to national output and employment poses many more difficulties than that of other sectors. For this reason, what we can deduce from inter-sectoral comparisons can only be regarded as tentative. The difficulties associated with unpaid family services and non-traded public

2. Table-15, on Appendix is noticeable here, which shows the annual growth rate and growth propensity for the service sector for various countries by economic groupings. The table shows that the service sector in the developed market economies accounted for as much as 54 per cent of GDP and nearly two third of employment in 1963. Between then and 1980, the sectors output expanded more rapidly than GDP and its share increased accordingly. In the centrally planned economics - the service sector seems to play a secondary role, the dominant positions occupied by manufacturing. The share of services in this economic grouping rose from 16.5 to only 19.0 per cent of GDP between 1963-1980. But in the developing countries the general tendency has been for the service sector's contribution to GDP and employment, to increase with the passage of time (perhaps with the rising per capita income) although in a few country it had declined. The tendency for the share to grow along with per capita income can also be observed in countries at different levels of development.

services are well known. Moreover modern technological developments are making it increasingly difficult to distinguish between the production of goods and the provision of services within a firm. The increasing size of many industrial enterprises is also leading them to undertake many of the services, traditionally provided from the outside; prominent examples of such services are 'R and D', 'catering', and 'legal services'. Identifying and measuring the contribution of service sector poses problem and need careful attention from policy formulations.

In the rest part of this chapter, we shall generalise some important policy issues for all developing countries by digonising the Indian experience.

EDUCATION AND TRAINING POLICIES

What we have found in Indian case, is almost for all developing economies. The wide imbalance applicable between educational output and job prospect is becoming wider. A part of this malady lies in the faulty educational planning and structure. The education and training system can be oriented towards more dynamic economic and employment structures. Almost in all developing countries traditional imbalances in educated labour market perpetuate year after year. The

rapid development, that have taken place in education mostly imply quantitative expansion along lines inherited from former regimes, to the detriment of quality. Lack of efficiency is evidenced by increasing costs with high drop out rates.

National imbalances are aggravated by lack of balance between regions, urban and rural areas, males and females, and social groups (better enrolment rates can be observed for the urban, male and well to do categories). Of even more concern is the maladjustment of the output of the system and the labour market, with symptoms such as the arts graduate surpluses and educated unemployment, the "brain drain" and shortages of technicians and skilled manpower. This mismatch is aggravated by the weaknesses of existing labour market mechanism (e.g. wage structure, manpower information, vocational guidance, recruitment, training, placement of the workers and the various obstacles to occupational mobility etc.).

In the light of the above, it seems that a new look is needed at the structure and contents of Indian Education and training system. In particular it is felt that a proper balance should be established between the development of primary education, and in general

the development of secondary and higher learning. Secondary schools could usefully combine general teaching with practical skills preparing young people for adult life. However, more adequate vocational preparation could mainly be achieved through the expansion of technical education and vocational training facilities as compared with general education and vocational training facilities as compared with general education. In this regard appropriate balance will have to be found between government sponsored institutions and private apprenticeship or in service training and upgrading programs. With respect to higher education policies, they should be reviewed with the aim of achieving a better match between the supply of university graduates and their demand in the labour market.

The mismatch between educational demands and productive job opportunities is not likely to be rectified in the manipulation of the supply of school/colleges since popular political pressures usually prevent substantial supply adjustments. Rather pressures must build up until policy attention is turned to the more fundamental issues of tempering demand to more realistic proportions and generating more urban and rural employment opportunities.

For achieving a 'balance' the governments of developing economies need to curtail artificially induced educational demands by bringing the private calculations of the benefits and costs associated with education closer to the social valuations.

This can be possible first, by making the beneficiary bear a larger and rising proportion of his educational costs as he proceeds through the system (with appropriate subsidies for the able poor at low levels of education and through loan programmes at higher levels).

Secondly, by reducing income differentials between the modern and traditional sectors and within the modern sector, to ensure a more realistic appraisal of the prospective benefits of education.

Thirdly, by ensuring that minimum job specifications do not overvalue education.

And finally, by ensuring that wages are related to jobs and not to educational attainments.

To sum up, for educational policies we shall add that particular attention needs to be devoted to the qualitative aspects of education, including teachers' and instructors' training and improvements

in teaching methods. Educational planning should be complemented by appropriate action on labour market mechanisms, including the revision of the structure of wages, salaries and other incentives which induce people to select certain courses of education in numbers that exceed the labour absorption capacity of the economy. A better organisation of vocational guidance for training and placement activities is also necessary. Finally, education, training and labour market policies need to be based on a permanent system of data collection and analysis which could provide the information on understanding required for their intervention.

SECTORAL PRIORITIES AND CHOICE OF TECHNOLOGY

Employment growth in developing countries will greatly depend upon the priorities assigned in their development plans and programmes to various sectors of economic activity. It will also depend upon the choice of technique which will be actually utilised in these sectors. In this respect it may be noted that although most development plans, in India during the decade of our Reference, gave high priority to industrialisation, industrial development did not lead to high employment gains, nor to noticeable changes in their employment structures. On the contrary, what we have found in

chapter 'I', the tertiary sector in general, and primary sector in particular for educated manpower though enjoyed relatively low priority, showed greater employment expansion. The reason seems to lie mainly in the choice of labour saving technologies in the industrial sector. Investment in heavy industries, a priority in many developing countries, generally requires the use of advanced technologies. It seems that India like other developing countries, for short term gains only, prefer to depend on imported advanced technologies, mostly labour saving, expensive and with problems of handling and maintenance. This often results in the creation of enclaves of modernity in an ocean backwardness, involving not only limited employment creation but also considerable labour displacement in the traditional sector.

It is important, for the correction of these biases, that technological choice take place within a well-defined development framework. In particular, fiscal and investment policies and legislation should avoid favouring systematically capital-using technologies. In addition, opportunities for applying labour-using technologies should be identified on a project by project basis and attention given to the possibility

of subdividing individual projects into processes, some of which may lead to labour intensive techniques. In the case of basic industries, efforts should be made to develop linkages and complementarities with other industries.

SPECIAL EMPHASIS ON AGRICULTURAL SECTOR

The Indian experience, as we have studied in the First Chapter, shows that in the process of green revolution and economic development agriculture and other primary sector activities has acquired a new potential to absorb educated labourers. No doubt, more than employment it will enhance productivity. Uptill now no manpower planning has ever attempted for agricultural sector. But as our analysis suggests, it should no longer be the same. Special attention by educational planners should be given to the sector to exploit this newly emerging potential as a solution to the educated unemployment.

As, by and by, economic development and other consequences of industrial development is slowly penetrating the rural India, it can be safely foreseen that it will open new vistas for activities in which there will be greater need of skilled manpower. This has one

of the most important implications for Indian manpower planning in future. In this regard much more emphasis needs to be placed in future years on expanding economic and social opportunity in rural areas and at the same time special skills are to be formed to cater to the needs of rural sphere. In this context I have given in the appendix an illustrative chart showing rural occupational groups and their future learning needs.

These learning needs, required for the three principal occupational subgroups of rural areas viz. farmers and farm workers, persons engaged in non-formal rural enterprises and rural general personnel, are likely to be very different from that currently provided by most formal educational curricular.

POLICY ISSUES FOR EMPLOYMENT PLANNING

The solutions to the labour market imbalances which a country experiences in the path of economic development, seems to lie in strengthening of manpower and employment planning mechanism as well as in the formulation to human resources objectives and policies. More dynamic co-operation at the regional level is needed, in a country like India, to strengthen the national system responsible for employment planning

as well as a certain degree of harmonization between their policies. Weaknesses in administrative structure and planning capabilities should also be overcome.

PROJECTION OF MANPOWER

Projection of demand and supply plays the most important role in employment planning. It should be conducted by the help of a proper data base. Moreover the projection for different groups should be differentiated according to their purpose. In a country which has defined its economic development targets, employment projections serve to determine the manpower required to achieve these targets. Once the plan has been prepared and has been transposed into manpower terms, the compatibility of the estimated manpower needs with the available capacity for training skilled personnel is to be reviewed. If this review leads to the conclusion that it is a practical impossibility to train the required skilled worker in present educational conditions, the necessary measure for the reform of education must be considered. If it appears that even a thorough reform of the educational system will not make it possible to train the necessary personnel, the economic targets of the plan will have to be revised. This type of projection is different from an estimate of

the probable future trend of employment. In the latter case, the evolution of production and the effect of productivity on the growth of employment are also taken into consideration. Here, however, the basis of the projection is not the output target but the expected evolution of production to meet the spontaneous evolution of demand. The probable trend of employment depends on the balancing of supply and demand. Accordingly the aim in this case is not to find out the number of doctors required, but the number actually available for re-recruitment, bear in mind, the needs of the economy and the number of doctors who will be on the labour market in future years.³ In theory, a third type of projection is possible, i.e. an extrapolation of labour demand in future years is estimated solely in

3. Such regional, demographic and educational planning goals and priorities can be regarded as independently formulated constraints of the following form:

$$\sum_{i,r} k_{oi}^{ra} x_i^r = L_e^a ; \text{ Plans or forecast for supply of labour in age group } a \text{ and educational category } e.$$

and

$$\sum_{e,i} k_{oi}^{ra} x_i^r = L^{ra} ; \text{ Plans or forecast for supply of labour in age group } a \text{ and region } r.$$

where x_i^r = production commodity i in region r ;

k_{oi}^{ra} = labour-output ratio for labour of educational category e , age group a and region r in production of commodity i .

relation to its development in the past. It can however be used as a basis for analyse the cause of change. These differences in methods of projection should be kept in mind according to the need and purpose of projection and the purpose should be clearly identified.

POLICY ISSUES FOR LOW PARTICIPATION RATE OF EDUCATED WOMEN

Just as the level of employment affects the level of labour force activity, so the propensity of specific groups to participate in the labour force affects the recorded levels and distribution of unemployment. As we have found, in a study for India, there is a pattern of sexual dualism prevalent in India, and certainly in other developing centres too. ¹ faced with the prospect of discrimination in the labour market as well as in educational institutions, many women, capable of pursuing education or training for a career may be discouraged from doing so. Similarly since sexual dualism implies a large differential in the earning potential of men and women, its existence encourages men to devote their energies up to economic activities and women to domestic activities. As cumulative result, women with a above average education will be discouraged from economic activity by the prospect of

having to take lower-status employment than that of their husbands.

o

Therefore its likely that the relationship between education and female participation will depend crucially on the respective education and training available to women and men. It implies that, with the equalisation of educational and training opportunities, female participation in the labour force can be expected in increase.

Before summing up here are some suggestions to increase the supply of urban and rural job opportunities.

- Reduction in factor-price distortions to the extent that these enter into employment decisions in both the public and private sectors.

- Special consideration to improve rural infrastructure and to the possible location of new modern sector activities in areas where wages have not yet reached the distorted levels typical of established urban centre.

- Allocation of larger share of public budget to productive employment-creating activities and less

to educational expansion than the pattern that has been in the reference decade.

- For industrial sector, an investment allowance for labour-intensive equipments appears most plausible so far as employment generation is concerned.

CONCLUSION

The goal of studying labour-market behaviour and human resource development is to provide guidelines for Public and Private Policies which will help develop and utilise the labour force as well as solve related problems. Because human resource development deals with such a broad range of subjects its study requires an understanding of the massive waves of change in the structure which are transforming our economy and society.

With an aim at studying empirically the depth and dimensions of structural changes in educated labour-market in India we found some major changes which have important implications for the manpower policy decisions of developing countries. Our limitations, notwithstanding, the conclusion we reach for India can be roughly generalised for the whole of third world countries, specially for those having a colonial past and a present economic planning system for growth and development. Though we have explicitly mentioned, what we deduce from the chapters, in the policy section, we shall sum those up here again.

In the introduction, we had hypothesized that in the process of development there is a tendency in educated labour force to shift to economic sectors characterised

by high wage and profitable employment. The empirical analysis of the Indian case shows that, the educated labour force which have been seeking the tertiary sector traditionally, now started entering into profitable agriculture in industry sector. The development of agricultural and industrial sectors here may be related to the overall economic development.

The second hypothesis is that there is no proportional relationship between the share of educated employment and degree of economic development.

The conclusion we reach from the overall exercise is that while the first hypothesis is accepted on the basis of empirical analysis, the second null hypothesis is rejected. That means, there could be a proportional relationship between the share of educated employment to total employment and degree of economic development.

The main purpose of this exercise was to study the nature and determinants of sectoral changes in educated employment during the course of economic development. In case of India in the first chapter, we found that there was a sectoral increase of employment share in agriculture sector and allied primary sector activities, over the reference period.

In the second chapter, we examined the changes in the supply condition of the labour-market. We deduced that due to an disproportionate increase in the educational facilities and corresponding output from the system there grew the imbalance between the supply and the absorption capacity.

In the next chapter we found that there is a significant increase in the women's participation rate in the workforce on account of increased educational level. The impact of this growing participation rate, again is felt on the supply of educated labour force tending to mismatch the demand for it.

Finally in the 'policy implication' Chapter, we examined some of the implications of these structural changes for India and then it was generalised for all developing countries. The impact of educational factors on occupational structure was also studied here.

Apart from the verification of proposed hypotheses we shall sum up some important observations from the whole exercise.

Study of the educated labour-market in isolation is apparently not possible. From some points of view both educated and uneducated labour-markets behave in the

same manner. So a comparative study is most beneficial. At the same time we have to take into consideration the reaction of other components of economy, viz. growth rate, trade policy, balance of payment, demographic factors, social structure etc.

Governments play important roles in the labour market. It regulates and participates actively through education manpower and other human resource policies.

The general impression that unemployment has been increasing over time in most of the developing countries, is based not on hard data, but on the following twin observations:

(a) There seems to be increasing numbers of unemployed persons in cities,

(b) That because of rapid population growth the labour force is increasing at a faster rate than the employment opportunities in formal sector.

Not being carried away by this claim we should consider for a moment the nature of unemployment in developing countries. Most people in such countries work in family or self-employment in agriculture, services and informal industry, in which the notion of a 'job' is much less than in the formal sector. Furthermore in the

absence of unemployment compensation only the relatively well-off can afford to be openly unemployed. Therefore in most developing countries the job market problem express itself more as underemployment working too few hours on with excessively low productivity, than as open unemployment.

Returning to the choice between the stick and carrot, when we advocate for a labour intensive technology, an important point to keep in mind is that the objective is not to reduce the overall profitability of capital at large but to redirect capital into more labour intensive uses by affecting their relative profitability. Where the problem is one of more general abundance, a distinction between types of equipment is desirable.

Since there is a tendency for workers to cross international boundaries, it is not desirable to restrict the market analysis to factors influencing domestic demand and supply conditions.

Finally education, training and labour market policies need to be based on a permanent system of data-bank and analysis which could provide the information and understanding required for their interaction.

SOME CONSTRAINTS IN LABOUR-MARKET STUDY

1. In the present state of our statistical knowledge and our methods, much uncertainties prevails as to the quality of manpower projections, comparison of anticipated 'supply' and 'demand' means dealing with two uncertain quantities. The comparison must therefore be made very carefully.

2. Defining "unemployed population seeking employment" is equally complicated. The situation is clearer only in the case of an unemployed worker who has lost his job and is actively looking for a new one. But there are many other situations for example : there are women who, having given up their occupation entirely for some years or having never had a job wish to enter working life; they are members of the labour force because they want to find work. In the developing countries where employment opportunities are limited, especially in rural areas, those seeking work obviously can not be said to be "actively" seeking it. In order to correctly enumerate the labour force in such cases persons who would accept employment of it were offered to them must be included.

3. A special problem arises with regard to the armed forces. How should they be classified? They are members of the economically active population in employment.

4. Changes in the actively ratio of the economically

active population are brought about by a whole range of economic and social factors, such as the number and type of jobs created for young people by economic development, school enrolment trends, the size of the old age pension, and for women in general, age at marriage, number of children and educational level. To ascertain the degree to which all these factors influence the active rates of the population is very difficult.

RESEARCH NEEDS FOR FUTURE

A major purpose of any research paper should be to further the awareness and open new vistas for more research on that topic. In our context also we should point out some of the research needs of future.

Interaction of different component in a labour market span a broad range of topics which need special research for studying those relationships. Some of them are given below.

Increasing Educational Levels is likely to affect rural-urban migration, perhaps leading to an increase in pressure on the urban labour market. There are other effects of education on labour market behaviour too; such as delaying the entry of students into economic activity,

and modifying female labour force participation. Education probably affects income distribution (with implications for savings and investment) and productivity growth. Moreover as each change occurs it causes others too, so that the disequilibria generated may be accentuated or diminished. And each economic change, not to speak of associated social changes, ultimately generates changes in labour market.

To assess the total impact of any of these or any other changes, a systems approach is needed. None of these issues should be studied in isolation, but in relation to a system framework to which they all can contribute - implying a need for further simulation of the processes involved.

And now to conclude we may sum up the following lines :

The major causes of structural changes in educated employment, like general employment are to be found in the changing composition of demand and supply of outputs. Changes in the composition of production, together with available technology determine changes in the demand for labour. Factors affecting the supply of labour include growth of population, its distribution between rural and urban areas and degree of educational expansion. Educated labour force has a tendency to shift to the economic

sector where there is high wage and stability. There are other factors which have not been emphasized here but may be deemed important in varying circumstances as determinants of the level and structure of educated employment. These may include the size of natural resources in a country, the type of political authority, its social institutions etc. These social, political and educational attitudes, deep seated and hard to change interact to distribute manpower whether qualified or not in a way that may ease or may check the change. The educational system must place the potential workers in the best education and training with right selection, if it is to assist in easing change. It is in this task of distributing the labour force that the educational system must ensure flexibility.

Lastly, we may conclude by saying that the most important task at present is to draw together these diverse experiences and insights blending theory with practical knowledge. The foundations must be strengthened so that manpower economics can learn from the past in dealing with the future.

APPENDIX - ATHE DYNAMIC SURPLUS MODEL*

I found it necessary to produce this model as referred in the Second chapter for further theoretical consideration.

Here the argument is conducted at a fairly high level of abstraction, in the hope that it may have some relevance to other developing countries besides India.

To get a bearing on the problem, let us consider what would happen in a perfectly competitive labour market. In perfect competition, unemployment causes wage rates to fall by giving every unemployed worker an incentive to offer himself for less. The simplest dynamic assumption to make about the decline of wage rates is that the rate of decline per unit of time is proportional to the degree of unemployment. In other words :

$$- \frac{dW}{dt} \frac{1}{W} = k \frac{U}{N} ,$$

where W is the real wage rate, t is time, k is the factor of proportionality, and U/N is the fraction of a particular category of labour that is out of work. In the formulation above, k is the 'reaction speed' in the labour market, that is, the ratio of the rate at which wages change to the degree of unemployment, and it is a simple matter to show that unemployment will tend to disappear faster the greater the increase in demand relative to supply, and the greater the reaction speed.

Now take the case of educated unemployment in India. There is a short-run and a long-run problem. The short-run problem is why the wages of educated people, given their supply, do not fall until they are all employed. The long-run issue is why, if their wages do fall, the supply keeps on increasing as fast as it does.

We have already suggested that the earnings of a particular educational category can fall, simply because wages are generally determined in most countries in relation to the job that is to be performed. Thus, even if the pay structure is rigid, most earnings associated with education can decline by virtue of 'upgrading' of educational requirements for specific posts.

Suppose first that supply is growing at the same rate as demand. Thus, in Figure 2 we start with a given degree of unemployment, as the going starting wage exceeds the market-clearing equilibrium wage. Now demand

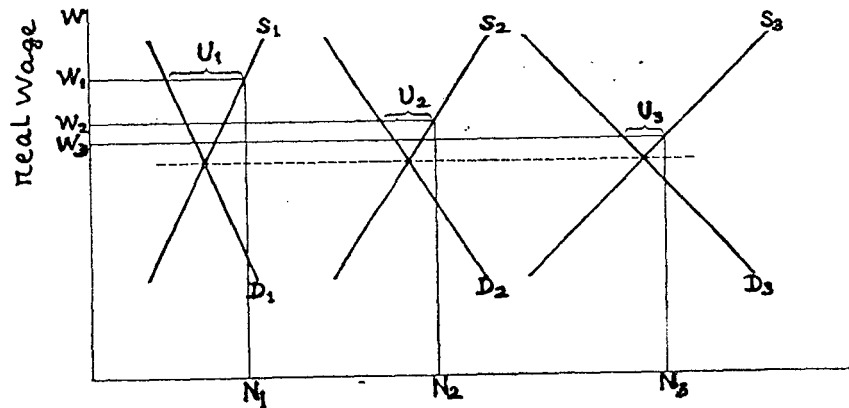


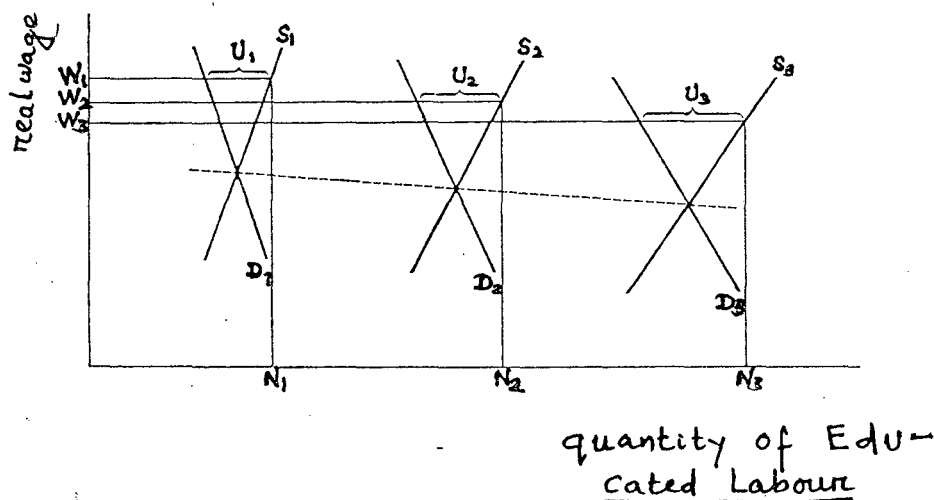
Figure-2

Equal shifts of Demand
and Supply

quantity of
educated labour

and supply increase proportionately, so that the equilibrium level of wages remains unchanged. The shifting linear demand and supply curves are so drawn as to keep their elasticities constant, that is, the larger the quantities along the horizontal axis, the flatter the successive demand and supply curves. If wages were to remain constant, the rate of unemployment (U/N) would also remain unchanged. But wages cannot help falling, according to the response mechanism we have proposed: eventually they will converge on the market-clearing wage and unemployment will disappear.

The test is to see whether time series on educated unemployment as a fraction of the educated labour force show a downward trend. Apparently in Indian supply has grown faster than demand: given constant elasticities of demand and supply, it is logically impossible to reconcile a more or less constant degree of unemployment with falling real earnings by education except in these terms.



Greater shifts of Supply and Demand

Figure.3

Thus the actual situation in India is depicted by Figure 3. Once again we start with a given rate of unemployment, and going wage exceeding the market-clearing wage. Unemployment causes the going wage to fall, but long before it reaches the full-employment wage, demand and supply both shift. Supply, however, grows faster than demand, thus lowering the equilibrium wage towards which the going wage is tending. If the elasticities of demand and supply remain constant, and the equilibrium wage keeps on falling at the same rate as the going wage, the rate of unemployment will remain constant : $U_1/N_1 = U_2/N_2 = U_3/N_3$.

* This is the simple reproduction of the model as put forward by. Mark Blaug, P.R.G. Layard and M. Woodhall in their study "Causes of Educated Unemployment in India" -- op.cit.

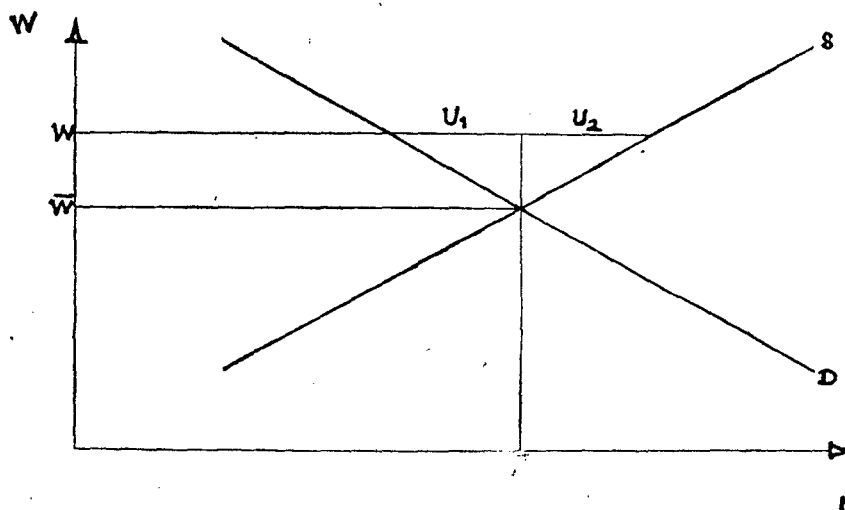
APPENDIX-BMATHEMATICAL RELATIONSHIPS IN THE DYNAMIC SURPLUSMODEL

It is interesting to see what relationship the model on Appendix - A implies between the relative growth rates of supply and demand and the reaction coefficient (k), rate of unemployment (U/N) and elasticities of demand and supply. We compare two periods, $i = 0$ and $t = 1$.

- (1) Our adjustment equation tells us that

$$\frac{W_0 - W_1}{W_0} = -k \frac{U}{N}$$

- (2) If the elasticities are constant, and U/N constant, the proportional divergence of the actual from the market-clearing wage must be constant. This is illustrated in the following diagram.



Draw a vertical line through the equilibrium value of N and call that part of unemployment to the left of it U_1 and to the right of it U_2 .

Let a = elasticity of demand

b = elasticity of supply

$$\text{Then } \frac{U_1}{N} = a \left(\frac{W - W}{W} \right)$$

$$\frac{U_2}{N} = b \left(\frac{W - W}{W} \right)$$

$$\frac{U}{N} = \frac{U_1 + U_2}{N} \left(\frac{W - W}{W} \right) (a + b)$$

(Strictly our measure of unemployment is $(S - D)/S$, i.e. $U/N + U_2$) which is constant if U/N is constant).

(3) Thus, to repeat, given constant elasticities and constant U/N , the proportional disequilibrium of wages must also be constant. It follows that proportional changes in the market-clearing wage (W) are the same as in the actual wage (W). The adjustment equation in (1) therefore implies also

$$\frac{W_0 - W_1}{W_0} = k \frac{U}{N}$$

(4) Now it is the market-clearing wage which is determined by supply and demand. Suppose we have two constant-elasticity functions.

$$D = aW^{-a}d^t$$

$$S = bW^b s^t$$

where $(d - 1)$ is the rate of growth of demand and $(s - 1)$ the rate of growth of supply.

In period $t = 0$

$$aW_0 = ad^t = bW_0^b s^0$$

$$\bar{W}_0 = \left(\frac{a}{b} \right)^{1/a+b}$$

and in the next period

$$\bar{W}_1 = \left(\frac{ad}{bs} \right)^{1/a+b}$$

$$\frac{\bar{W}_1}{\bar{W}_0} = \left(\frac{d}{s} \right)^{1/a+b}$$

- (5) Substituting this into the adjustment equation in (3) gives

$$1 - \left(\frac{d}{s} \right)^{1/a+b} = k \frac{U}{N}$$

$$\frac{d}{s} = \left(1 - k \frac{U}{N} \right)^{a+b}$$

This gives us the relationship we have been looking for. The same conclusion would result from comparing any two periods t and $(t+1)$. It shows that, if unemployment is known to be constant at a particular rate and given constant elasticities, d/s must be smaller, the greater the reaction coefficient (k). In other words, if the reaction coefficient is large, the growth of supply must greatly exceed that of demand; if it is not so large, the difference must be less. To put imaginary values on the constants: if $k = 0.2$, $U/N = 0.065$ and $a = b = 1$, then $d/s =$ approximately 0.97 . Supply is growing about 3 per cent faster than demand. At the same time wages are falling by 1.3 per cent per period.

- (6) An alternative adjustment function to ours in which adjustment is proportional to excess supply, is the adjustment function where adjustment is proportional to the excess of the actual over the market-clearing wage,

$$\text{i.e. } \frac{W_0 - W_1}{W_0} = m \frac{W_0 - W_0}{W_0}$$

However, we have shown in (2) that with constant elasticities, proportional unemployment is in a fixed ratio to proportional disequilibrium in wages. Thus this alternative formulation and ours are identical, and $m = k(a+b)$. If we suppose $m = 0.4$, which seems a reasonable value for a labour market, and $a = b = 1$, then $k = 0.2$ which we assumed earlier.

RURAL OCCUPATIONAL GROUPS AND THEIR LEARNING NEEDS

Groups	Types of Learning Needs (at varying levels of sophistication and specialization)
A. Persons directly engaged in agriculture	
<ol style="list-style-type: none"> 1. Commercial farmers 2. Small subsistence and semi-subsistence farm families 3. Landless farm workers 	<ul style="list-style-type: none"> * Farm planning and management; rational decision-making; record keeping; cost and revenue computations; use of credit. * Application of new inputs, varieties, improved farm practices. * Storage, processing, food preservation * Supplementary skills for farm maintenance and improvement, and sideline jobs for extra income. * Knowledge of government services, policies, programs, targets. * Knowledge and skills for family improvement (e.g., health, nutrition, home economics, child care, family planning). * Civic skills (e.g., knowledge of how cooperatives, local government, national government function)
B. Persons engaged in off-farm commercial activities:	
<ol style="list-style-type: none"> 1. Retailers and wholesalers of farm supplies and equipment, consumer goods and other times. 2. Suppliers of repair and maintenance service 3. Processors, storers and shippers of agricultural commodities. 	<ul style="list-style-type: none"> * New and improved technical skills applicable to particular goods and services. * Quality control * Technical knowledge of goods handled sufficient to advise customers on their use, maintenance, etc. * Management skills (business planning; record keeping and cost

Groups	Types of learning needs
4. Suppliers of banking and credit services	accounting; procurement and inventory control; market analysis and sales methods; customer and employee relations; knowledge of government services, regulations, taxes; use of credit).
5. Construction and other artisans	
6. Suppliers of general transport services.	
7. Small manufacturers	
C. General Services personnel: rural administrators, planners, technical experts	
1. General public administrators, broad-gauged analysts and planners at sub-national levels.	* General skills for administration, planning, implementation, information flows, promotional activities
2. Managers, planners, technicians, and trainers for specific public services (e.g., agriculture, transport, irrigation, health, small industry, education, family services, local government, etc.)	* Technical and management skills applying to particular specialities * Leadership skills for generating community enthusiasm and collective action, staff team work and support from higher echelons.
3. Managers of cooperatives and other farmer associations	
4. Managers and other personnel of credit services.	

Source: P.H. Coombs and Munzoor Ahmed, *Attacking Rural Poverty: How Nonconformal education Can Help*, Johns Hopkins UP (1974), 17.

Appendix - D

Educated - Employment Ratio

Data on educated-employment both for 1971 and 1981 are taken from General Economic Tables of Census Reports. The format of those tables is given below.

	Total	Illiterate	Literate without educational level	Primary	Middle	Matriculation and Higher Secondary	Technical and Non-Technical Diploma	Graduate,	P.G.	Teachers Degree P.G. and above
0 Cultivator and agricultural Labourer	-a ₀	a ₀₁	a ₀₂	a ₀₃	a ₀₄	a ₀₅	a ₀₆	a ₀₇	a ₀₈	a ₀₉
1 Livestock, forestry fishing, hunting and plantation	-a ₁	a ₁₁	a ₁₂	a ₁₃	a ₁₄	a ₁₅	a ₁₆	a ₁₇	a ₁₈	a ₁₉
2 Mining and Quarrying	-a ₂	a ₂₁	a ₂₂	a ₂₃	a ₂₄	a ₂₅	a ₂₆	a ₂₇	a ₂₈	a ₂₉
3 Industry (household and non-house hold)	-a ₃	a ₃₁	a ₃₂	a ₃₃	a ₃₄	a ₃₅	a ₃₆	a ₃₇	a ₃₈	a ₃₉
4 Construction	a ₄	a ₄₁	a ₄₂	a ₄₃	a ₄₄	a ₄₅	a ₄₆	a ₄₇	a ₄₈	a ₄₉
5 Trade and commerce	a ₅	a ₅₁	a ₅₂	a ₅₃	a ₅₄	a ₅₅	a ₅₆	a ₅₇	a ₅₈	a ₅₉
6 Transport, communication and storage	-a ₆	a ₆₁	a ₆₂	a ₆₃	a ₆₄	a ₆₅	a ₆₆	a ₆₇	a ₆₈	a ₆₉
7 Other services	a ₇	a ₇₁	a ₇₂	a ₇₃	a ₇₄	a ₇₅	a ₇₆	a ₇₇	a ₇₈	a ₇₉
8 Non-workers	a ₈	a ₈₁	a ₈₂	a ₈₃	a ₈₄	a ₈₅	a ₈₆	a ₈₇	a ₈₈	a ₈₉

Educated-employment ratio is defined as the sum of workers having matriculation or above education divided by the total economically active population-

$$i.e \quad \alpha = \frac{\sum_{i=0}^9 \sum_{j=5}^9 a_{ij}}{\sum_{i=0}^9 a_i} \times 100$$

Appendix - E

Salaried Employment

Percentage of salaried employment and their occupational distribution are estimated from the format given below :

	Employers and workers on own account	employees, and wage earners	family workers	other and status unknown	Total
0 Professional technical and related workers	b ₀₁	b ₀₂	b ₀₃	b ₀₄	b ₀
1 Administrative executive and managerial workers	b ₁₁	b ₁₂	b ₁₃	b ₁₄	b ₁
2 Clerical workers	b ₂₁	b ₂₂	b ₂₃	b ₂₄	b ₂
3 Sales workers	b ₃₁	b ₃₂	b ₃₃	b ₃₄	b ₃
4 Farmers, fisherman hunters and related workers	b ₄₁	b ₄₂	b ₄₃	b ₄₄	b ₄
5 Miners, quarrymen and related workers	b ₅₁	b ₅₂	b ₅₃	b ₅₄	b ₅₅
6 workers in transport communications	b ₆₁	b ₆₂	b ₆₃	b ₆₄	b ₆₅
7 & 8 Craftsmen, production workers and labourers	b ₇₁	b ₇₂	b ₇₃	b ₇₄	b ₇₅
9. Services, sport and recreation workers	b ₈₁	b ₈₂	b ₈₃	b ₈₄	b ₈₅
10 Workers not classified by occupation	b ₉₁	b ₉₂	b ₉₃	b ₉₄	b ₉₅

Percentage of salaried employment is defined as

$$S^* = \frac{\sum_{i=0}^9 b_i}{B} \times 100$$

where $S^*_1 = b_0 + b_1 + b_2$

$$S^*_2 = (b_{32} + b_{52} + b_{62} + b_{72} + b_{82})$$

B = economically active population

Table - 13

Total Employment by Industry Division (in Lakhs)

	1961	1971	1981	Growth Rates (1961-81)
Agriculture and Hunting etc.	8.6 (7.03)	10.74 (6.15)	13.21 (5.77)	2.22
Mining and Quarrying	66.79 (5.62)	5.86 (3.35)	9.48 (4.14)	1.68
Manufacturing	33.89 (28.03)	37.67 (27.24)	60.47 (27.43)	2.94
Electricity, Gas and Water	2.64 (2.18)	4.81 (2.75)	7.18 (3.14)	5.13
Construction	8.43 (6.97)	10.19 (5.83)	11.61 (5.07)	1.61
Whole sale and Retail Trade	2.54 (2.1)	6.32 (3.62)	3.94 (1.72)	2.22
Transport and Commu- cation etc.	18.04 (14.92)	23.13 (13.24)	27.69 (12.10)	2.16
Services	40.07 (33.12)	65.07 (37.81)	95.21 (41.61)	4.42
Total	120.9	174.73	228.78	3.24

Note : Figures in brackets are percentages to the total

Source : Statistical Outline of India 1984, Tata Service Ltd.
Department of Economics and Statistics, Bombay, 1984.

Table No.15

**Sectoral Distribution of Incremental Work Force
(1971-81)**

Sectors	All Workers (All Ages)		
	Total	Rural	Urban
Primary	47.29	69.42	11.94
Secondary	25.72	16.39	40.68
Tertiary	26.99	14.19	37.33
Total	100.00 (32252000)	100.00 (19833000)	100.00 (12420000)

Decade Entrants (Age 15-24 years)

Primary	64.32	81.04	11.97
Secondary	17.93	10.41	41.43
Tertiary	17.75	8.55	43.55
Total	100.00 (31929000)	100.00 (24202000)	100.00 (7721000)

Note : Figures in parantheses give number of workers

Source: Census of India 1971 series 1 (India) Part II B - General Economic Tables and Census of India 1981 Series 1 (India) Part IIB Special Report and Tables based on 5 per cent Sample Data.

Table No. 16

Distribution of Male Main Workers by Occupational Divisions 1971 and 1981 and Percentage Change in Employment 1971-1981.

Occupational Division	For TOTAL (R & U)		Percentage change in Employment 1971-81	Rank
	1971	1981		
0-1 Professional, Technical and Related	8.30	8.64	43.20	2
2 Administrative, Executive and Related	3.43	3.43	37.62	6
3 Clerical	10.59	10.70	39.02	4
4 Sales	14.55	14.60	38.07	5
5 Services	10.30	8.54	14.10	8
6 Farmers	7.21	6.05	15.67	7
7-8-9 Production and Related, Transport equipment operators and Labourers	44.14	45.35	41.38	3
10 Workers not classified by Work Categories	1.43	2.69	149.22	1
Total	100.00	100.00	37.61	

contd.

Contd. from table No. 16

Occupational Division	For Rural Area			
	1971	1981	%age change in Employment 1971-81	Rank
0-1 Professional, Technical and Related	10.03	9.94	29.47	5
2 Administrative, Executive and Related	3.77	2.16	-25.03	8
3 Clerical	6.85	7.90	51.70	2
4 Sales	11.83	12.29	35.84	4
5 Service	10.26	8.39	6.88	7
6 Farmers	13.42	11.42	11.20	6
7-8-9 Production and Related, Trans- port Equipment Operators and Labourers	42.84	44.94	37.20	3
10 Workers not Classified by occupation	1.00	2.96	286.70	1
Total	100.00	100.00	30.67	

contd.

contd. from table no.16

Occupational Division	For Urban			Rank
	1971	1981	%age change in employment 1971-81	
0-1 Professional, Technical and Related	6.85	7.63	60.42	3
2 Administrative, Executive and Related	3.15	4.41	101.75	1
3 Clerical	13.51	12.91	37.29	7
4 Sales	16.93	16.40	39.41	6
5 Services	10.38	8.65	20.22	8
6 Farmers	1.91	1.88	31.89	5
7-8-9 Production and Related, Trans- port Equipment Operators and Labourers	45.39	45.64	34.89	4
10 Workers not classified by occupations	1.90	2.48	87.63	2
Total	100.00	100.00	43.98	

Source : Occupational-Educational Pattern in
India (DOET), Ministry of Labour
and Rehabilitation, New Delhi.

APPENDIX- I

Annual Growth rate and Growth Propensity for the Service Sector Countries by Economic Grouping. (1973 to 1980).

Economic Grouping	Growth rate G 1973-1980	Growth propen- sity*1 1973-80	Share of services in GDP (percentage)	
Developed economies	3.3	1.2	54.1	56.9
Centrally Planned Economies*2	5.4	1.2	17.8	19.0
Developing Countries	5.9	1.2	40.5	44.3
By Level of income --				
Low income	5.1	1.3	36.4	39.4
Lower middle income	7.0	1.2	38.5	41.1
Intermediate income	7.2	1.2	41.6	44.8
Upper-middle income	5.6	1.1	46.6	50.5
High income	5.1	1.5	34.7	39.8

Note *1 - The growth propensity is defined as the ratio of the growth rate for output of the service sector to the growth of GDP (Both rate calculated at 1975 prices).

*2 Owing to differences in statistical concepts, data for the Service sector in the Centrally Planned economies are not directly comparable with those for other economic groupings.

Source - UNIDO Report for 4th General Conference.

APPENDIX - J

Table 17

Educational Profile of Unemployed (1977-78)

Educational Level	Rural				Urban							
	Usual		Current weekly	Current daily	Usual		Current Weekly	Current Daily				
Illiterates	14.92	(0.41)	38.58	(1.56)	49.75	(4.16)	7.36	(1.30)	11.13	(2.15)	17.75	(4.48)
Literates upto Primary	25.50	(1.02)	27.46	(1.74)	28.95	(3.56)	24.92	(2.41)	26.60	(2.81)	30.77	(4.23)
Middle	23.32	(3.99)	14.93	(4.03)	10.40	(5.46)	26.54	(6.31)	25.36	(6.57)	22.38	(7.56)
Secondary	27.23	(9.80)	14.27	(8.10)	8.32	(9.19)	28.60	(7.29)	26.07	(7.25)	20.58	(7.47)
Graduate and above	9.02	(17.55)	4.76	(14.10)	2.58	(15.43)	12.48	(8.19)	10.84	(7.78)	8.52	(7.98)
Total	100.00	(1.41)	100.00	(2.23)	100.00	(4.33)	100.00	(3.90)	100.00	(4.25)	100.00	(5.55)
Index of Educational Attainment	6.48		3.38		2.61		7.39		6.80		5.72	

N.B. Figures in the parantheses indicat e the percentage of total population in the respective educational level.

Source : "Report of the Second Quinquennial Survey on Employment and Unemployment All India NSS 32nd Round (July 1977 - June 1978) " in Sarvekshana Vol. V 1981-1982.

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