The process of economic development may be either of the following two types[1]: Factor Multiplication and/or Factor Transformation. Under Factor Multiplication process, increased quantities of factor inputs are used for raising the levels of production. Increased production by this process may not require a change either in the techniques of production or the organisational set-up and/or socio-economic structure. However, economic development both in the western developed countries and the present developing countries of Asia and Africa, depends more on factor transformation than on factor multiplication. The process of factor transformation is associated with the raising of average and marginal productivities of the various factor inputs. This is often a consequence of improvements in the technology of production. Technical changes are generally associated with the replacement of labour intensive by capital intensive techniques of production which brings about a systematic improvement in equipments, machines and tools. The operation and effective utilization of these improved tools and equipments necessitate improvements and even radical changes in the skills and expertise possessed by manpower. This generally tends to change manpower requirements in quantitative as well as qualitative terms. Manpower requirement per unit of output is changed while the skill and educational endowments of manpower required for the operation of new production.

processes are generally upgraded. Besides, technical innovations result in an improvement in the technical attributes of the goods produced as well as in the introduction of new products into the market[2].

Though in theory it is possible to distinguish between the development processes of these two types, in practice both of them may occur simultaneously. However, the modern economic development, especially in the developing economies, depends more on factor transformation than on factor multiplication processes. Since the structure of these economies are highly lopsided and the techniques of production, especially in the traditional sectors, are highly old and obsolete, those economies invariably try to diversify the economic structure by establishing new lines of production and raise factor productivities by replacing old by modern techniques of production in the existing sectors of the economy. Therefore, development planning invariably aims at moving the economy from less to more modern and efficient techniques of production so as to produce larger number and quantities of goods and bring in ever increasing superior products during the planning horizon. Both these processes tend to eliminate some of the traditional occupations whereas some new occupations may emerge for the first time. For example, introduction of tractors on an extensive scale tends to eliminate the need for the services of the traditional craftsmen and artisans like carpenters and blacksmiths while new occupations of

drivers, mechanics and petrol/diesel dealers and attendants sprout as a consequence of this. Technological transformation thus implies a change in the type and quality of labour force in the form of an improvement in skills and knowledge and it is the function of the education system to supply these qualified manpowers. Therefore, manpower planning should constitute an inseparable part of general planning for economic development.

Most of the human capital formation takes place through the processes of training and education of the labour force. Writers in the tradition of Harbison and Schultz discuss manpower "as a form of capital, developed through schooling and specialized training...and utilized, together with cooperant factors, in the production of goods and services"[3]. According to these writers human resources act as the active agents who "accumulate capital, exploit natural resources, build social, economic and political organisations and carry forward national development"[4]. However, training and education of manpowers for the development of the economy is a long-term process. Therefore, manpower planning tends to get embedded in educational planning which has to precede rather than succeed or synchronize with economic development of developing countries. Training and education of labour-force has to be planned in advance so as to ensure availability of educated manpower of right types in right numbers and to avoid the using of scarce resources in educating more people than required or to prevent shortage of manpower of requisite types acting as bottlenecks

constraining development. Both these problems are avoided if manpower projections and educational planning form an integral part of national economic planning[5].

The need for treating manpower planning as part of general economic planning also arises from the fact that the planners often attempt to place medium term plan in the long-run perspective so that the economy can be guided towards the desired structure. But changes in economic structure necessitate changes in the structure of manpower as well which can be effected more efficiently through planned rather than market forces.

In a capitalist or mixed economy where a large number of decisions are left to the individual choices, there may often be discripancies and divergencies between individual choices and social needs. If expected requirements of educated manpower to meet the developmental needs of the economy are made known in advance, individual decisions about education, courses and careers may tend to be much more realistic and be more in tune with social needs than what these are likely to be without such informations[6].

It is, therefore, obvious that the success of developmental planning depends on whether planning for educational development is consistent with manpower requirement, on the one hand, and whether manpower requirements and educational planning are in tune and harmony with planning for economic

development, on the other. The consistency between the above three components of planning depends upon planning methodology in general and the techniques and methods employed for projecting manpower requirements in particular. However, the techniques and methods of manpower projections have certain limitations and shortcomings some of which are inherent in the techniques themselves or the assumptions on which the projections are based; whereas other limitations are neither inherent in the techniques nor on the assumptions. The most serious of these limitations is that the manpower projections generally project the current market imperfections into the future as the actual qualificational levels and patterns of the current manpower in employment is taken to represent the desired pattern because the nature and extent of imperfections from which the labour market suffers are not known precisely. Though this limitation has come to be recognized at the theoretical level, yet the conceptual difficulties associated with this problem, want of techniques and methods appropriate for measuring the nature and the magnitude of such market imperfections and even the non-availability of requisite data have prevented researchers from examining and evaluating its empirical ramifications. Due to scarcity or surpluses of manpower of specific types, actual qualificational levels and patterns generally deviate from the levels and patterns of qualifications desired by employers and/or as dictated by the job requirements. In case of shortages of manpower of

particular types, qualifications tend to be lowerd at the time of recruitment. As against this, in case of surpluses of manpower of a given type, qualifications generally tend to be upgraded. However, downgrading or hikes in levels of qualifications and skills may not necessarily occur at the recruitment stage. This may happen even at the stage of the institution of the vacancies. Past experiences and the knowledge of the current state of the labour market may facilitate up or downgrading of qualifications at the stage of inception of a post. Consequently, it is this very downgraded or upgraded pattern of qualifications which may get projected as future requirements. This aspect of the problem has generally been overlooked in the literature of manpower planning, its recognition at the theoretical level notwithstanding[7].

The above limitation is, however, not inherent in either the logic of the approach to manpower planning or the particular methodology followed for projecting manpower requirements. The problem can be effectively tackled by determining the degree, direction and nature of deviations and divergencies of the desired from the actual qualificational pattern[8]. However, no such empirical attempts have ever been made to the best of our knowledge, as the empirical investigations have been thwarted by conceptual, methodological and data problems. This has prompted us to take up this problem for an in-depth study. Thus this study is the first ever attempt to remove the above mentioned limitations of manpower projections

that are normally worked out for planning education and development. But the problem can not be studied empirically without first resolving effectively conceptual and methodological issues. This study attempts to investigate the degree and extent of market imperfections empirically with reference to the labour market in North-East Region of India. In the neo-classical theory the market forces are assumed to work directly through wage flexibility. But in modern economies non-market forces such as labour unions, labour legislations relating especially to wages, such as minimum wage legislations etc., make wages inflexible. In order to overcome such institutional and legal barriers, market forces exert their influence through other routes in an indirect manner. For example, rigidity of occupational wage structure may not permit hiring workers at rates lower than the prescribed ones even though the labour market happens to be flooded with workers seeking employment in a particular occupation(s). But better qualified workers may be substituted for less qualified ones which in effect reduces wages accruing to the workers with higher qualifications. This will be the short run response of the market. In the long run, the demand for that level and/or types of education will change. Besides, there is always an element of monopoly rent in occupational earnings which tends to be competed away in the long run through changes in supplies of manpower with particular levels and types of education. For example, prestigious courses such as applied sociology, social works and engineering that almost

guaranteed entry into highly paid jobs were often run in India under various restrictions while several restrictions are also made on the entry into highly paid jobs. The current demand for these kinds of job under conditions of scarcity may be met by taking people having somewhat related education/occupations even though they may not be fully qualified. Of course, higher demand for these kinds of job in relation to supply with accompanying high salaries will attract more students to join the relevant courses designed to prepare them for these jobs. However, these vacancies would have already been filled up by the time these fresh graduates joint the labour market. This is actually what happens in many of our public sector undertakings. This problem is further aggravated by the tendency of the students to overestimate their individual chances in employment market in the face of serious unemployment conditions. Thus the current shortages have a strong tendency of being converted into future surpluses[9].

It is thus such problems, arising from the market imperfection, which have bedevilled efforts of planners to project manpower requirements with the specified precision of estimates. The proposed study seeks to evolve concepts and methods based on empirical realities for overcoming some of these difficulties of manpower planning. To be exact, it is difficult to specify the skill and/or educational components of a given occupation. It is even more difficult to measure exactly the level, magnitude and type of education/training

and skill associated with the job requirements either from the demand or the supply side. The proposed study is a modest attempt to resolve various conceptual and methodological issues related to this particular aspect of the problem.

The major objectives of the study are as follows:

1) to estimate the nature and degree of imperfections that characterise the working of labour market for the educated manpower in the North-Eastern Region of India by identifying the nature and extent of substitution of one type and level of education for another in the different sectors of the economy;

2) to estimate the nature and extent of disguised unemployment among the educated manpower of the Region, as in our view, substitution of higher for lower education is also a type of disguised unemployment;

3) to evaluate the nature and extent of relationship between education and occupation, education and industry and education and earnings, and their variations between firms/industries and occupations; and

4) to estimate the nature and extent of deviation of the desired level and type of qualifications from the actual level and type of qualifications possessed by the people recruited in order to overcome the problems of shortages or surpluses.

The study is divided into nine chapters. Chapter I deals with Introduction, Chapter II explains the concepts, assumptions, methodology and sources of data. Chapter III gives a brief review of the relevant literature on the subject, while Chapter IV analyses the demand side interrelations between occupation, education and earnings. Chapter V deals with inter-industry and occupational variation of earnings and education. Chapter VI discusses the supply of educated manpower in North-East Region of India. Chapter VII analyses the nature of labour market in North-East India. Chapter VIII contains the analysis of the deviations and divergencies of the actual from the desired levels and patterns of educational qualifications, and finally, Chapter IX gives the major findings and conclusions.

All the Statistical Tables are contained in the Statistical Supplements. Important abbreviations and questionnaire are appended in the Appendix.

References

1. Barewald, F., History and Structure of Economic Development, IBH, 1969.
2. Solow, R.M., "Technical Progress, Capital Formation and Economic Growth", American Economic Review, 52, May, 1962, pp.76-86.
3. Inoue, Keichi and Akiko Izawa, "Cost-Benefit Analysis - Its Application in Manpower Planning" in Man Power Assessment and Planning Projects in Asia: Situation, Problems and Outlook, Geneva, ILO, 1978, p.37.

4. Harbison, Frederick, Human Resources as the Wealth of Nations, New York, Oxford University Press, 1973, p.3.
5. Parnes, H.S. (ed.), Planning Education for Economic and Social Development, OECD, 1964, p.73. Also see, Layard and Pant, Manpower and Educational Development in India, and Debeauvais, M., Methods of Forecasting Long Term Manpower Needs, in Parnes (Ed.), op. cit., p.85.
6. Prakash, Shri, Educational System of India : An Econometric Study, Concept Publishing Co., Delhi, 1978, p.21.
7. Prakash, Shri, op. cit., p.23.
8. Prakash, Shri, op. cit., p.23.
9. Prakash, Shri, op. cit., pp.10 & 11.

The following are the major findings of the study:

1) There is an empirical evidence to support the hypothesis that so far as the general education is concerned, simple matric or H.S.L.C. and Intermediate degrees such as P.U. and H.S.S.L.C. can no longer be used as a terminal stage for employment purposes either by students or their parents. The study reveals that these qualifications no longer command any demand in the employment market because no employer is willing to employ a person with these qualifications unless they are supplemented by some professional or technical diploma/certificate or training with experience ranging from 2 to 10 years. This has a very important policy implication for the development of education in the region. Unless adequate facilities for vocational/professional/technical training or education are made available, to prepare fresh graduates with these qualifications to enter the labour market for specific occupations, they are likely to either swell the ranks of the unemployed matriculates or swarm the institutions of higher learning in general education. Therefore, the proposals for the vocationalisation of education after or at the +2 level under the New Education Policy measures appear to be well-formulated and properly geared to meet the specific needs of the

economy. The proposed educational reform will be in consonance with the age old Indian tradition of oral learning and the imparting of training informally through work experience. In recent times also, the two processes have been used frequently to meet manpower requirements in the midst of scarcities or surpluses.

2) For most of the occupations, earnings and salaries or grades vary according to the level and types of education as well as the period of training and experience. This implies that earning differentials are due not only to the differences in the level and types of education but also to the number of years spent in getting informal training on the job and for gaining useful service experience. As a matter of fact, on-the-job training and experience are invariably associated with higher emoluments. Besides, in most cases, vertical mobility depends largely on age/experience/on-the-job training rather than on the level of qualifications possessed. In fact, due to lack of experience one may not get the job. In that case, he may be forced to re-enter educational system to get further training for improving his job prospect. Therefore, matric/HSLC level education supplemented by diploma or certificate and long years of experience/training may command a high level of demand in the job market and even for a well-paid job.

This point, therefore, lends support to the proposal for delinking of degrees with jobs in the New Education Policy measures. In the initial phases when the developmental process gathered momentum in the country as a whole, acute shortages of high level manpower obstructed developmental efforts. Under the impact of development programmes there were more vacancies than the number of persons having requisite qualifications. The shortages could have been met by postponing development or by importing all manpowers with requisite levels and types of education from abroad. Both these alternatives were, however, not attractive. Therefore, a compromise was made with formal education/training by recruiting people with lower qualifications but with practical experience. Once these people came to occupy these positions they would gain further experience and practical expertise through on-the-job training. Therefore, as and when the vacancies at a still higher level occur the candidature of these personnel has to be reckoned with. Therefore, even when the economy has reached the stage of development when it has acquired surplus of high level manpower, at times advertised qualifications for such high level posts are even lower than the qualifications for lower level jobs. These lower level qualifications are often advertised as equivalent or alternative to higher level education, the difference between the two being made up

by the long years of experience and practical training on-the-job. This is a sort of delinking of formal education from the job to a limited extent. The inference to be drawn from this is that if high level formal education is delinked from the jobs under conditions of scacity, there is no reason to suppose that it cannot be done under conditions of surpluses also.

3) There is also some empirical evidence to support the hypothesis that there is an unique relationship between engineering occupations and formal educational qualifications in the relevant fields. If a person does not have the desired formal educational qualifications at the degree level, this has to be made good by on-the-job training or experience ranging from 2 to 5 years. The exercise also reveals that educational qualifications in specific fields of specialization are intimately related to specific occupational categories. Therefore, delinking of degrees from jobs may not be feasible unless the current recruitment policies and practices are changed and the employers psychology is radically transformed. There seems to be a contradiction between the emphasis in vocationalization of education and delinking of degrees with jobs. If jobs are delinked from degree, then one can straight away go for vocational training informally. Obviously, in such cases, one is not likely to bother about either the level or type of

education one has got if jobs are delinked from degrees.

Education is a substitute of jobs in the prevailing condition of unemployment. Unemployment of matriculate gets converted into unemployment of graduate and so on. If degree is substituted by public test after delinking and people find that candidates with higher level of education have better chance of success in the job market, the experiment would fail, for people would be forced to rejoin educational system to get higher level of education for improving their job prospects. Mere vocationalisation would not succeed unless adequate number of jobs are available for people with vocational education/training.

4) The range of possible substitution of one level and type of education for another is extremely limited as occupation-education relationship is neither perfectly rigid nor completely flexible. An interesting feature is that there is certain degree of substitutability between different levels of education while the substitution probability between different types of education is practically zero.

One may be forced to accept a job for which he is over qualified. In that case, both his occupational status and earnings are adversely affected; but this may

ensure availability of the job for which he is qualified through vertical mobility over time. Again, one may seek lower level of jobs in occupation other than the one for which he has been trained. In this case, the investment in education and training would largely go waste. Finally, one may accept a job in the same occupation but in less prestigious and less remunerative informal sector. In such an eventuality though one retains the occupational status, his earnings and, therefore, returns on investment in education are adversely affected at least in the short run.

Although the substitution possibility between the different levels and types of education appears to be quite rigid at the formal level, it may be pointed out that in certain peculiar circumstances, persons with a background in technical education can be fitted in an occupation requiring general education though the reverse substitution may be relatively difficult. In other words, people having no technical education may not be found suitable for employment in technical occupation while technical manpower may be employed in occupations requiring general education, though this may result in underemployment of the technical manpowers. This may imply that over production of technical manpower does not necessarily lead to over investment in education. Besides, over production may not be as

harmful to the economy as the scarcity of technical manpower because the latter may directly lead either to stagnation in production or to lower levels of efficiency and therefore, to lower productivity.

5) There is also empirical evidence to support the hypothesis that emoluments associated with some occupations vary between different industries or sectors either because of the strength of the labour union or the nature of the sector in which the person is employed. For most of the occupations, levels and patterns of qualifications demanded vary between firms/industries which tend to make salaries and grades also vary across firms or industries. There is also some empirical evidence to support the hypothesis that higher emoluments are carried by those fields of education/specialization/occupations for which supplies are relatively low and cost of education/training is relatively high. However, differences of specialization within the same type of education do not contribute to earning differences, by and large.

6) The study also reveals that the practice of fixing educational qualifications higher than that warranted by the job requirements is more common in the case of general education than in technical education.

This highlights the fact that the incidence of unemployment may be higher among people with general education than those with technical education. This practice of upgradation in qualification is resorted to by employers mainly to eliminate the usually large number of job seekers who swarm the employment market. In other words, the practice of hiking and lowering of educational qualifications is resorted to cope with surpluses and scarcity of educated manpower respectively.

7) There is also an empirical evidence to highlight the fact that the North-East Region is having surplus manpowers including high level manpowers. The study reveals that there are no supply bottlenecks even in relation to the high level manpower excepting of those few manpowers requiring specialised professional education/training and for which basic facilities for education/training are lacking in the region. These manpowers are mainly imported either from the neighbouring states or from the rest of the country. This is evident from the fact that the number of applicants per post for the high level occupation is as high a range as from 7.33 to 13.6. Compare to this, the number of applicants per post at the middle level, range from 5 to 75 and 22 to 54 for the low occupational category. This incidence of unemployment among the different levels of

occupations may be taken to reflect the incidence of unemployment among the people with various levels and types of education, diversity of educational background in given occupation notwithstanding. It may not, therefore, be wrong to infer that the manpower with the university education of any kind is much less prone to unemployment than the manpower with education upto school level only.

8) As already pointed out above, the north-east region is in general, more than self-sufficient as far as manpowers with background in general education are concerned. In fact it has surpluses of these type of manpowers as indicated by our empirical findings. At the same time, it may be surprising to note that the region is deficient in certain specialised types of manpowers to the extent of 20% or 1/5th of the total requirements. The shortages are manifested mainly in professional and technical manpowers such as mining and safety engineers, chartered accountants, agricultural scientists etc. for which education/training facilities are rare if not totally unavailable. Though the extent of these shortages is quite high by itself, it may be much lower than what one might believe to be the case on a priori notion and impression about the region being deficient in human capital generally. Thus the region is greatly self-sufficient with respect to manpower in

general, yet, the self-sufficiency is not complete. A lot still remains to be done to make the region self-sufficient in the matter of manpower. On the other hand, these manpower shortages in the region may be taken to reflect the nature and characteristics of the job markets for the educated in India. While certain regions/states remain deficient in human capital resources, other regions/states have surpluses in excess of the demand. It may, therefore, be suggested that the manpower planners at the national level should focus attention not only to the overall demand for and supply of manpowers, but also the imbalances of demand and supply at the regional level in order to ensure that the short-term shortages of one region can be made good by the short-term surpluses of the other regions. Thus the regional aspect of manpower planning should get adequate attention at the hands of policy makers and the manpower planning at the regional level should, in turn, supplement manpower planning at the national level.

9) Another important finding of the study is that of the seven units in the north-east region of India, Meghalaya seems to be the most developed state of the region or at least it must be developing relatively much faster than the other states of the region, while Assam and Mizoram occupy the joint second position. This

claim is supported by the fact that Meghalaya accounts for almost 50% of the total jobs available in the region during the period of the study. The share of Meghalaya is more than twice as large as the job openings in Assam and Mizoram respectively. However, the Assamese are the most migration-prone people in the region. Almost 30% of the total Assamese getting the jobs during the period migrated outside the state whereas less than 3% of the Meghalayans out-migrated in search of jobs during the same period. All the out-migrating Manipuris and Tripuris get absorbed in Meghalaya while Mizos do not show any tendency to migrate outside the State to get jobs. So far as people of other states are concerned, they have not depicted any strong tendency for out-migration. It may probably be because they still have not felt the pinch of unemployment as opportunities are still available in their own state for meeting their aspirations.

In conclusion, it may be pointed out that the problem of educated unemployment cannot be solved merely by introducing vocational education and delinking of degrees from job. The problem seems more like the case of overall shortage of employment opportunities due mainly to sluggish economic growth and the steadily increasing number of graduates produced by the educational

institutions of the country. In the prevailing conditions, mere vocationalization of education and delinking of degrees from job will not solve the problem. It is most probable that unemployed matriculates with general education will get converted into unemployed matriculates with vocational training or education and so on. What is, therefore, needed to solve the problem in the present circumstances is to attain a more rapid rate of economic growth accompanied by improvement in the overall techniques of production through an integrated and systematic planning of education and manpower at the national level. Increasing production and productivity alone will create more job opportunities to absorb the teaming millions of our educated unemployed.