# MANPOWER PLANNING IN PAKISTAN: A STUDY OF ITS ASSUMPTIONS CONCERNING THE EDUCATION-OCCUPATION RELATIONSHIP

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# ABSTRACT

The study explored the validity of the assumptions concerning the education-occupation relationship with special reference to manpower planning in Pakistan. Empirical evidence both from the literature on manpower planning and from the real-working situation in Pakistan were collected. We collected data through questionnaires from the respondents. The main research question was:

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**Is the education-employment relationship assumed in Pakistani manpower planning valid?**

The study is divided into nine chapters. It begins with an introduction to the study in which we highlight its significance, research questions, and the assumptions of the manpower requirements approach concerning this relationship. The second chapter reviews the manpower planning literature critically examining the main features of different methods of the manpower requirements approach. Chapter three presents the overall picture of the "economic structure of Pakistan". Chapter four describes in detail, the various manpower planning exercises conducted in Pakistan and the role of different organizations both at the Federal and Provincial level, involved in the planning exercises. This is followed by a "critical examination of manpower planning in Pakistan" in chapter five. Chapter six describes the "research questions and methodology"used in the research. The "sample and responses" is presented in chapter seven, followed by the "analysis and interpretation" presented in chapter eight focusing on their implications in Pakistan. Chapter nine concludes the study with a "summary of conclusions and recommendations" based on the findings of the present study.

On the basis of the evidence collected in this research we concluded that the assumptions made concerning the education-occupation relationship in Pakistani manpower planning exercises are largely invalid.

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CHAPTER ONE

INTRODUCTION

## 1.1 THE STUDY AND ITS SIGNIFICANCE

Many nations plan for manpower at a national, sectoral, or sub sectoral level, as no nation can afford a wastage of resources due to the lack of proper planning. Developing countries where resources are particularly scarce, especially need to adopt effective manpower planning. The first manpower survey, in Pakistan, was conducted in 1955 with the assistance of the International Labour Organization (ILO). Its results were used as an input into the first Five-Year Plan (1955-1960). At that time a small section dealing with the employment and the manpower was set up in the Planning Board. (presently named as Planning Commission). In 1962, the National Manpower Council was established as an inter-ministerial body to deal with the task of policy formation in the field of employment and manpower planning. This council was merged with the Manpower Division, set up in the Ministry of Labour and Works in 1973. The major responsibility of this division is to evolve and determine manpower policies concerned with recruitment, training, use and conservation of resources in cooperation with manpower agencies concerned with the production and utilization of manpower.

In addition, the Pakistan Planning Commission has to date prepared eight Five-Year Plans, two Perspective Plans (1965-1985 and 1988-2003), and one Six-Year Plan. Since 1963 Labour Force Surveys have been conducted quarterly by the Federal Bureau of Statistics,

Statistics Division. Each plan is based on the review of the experiences of the previous plans. Despite all the efforts that have been made, the success of manpower planning, in the context of employment of educated personnel is open to question. Today, the country is still facing the following serious problems.

1. Open unemployment rate is 5.85 percent (6.97 urban, and 5.40 percent rural). (Economic Survey 1993-94, p.100).

2. Very high rate of population growth in the region i.e. 3.1 percent, (Economic Survey, 1991-92 p.119).

3. There exists, "surplus" of educated persons especially without training and requisite skills. (ibid. p. 135). In other words their educational qualifications do not meet the requirements of employers in the real-working situation in the economy. Surplus means that there are more workers available than the number demanded at the going "free" market wage rates.

4. There is a "shortage" of scientists and technologists in the country. (Report of the National Manpower Commission, 1991: p. 146). Shortage means that there are fewer workers available than the number demanded at the going "free" market wage rates. The scientists and technologists are the persons engaged in or being trained for an occupation for which the level of skill required is equivalent to a first degree in science or technology. It implies that despite manpower planning, shortages and surpluses of various types of educated manpower exist side by side in Pakistan.

These problems prevailing in the country lead us to explore the actual situation of manpower planning exercises in the country. There is an urgent need for an in-depth study of the education and occupation relationship to evaluate the manpower planning

techniques employed in Pakistan. This study mainly focuses on the assumptions of manpower planning concerning the education-occupation relationship. In the process of manpower planning manpower planners assume that there exists a precise relationship between education and occupation and that occupational requirements can precisely be translated into educational requirements. The central concern of this study is to explore the relationship between the education and occupation assumed in manpower planning in Pakistan.

In addressing this question we will critically review the literature in the field of manpower planning and data will be analyzed in the context of the education-employment relationship in Pakistan. Data will be collected from both primary and secondary sources on manpower planning. The secondary data will mainly come from the analysis of documents published by the government of Pakistan and other national and international agencies. The studies conducted by eminent scholars in this field will also be critically examined. The primary data for empirical work will be collected via questionnaires from employers and employees, involved in our study. The samples of employees and employers will be selected randomly from their respective population set within the target area, Rawalpindi and Islamabad. The details of the methodology adopted in this study, will be presented in chapter 6. The questionnaires will address our research questions, and the issues related to the labour market experiences of the respondents involved in the study. (see appendix A and B for copies of questionnaires given to employers and employees).

On the basis of the information collected through the questionnaires, we will be able to

present the tables highlighting the actual education-employment relationship in Pakistan. In the light of the findings of this study we expect to be in a position to assess the validity of the assumptions of manpower planning in Pakistan with special reference to the education-employment relationship and thereby make specific recommendations as to improvements or even abandonment of manpower planning methods employed in Pakistan and other countries.

## 1.2 STATEMENT OF THE PROBLEM

The study focuses on an investigation of the nature of the relationship between the education and occupation with specific reference to manpower planning in Pakistan. The relationship would be determined by investigating the prevailing relationship between education and occupation in the real-working situation in the country. For this purpose we will conduct a survey within the target areas (Rawalpindi and Islamabad) to collect data from the respondents (employees and employers). It involves the qualities of employees, the demands of employers, and the factors to be taken into account in preparing manpower plans. We will try to find answers to the research question and the subsequent sub-questions, concerning the validity of assumptions of manpower planning, in the context of the education-employment relationship, in Pakistan.

The study is based on the following questions and issues:

### 1.2.1 Research Question

Is the education-occupation relationship assumed in Pakistani manpower planning

valid ?

### 1.2.2 Sub-Questions

What is meant by manpower planning, what does it intend to accomplish in Pakistan ?

How can one identify the problems of manpower planning in Pakistan in the context of

the education-employment relationship?

What criteria should be used to measure the success of manpower planning, regarding the

relationship between education and occupation in Pakistan ?

Are the experiences of employers and employees consistent with the assumptions that

manpower planners make concerning the education-employment relationship ?

In what ways are employers influenced by government manpower plans ?

What is the prevailing degree of substitution between qualified manpower and

occupations ?

How and what can a researcher find in the literature pertinent to the research question ?

### 1.2.3 Issues Related to the Educational System

What role does manpower planning play in educational planning?

How are the manpower forecasts made?

How are manpower forecasts matched with the supply of educated manpower, and what

factors affect the supply ?

### 1.2.4 Issues Related to the Labour Market Experiences of the Educated Employees

To what extent are the needs of the job met by the content and structure of the educational system, in the view of the employees?

What type of training do the employees need to enter into the labour market, and how long do the training programmes last ?

What factors do employees take into account while entering into a specific occupation ?

What is the degree of correspondence between academic performance and job performance as perceived by the employees ?

### 1.2.5 Issues Related to the Labour Market Experiences of the Employers

What are the recruitment methods and selection criteria for a job and how relevant are they as perceived by the employers?

What is the degree of relationship between academic performance and the job performance as perceived by the employers?

Do employers plan, and what factors do they take into account when they prepare manpower plans ?

What are the main problems they are faced with in making estimates of manpower requirements for their concern ?

What measures do the employers suggest to overcome the problems of manpower planning for their concern.

The following steps are taken to answer these questions:

a) To identify the primary and secondary sources relevant to manpower planning and describe how each is relevant to the study.

b) To identify the relationship between the research question, assumptions of manpower forecasting and analyze the procedure adopted in the study.

c) To identify the target sample and describe the procedure for selecting the subjects representative to the relevant set of population.

d) To develop an appropriate survey instrument to collect the data from the respondents involved in the study.

e) To analyze the nature and the extent of problems of the manpower planning, in the context of employment of educated manpower, in the country to date.

f) To make suggestions for avoiding the pitfalls of past experiences and recommend some effective measures to improve the manpower planning in Pakistan.


## 1.3 CONCEPTUAL FRAMEWORK OF THE EDUCATION-OCCUPATION RELATIONSHIP


In the 1980's the relationship between education and employment attracted the attention of researchers in the fields of education and economics, but their approaches differ in this regard. Their views are based on different "theories"/"models". A detailed description of these theories is beyond the framework of the study, however, a very brief mention is made in the following paragraphs:

### 1.3.1 Human Capital Theory

This theory states that spending on education and training on the job may be viewed as investment rather than consumption, whether undertaken by individuals on their own behalf or undertaken by society on behalf of their members. It implies that human beings invest in themselves, by spending on education, training, or other activities, which raise their future income by increasing their life-time earnings. This approach is largely a Post-Second-World-War phenomenon, whose roots can be traced to the productive outcomes of aid programmes to the war-devastated regions of Western Europe and Japan. Bowman (1966), referred to this evolution as "Human Investment Revolution In Economic Thought". (Psacharapoulos, 1987: p. 94).

### 1.3.2 Screening Hypothesis

According to Psacharapoulos the screening hypothesis indicates that "Schooling does not have a productive role per se. All it depends on is selecting individuals according to their ability for filling the higher paid jobs". (Psacharapoulos, 1975: p. 13). Whitehead (1981), defined screening or filtering as a process of "identification of relevant characteristics in individuals which is accomplished through the use of screening devices such as educational admission or examination procedures". (quoted in Blaug. 1992: p. 243). However, the screening as described above does not give a satisfactory explanation for the phenomenon of the continuing positive correlation between education and training throughout working life. This could be explained however if the use of educational qualifications as a screening device successfully picks out the "best" persons from the

labour market. Practically, the term "best" cannot be measured by any objective standards, but will be judged by employers on the basis of actual experience of the workers in employment.

### 1.3.3 The Job Competition Model

"Job structure is regarded as technologically determined and a central feature of the Model is that productivity is seen as an attribute of jobs, rather than of people. Consequently wages are based on the characteristics of jobs rather than the characteristics of the people in them". (Hinchliffe, K. quoted in Psacharopoulos, G. 1987: p. 143). Employers use educational qualifications as a proxy for those characteristics which facilitate training. People are matched to jobs by criteria which may be associated with education, but education is not the only main determinant of productivity.

There is another view that correspondence between education and employment is an illusion existing only in the graduates' minds and has little to do with their performance in active life. The usual practice of recruiting graduates for certain jobs on the bases of their academic qualifications leads new job seekers to believe that they are able to get such jobs.

Human capital theory accepts the idea of education contributing to the social and economic development of individuals, whereas the remaining theories raise doubts about the role of education toward this development. However, a question of increasing significance is the extent to which the education/training has come about or is desirable

in relation to the performance of jobs in the labour market. The main aspects of this fundamental question may be the degree to which academic qualifications of a person affect their occupational performance in the labour market. This important question leads us to investigate the prevailing relationship between education and occupation in Pakistan. In this context we will test the validity of the assumptions of manpower requirements approach (MRA) concerning the education-occupation relationship in Pakistani manpower planning.

In the following section some description of the main assumptions on which manpower forecasting approach rests is presented. These will be discussed in detail along with any criticism in chapter 2.

## 1.4 THE ELASTICITY OF SUBSTITUTION BETWEEN DIFFERENT TYPES OF EDUCATED MANPOWER

In all manpower requirements approach methods, it is assumed that "the elasticity of substitution between different types of educated manpower is equal to or near zero". (Ahamad and Blaug, 1973: p. 6). The standard manpower planning assumption is "near-zero elasticities of demand for different skills". (Blaug, M. 1970: p. 216). Elasticity of substitution may refer to substitution between capital and educated manpower or substitution between different types of manpower. Many comments have been made on the assumption of zero elasticity. For example, Griliches (1969) and Welch (1970), Fallon and Layard (1975) explicitly tested for complementarity between capital and high-level skills with data from 23 countries for the 1960s. They found that, "the direct elasticity

of substitution between more educated and less educated labour is close to one". It is

confirmed by OECD, (1970), Dougherty, (1972) and Tinbergen (1974), in comparison

with the 8.0 reported in Bowles (1969). (quoted in Abegaz 1994: p. 74). However, the

comments in detail will be presented in the following chapter.

In this study we will test the validity of the assumption of MRA concerning the zero-

elasticity of the supply and demand for different types of manpower and the degree of

difference this makes to the resulting forecast of the supply and demand for manpower

in Pakistan. In this context we will examine the prevailing degree of substitution between

educated manpower by level and type of education and occupations in Pakistan, if any.

The details of the procedure adopted to collect data from the respondents are presented

in the chapter 6.

## 1.4.1 Inter-Occupational Mobility

In the process of forecasting, the availability of manpower is derived by correcting the

base year manpower stock for losses through mortality, retirement, and by adding the

expected manpower coming from the educational system, but the effects of mobility of

manpower in the work force are ignored. The mobility of manpower may be seen directly

through a change of job or indirectly through a retraining programme. For instance, the

'Finniston Report' using the data of UK for 1971 found that:

> *Britain had in 1971 some 239,000 graduate engineers, of whom less than 39 per*
> *cent were employed in manufacturing industry; 36 per cent were employed in the*
> *'white collar' categories, professional and scientific services (including education)*
> *and public administration and defence, and insurance, banking and finance.*

*(quoted in Hough, 1987: p. 80).*

We will test the validity of the assumption of MRA that there is no significant degree of workers' inter-occupational mobility prevailing in Pakistan, and that it has insignificant effects on the estimates of the supply and demand for educated manpower in the country.

## 1.4.2 Elasticity of Education and Wage Rates

In the process of forecasting the supply and demand for manpower it is assumed that, "the elasticity of educational labour with respect to wages is zero". (Ahamad and Blaug, 1973: p. 9). Many critics have commented on the validity of this assumption of MRA. In this context, Jolly (1968), acknowledges the presence of elasticity of educational labour with respect to wages, and gives the example from Puerto Rico, that "there is an equal percentage fall in employment for every percent increase in wages". (Jolly, 1968: p. 85). Bowles (1969), using the data from twelve countries, found that, "the elasticity of substitution between different categories of educated manpower was never less than eight". (quoted in Mace, 1986: p. 67). The elasticity of educational labour with respect to wages is recognized in the recent studies conducted in this area. For example, Abegaz (1994) states that, "the estimates for the industrialized group suggest that the wage elasticities are small but far from zero". (Abegaz 1994: p. 79).

In the present study we will explore the validity of the assumption of manpower planners regarding the zero elasticity of demand for educated labour with respect to wages in the labour market. The thesis also examines evidence for the assumption of zero elasticity of supply of educated workers, and will also explore the extent to which the respondents

(employee and employers) take the possibility of substitution into account in the labour market.

## 1.5 STUDENTS' MOBILITY

In making the estimates of supply of educated manpower, especially from the formal educational system, students' mobility within the educational system is not taken into account. Practically, students' mobility within the educational system cannot be neglected in planning education for employment purposes because of its direct link with the supply of educated manpower. According to a UNESCO study of 1987, there exists a significant rate of students' mobility in the educational system among various countries. In the Philippines, for example, 18 percent of the students were studying in different fields of studies from the one they had wanted to study. Likewise, in Indonesia, Egypt, Botswana, and Sudan, these percentages are 10, 50, 20, and 61, respectively. (Sanyal, 1987: pp. 98-101). According to an OECD study (1993), students' mobility has been observed in developed countries as well.

In this context, we will explore the prevailing degree of students' mobility within the educational system in Pakistan. This will enable us to know the extent to which the students' mobility within the educational system has significant effect on the estimates of the supply of educated manpower in the country.

## 1.6 UNCERTAINTY OF THE LABOUR PRODUCTIVITY

Manpower forecasters assume that, "the present and past occupational patterns are solely a result of demand and that the availability or non-availability of manpower has no influence on occupational structures". (Hinchliffe, 1987: p. 320). It means that the technology and the labour product during the time period will be the same or change in a simple, regular pattern, but in practice the changes in various sectors are quite irregular and uncertain overtime.

Both Hollister (1965) and Blaug (1967) point out that the studies of the labour productivity by Kendrick (1961) show that the changes have been quite irregular both over time and between economic sectors. As a consequence, they conclude forecasts of future changes are likely to be highly inaccurate. (quoted in Psacharopoulos, 1987: p. 320). Not only productivity, but even more important, the "mix" of manpower skills change with new technology, including brand new skills. For example, in Germany, the proportion of graduates in the public sector increased from 21 percent to 26 percent between 1976-85, and similarly in Norway, they increased from 26 percent to 37 percent between 1975-1989. (OECD, 1993: p. 95). It is claimed in the report that this increase was due to the spread of new technologies, and changes in the organization of the work. Similarly in the production sector, the introduction of "power looms" at home or in the lower scale has not only increased the output per worker, but also the functional composition of the work force has changed. Loom fixer, engineer, and personnel administrator are the examples of new occupations that would probably not exist in the simpler organization of the sector.

Findings of a study conducted by Bosworth and Dutton (1990), revealed that "the linkage between technology and skills spread in two directions. First, shortage of appropriately skilled labour limit the rate of introduction of new technologies. Second, the introduction of new technologies impacts on the skill structure needed in the production process, causing shortages and surpluses to raise as diffusion takes place". (Bosworth and Dutton 1990: p. 54). Jolly and Colclough examined 33 manpower studies from African countries made between 1960-1970. In these studies, projections were most often made by a simple expansion of the existing posts making no allowance for changes in the occupational or educational structure. (Hinchliffe quoted in Psacharopoulos, 1987: p. 322). According to a study conducted by the Institute of Manpower Studies, in the UK context, "these changes [in labour productivity] have affected the utilization and allocation of productive resources, both labour and capital". (Rajan 1986: p. 9).

The literature on manpower planning provides evidence that the fixed rate of growth in labour productivity and rigid assumptions of forecasting manpower requirements have resulted in inaccurate predictions of the demand for educated manpower. No one can claim an increase in the labour productivity in any sector by simply increasing manpower. If an increase is noted, there may be various factors responsible for it, for example change of technique, or addition of some new technology etc. In the same way Abegaz (1994), comments that "the link between the manpower plan and the educational plan however, cannot be too tight for several reasons: (a) a technologically progressive economy is likely to generate demand for new skills or new uses for existing skills which manpower planners cannot foresee accurately, (b) the educational system embodies social goals that cannot be reduced to just production functions, and (c) there is the practical problem of

inter-ministerial coordination since the goal of building autonomous empires has proved endemic in bureaucracies". (Abegaz 1994: p. 19).

We will explore the extent to which the employers involved in the study take the change of technology and its likely effects on the 'skill mix' into account when they prepare manpower plans for their respective organizations in Pakistan. We expect that this will enable us to test the validity of the assumption of MRA, that pace of the technology and the labour productivity during the planning period is predictable.

## 1.7 THE RELATIONSHIP BETWEEN THE GNP TARGETS AND MRA

Usually forecasts of manpower requirements are made in attempt to achieve a specific target, such as the GNP target. It is considered that manpower requirements forecasts are meant to generate educated manpower to achieve the given GNP targets. If the target of GNP is achieved, it does not confirm that the technique used was accurate. The accuracy of the forecast may be the result of the factors which were not taken into account while making the forecast, for example, the accuracy may have been achieved because of wage adjustment, which in fact was neglected.

We will investigate the extent to which the employers take "GNP and its composition" into account when they prepare manpower plans for their respective organizations in Pakistan. In doing so we would be able to test the validity of the manpower power planners' hypothesis that there is a significant relationship between the GNP targets and manpower planning techniques employed, and that the achievements of GNP targets

confirm the correctness of the techniques employed in forecasting manpower requirements to achieve the GNP targets in the country.

## 1.8 EDUCATION-OCCUPATION RELATIONSHIP

In the process of MRA it is assumed that "it is possible to ascertain the optimum amount of education for achieving specific growth rates". (Parnes 1962: p. 7). In other words he defines that, "MRA attempts to foresee the future occupational structures of personnel with the qualifications which that structure demand". (Parnes 1962: p. 15). It implies that estimates of educational requirements can be made for different categories of occupations and that this is an important assumption of forecasting manpower requirements.

Practically the conversion of occupational requirements into educational requirements is highly suspect and one of the complex problems in manpower planning. The estimates of educational requirements cannot be made mechanically because in most of the occupations there is no precise relationship between education and occupation. For example, one cannot be sure whether an administrator of a certain department should have a university education, because satisfactory performance is attributable to a function of native ability, psycho-motor skill, work experience, on the job training, and formal education.

A survey of Sudanese graduates of higher education indicates that highly specialized programmes (such as law, engineering, and health care) tend to exhibit high correspondence with their respective professions but more general fields (arts and social

sciences) tend to exhibit high flexibility in occupational choices". (Sanyal and Versluis (1976) quoted in Abegaz 1994: p. 125). Similarly, Bowles and Gintis (1969), Lindley (1981), Cohen (1990), have questioned this relationship in their respective studies. They are of the opinion that the correspondence between education and employment seems to be loose and substitution possibilities between qualified manpower of different varieties exist in many countries.

In this context, we will explore the currently existing relationship between the occupations and level and type of education in Pakistan. The data will enable us to test the validity of the assumption of MRA regarding the existence of a unique set of relationships between occupations and level and type of education in the labour market and occupational requirements that can be converted into educational requirements during the process of manpower planning in the country.

## 1.9  ORGANIZATION OF THE STUDY

The "Introduction" is the first chapter of this study. The remainder of the study is divided into eight chapters. The second chapter, "Theory and Practice of Manpower Planning: A Critical Review" highlighs the main features of different methods of manpower requirements approach, important assumptions of the approach and its criticism. Chapter three presents the overall picture of the "economic structure of Pakistan". Chapter four describes in detail, the various manpower planning exercises conducted in Pakistan and the role of different organizations both at the Federal and Provincial level since its inception. It is followed by the "critical examination of manpower planning in Pakistan"

in chapter five. Chapter six, presents the "Research questions and methodology" adopted for selecting the target areas, subjects and their sampling in the study. It also includes the issues related to the employees and employers with special reference to manpower planning and the labour market experiences in Pakistan. The "sample and responses" is presented in chapter seven, followed by in chapter eight the "analysis and interpretation" presented focusing on their implications in Pakistan. The limitations of this study are also considered in this chapter. Chapter nine concludes the study with the a "summary of conclusions and recommendations" based on the findings of the present study.

## 1.10 SUMMARY OF MAIN FINDINGS

The study highlights how the validity of the assumptions concerning the education-occupation relationship with special reference to manpower planning in Pakistan, was assessed. Empirical evidence both from the literature on manpower planning and from the real-working situation in Pakistan were collected. In this context, we extensively reviewed the literature on manpower planning, and collected data from respondents (employees and employers) from Rawalpindi-Islamabad, Pakistan. The main research question was:

*Is the education-occupation relationship assumed in Pakistani manpower planning valid ?*

The detailed findings of this study are presented in chapter 9. Here we present a summary of them.

**1.10.1 Substitution Between Educated Workers by Level of Education**

Results of the table 8.13 revealed that in Pakistan, workers in the same category of job have different levels of academic qualifications. For example, the level of academic qualifications in the "admn/managers" and "professionals" varies from Matric (10 years of schooling) to post-graduates including M. Phil. and Ph. D. Similarly, workers with the same level of qualifications were employed in different categories of jobs. For example, from those that were sampled, 34 percent of the "admn/managers", 20 percent of the "professionals", 45 percent of the "clerical workers", 56 percent of the "sales workers", and 31 percent of the "production workers" were degree holders. The situation is the same for the remaining categories of workers. (see the Table 8.13 for details). These results enable us to conclude that there exists a significant level of substitution between highly qualified and less qualified workers in Pakistan. Results of this study provide us with adequate evidence against the "near-zero elasticities of substitution between skilled men". (Blaug, M. 1970: p. 216).

Table 8.32 shows that employers, particularly from the private sector, employ workers with different levels of qualifications and skills for a specific job category. Table 8.30 shows that overall 35 percent of employers from the public and private sectors take the possibility of substitutions of workers by education and occupation into account when they prepare manpower plans for their respective organizations.

## 1.10.2 Substitution Between Educated Workers by Type or Specialization of Qualifications

Results of the Table 8.14 revealed that graduates in different fields of studies including the specialized field of education, were employed in the same category of job. For example, graduates in Arts, Social Sciences, Natural Sciences, Law, Engineering, and Agriculture, were employed in the same category, eg. "admn/managers". The same was true for the other categories of workers included in the sample. On the other hand, graduates in the same field of study, including the specialized fields, were employed in different categories of jobs. For example, graduates in Engineering were employed in the "admn/managers", "professionals", "sales workers" and "production workers".

Results of the table 8.32 from the employer survey shows that there exists a substitution between the technical and non technical manpower in the labour market. Employers from all sectors, especially from the private sector use different options to fill a vacant position in their respective organization. For example, a significant percentage of employers from all the sectors used the option "rotating the workers on different types of jobs" for filling the vacant positions in their organizations. Results from the employers survey show that the "near-zero elasticities of demand for different skills" is increasingly open to question.

## 1.10.3 Substitution Between Labour and Capital

Results of the Table 8.32 revealed that a reasonably high percentage of employers from the private sector had used the different options to fill a vacant position in their respective

organization. For example, a significantly high percentage of them hired untrained workers and skilled craftsmen at a low rate of salary instead of institutionally trained workers,. (for details see the Table 8.32). It implies that the results of the survey from both employees and employers showed there exists a substitution between labour and capital in Pakistan. Overall findings of both the employees and employers surveys show that the zero elasticities of supply and demand for different skills are invalid in the labour market of Pakistan.

The evidence available in the study enabled us to conclude that the estimates of educational requirements cannot be made for different categories of occupations with any degree of precision. Thus the assumption of manpower forecasting, "the elasticity of substitution between different types of educated manpower is equal or near zero," is likely to be invalid in real-working situations in Pakistan.

## 1.10.4 Elasticity of Education and Wage Rates

Results of the Table 8.19 revealed that 50 percent of the employees employed in "admn/managers" and 25 percent from each of the "professionals" and "clerical workers" changed their present job for a higher status. Similarly, employees from all categories of jobs included in the sample had given "better working conditions" and "better prospects for promotion" the main reasons for their change of jobs. (for details see the Table 8.19). It indicates that employees take the financial and other benefits related to a specific job into account in choosing or changing the job in the labour market. Similarly the results of the table 8.32 show that the employers involved in this study use different options to

fill a vacant position in their respective organizations. It implies that the assumption of MRA that the elasticity of supply of educated labour with respect to wages is zero seems to be invalid in the labour market of Pakistan.

## 1.10.5 Uncertainty of Labour Productivity

Overall, 75 and 48 percent of the respondents involved in the study, take the "expected increase of output per year of the organization" and "anticipated change in demand and services" into account respectively when they prepare manpower plans for their organizations. (see the Table 8.30). It implies that results of the study support the idea that the change in technology and its likely effects on "skill mix", and labour productivity, are not negligible.

## 1.10.6 Duration of Plans

Twenty six percent of the employers involved in this study were unable to give the estimated number of employees in their organizations for 1998/99. Moreover, some could not give the estimated number of employees in their organizations beyond one year. Findings of the Table 8.31 provide evidence that employers plan for a short period of time. (see the Table 8.31 for details). It is evident from these findings that "employers' opinion method" does not provide adequate information for forecasting the supply and demand for manpower beyond one, or at the best, two years, in Pakistan.

It is noteworthy that there exists some disparity between males and females regarding

their level and type of educational qualifications in the country. According to this study there is a significant difference between males and females regarding the reasons for the change in the field of study. (see Table 8.20). Moreover, there is a significant difference between males and females regarding their regional distribution by gender. (see Table 7.2).

The findings of this study provided us with evidence that there exists a significant relationship between the training received by the employees, types of training and their age groups. A high percentage (ie. 58 - 71 percent) of the respondents from the age group 21- 55 were trained, compared with only 14 percent of the youngest employees. Furthermore older workers were provided with all types of training whereas the youngest age group had received only on-the- job training. (For details see Table 8.4).

### 1.10.7 Overall Conclusion

Overall, the findings of this study raised the question about the validity of the assumptions of manpower forecasting concerning the education-occupation relationship. In this context some of the key factors discussed earlier in this chapter were shown to be neglected by manpower planners. The evidence provided by the present study enabled us to conclude that the rigid assumptions often adopted by manpower planners in this context, cannot be justified and therefore manpower forecasts based on these assumptions are likely to be invalid in Pakistan.

Finally, the evidence available in this study enables us to conclude that the process of

manpower planning should be a continuous activity, in which forecasts are checked against the reality, and techniques and assumptions are constantly evaluated and updated. It implies that good planning entails flexibility and continuity of revision in the light of unforeseen developments over time. More importantly the evidence available in this study leads us to conclude that the costs and benefits of different options available should be considered in forecasting and analysing the supply and demand for different types of manpower in the labour market for this is to be a more realistic and valid tool in both the educational planning and overall economic development.

## 1.11 APPENDIX

The appendix contains information on instruments for data collection, and the data sources used in this study.

CHAPTER TWO

THE THEORY AND PRACTICE OF MANPOWER PLANNING: A CRITICAL REVIEW

## 2.1 INTRODUCTION

This chapter critically deals with the literature on manpower planning especially in the context of manpower requirement approach (MRA). The first section of this chapter looks at the rationale and the contribution of international agencies in planning. After this a brief outline of the elements of forecasting manpower requirements is presented. The third section critically examines the different methods of manpower planning employed in various countries of the world. In the penultimate section of this chapter a critical examination of the general aspects of MRA and its assumptions on which it is based is presented. Finally, in the light of evidence available on the literature on manpower planning we presented our overall conclusion about the MRA.

## 2.2 RATIONALE FOR MANPOWER FORECASTING APPROACH (MRA)

The post World War II period witnessed a significant educational explosion in almost all parts of the world. There was an almost universal demand for more education the world over. In 1965, the Yearbook of Education was devoted to the educational explosion. But within a decade or so, it was realised that the educational explosion had not brought the promised benefits of development in a majority of countries, especially in the developing

countries. In these, the growth rate of educated manpower has outpaced the growth of employment opportunities. These countries are faced with the serious problems of unemployment and underemployment. For instance, in the Philippines, every fourth graduate is in a non-voluntary part-time job, and similarly in Sri lanka, several thousands of university graduates are working in the clerical services, which require only secondary education. (Sanyal, 1987: p.3). Hussain, states that,

*"the problem in these countries is generally viewed as that of mismatch between the job aspirations generated by the educational system and the job opportunities provided by the labour market". (Hussain, 1987: p. 36).*

Some critics are of the view that the rapid expansion of education can lead to imbalances between the various levels of educational system and the "mix" of the educational output and the needs of the labour market.

It is also stated that the formal education aiming at development cannot achieve the objectives unless its economic, social, cultural, and political aspects are equally emphasized. Giving priority to one function to the detriment of others, inevitably leads to serious problems in the educational system.

Keeping all the problems related to education in mind, the interest in educational planning as an integrated feature of economic planning has emerged. India's first Five-Year Plan (1951-55) is reported as being one of the first to seek to integrate the educational system into the nation's economic and social needs. In April 1954, USSR started educational planning as an integrated part of the economic planning as recommended by UNESCO, and followed in many countries. (Tanguiane, 1979: p. 47).

According to Harbison (1964) an educated, skilled, and reasonably healthy population is essential for economic growth, but it is claimed that a majority of the countries of the world are facing the problems of imbalance of supply and demand for educated and skilled manpower. For example, in Pakistan, the Manpower Commission has calculated the annual number of educated manpower at around 60,000 representing an imbalance between supply and demand for flow of educated manpower. (The Report Of The National Manpower Commission, 1991: p. 82). On the other hand, in the case of the scientists and technologists the situation is reversed. (ibid. p.146).

There is a strong need to eliminate these undesirable imbalances. The advocates of manpower planning assert that the manpower requirement approach in this context, plays a significant role by providing a viable balance between the supply and demand for the educated manpower. Hussain claims that:

> *[manpower planning] provides not only check on the feasibility of achieving production targets which depends on the availability of the required skill mix, but also assesses the relevance of these goals toward optimal use of human resources. In so doing it leads to an integration of human resource planning with economic planning. (Hussain, T. 1987: p. 58).*

The future is always unpredictable, and estimating manpower requirements with any degree of precision is the most difficult job. But according to Harbison (1964) this is an absolutely indispensable step in planning for economic and social development, and is being implemented in some form or the other all over the world. Blaug (1970), claims that the concept of forecasting manpower requirements is the leading method throughout the world for integrating educational and economic planning. He quoted a UNESCO inquiry of 1968 that:

*out of ninety one countries for which data are available, seventy nine have economic plans, seventy three have educational plans, and sixty four out of seventy three have educational plans especially tied to development planning; more to the point is the fact that sixty out of seventy three educational plans are based on forecasts of future manpower requirements, carried out for the first time in the early 1960s. (Blaug, 1970:p. 137).*

Today, despite adverse criticism, manpower forecasting has continued unabated in many countries of the world. For instance, in Hungary, a long term plan was prepared based on the qualified manpower for the period from 1970-1985, and subsequently for the period from 1985-90. The new planning phase seeks to predict needs for the period 1990 to 2000. (Youdi & Hinchliffe, 1985: p.133). Similarly, Egypt planned the future requirements of manpower, based on education and occupation, both the Five-year Plan, and long-term projections, with the help of USAID in 1979. Another study aimed at assessing the requirements of the Five-year Plan 1981-85, was undertaken by the Ministry of Education, Egypt. (ibid. p.186). In the same way, the Ivory Coast made forecasts based on the findings of 1974 Manpower Survey, which covered the period 1976-80, 1981-85, 1986-90. (ibid. p. 218). In Mongolia, despite the crises in the economy, projections of population of working age, displaced by economic restructuring are made for the period 1990-2005. (Bayasgalan, 1993: p. 79).

## 2.3 THE CONTRIBUTION OF THE INTERNATIONAL AGENCIES

The role of the international agencies pertaining to educational planning and in promoting human resource development is considerable. These international agencies advocate for planning and require countries to analyze demand and supply of manpower where projects are run sponsored by them. However this does not necessarily require manpower

forecasting. For example, World Bank has devoted substantial resources to overcoming the shortages of skilled and trained manpower in the countries of Sub-Saharan Africa during the last three decades. (Ridker 1994: p.1). Their details are beyond the scope of this study, however, some mention is made in the following paragraphs:

i.  International labour Organization (ILO), Geneva.

ii.  UNESCO.

iii. The Organization for Economic Cooperation and Development (OECD).

iv.  The World Bank.

## 3.1 ILO

It is one of the United Nations functional organizations based in Geneva whose main task is to look into problems of world manpower supply, its training, utilization, domestic and international distribution etc. Its aim in this endeavour is to increase "world output" through maximum utilization of human resources and this helps in improving the living standard of the people.

## 2.3.2 UNESCO

The contribution of UNESCO to educational planning is considerable. This organisation is mainly concerned with:

a) conduct of research on important aspects of planning the development and reform of education,

b)  help to train those responsible for the planning of education in their countries and,

c) dissemination of new concepts, methods and techniques in educational planning to all interested individuals and institutions in member countries.

## 2.3.3 The OECD

The OECD has played a significant role in planning in the developed countries. In November 1959, OECD called an international conference at the Hague, on techniques for forecasting requirements of scientific and technical personnel. In 1961, the OECD Washington conference on educational planning called for increased spending levels in the 1960s for education in member states. In 1970s OECD educational policies emphasized the social and economic framework for planning. Its main objective is to assist in achieving the highest sustainable economic growth and employment, and rising standard of living in member countries, while maintaining financial stability, and thus to contribute to the world economy.

## 2.3.4 The World Bank

Likewise the role of the World Bank pertaining to economic development and planning is comparable. According to D'Silva, the World Bank had been involved from 1962 to 1979 in 192 education projects in 81 countries. (Patrick, and Maritza, 1984: pp. 314-15).

## 2.4 ELEMENTS OF FORECASTING MANPOWER REQUIREMENTS

A general description of different elements of manpower forecasting is presented in this

section followed by the critical examination of its methods. The Mediterranean Regional Project Method is based on similar elements that will be discussed later on in this chapter. According to Parnes (1962: pp. 22-42) the following elements of forecasting are considered as a basis for ascertaining the required expansion in the various levels and branches of educational system. These elements will be taken into account during the examination of the manpower exercises in Pakistan.

### 2.4.1 The Current Manpower Inventory ( The Inventory of the Existing Labour Force)

It provides a basis for projecting both the future requirements and future supply. Ideally it is desirable to have comparable data over a long period of time (years) in the past to be able to establish trends. For this purpose, at the minimum, the following data are required.

### 2.4.1.1 Labour force participation rates, by five-year age group and by sex

These ratios express the percentage of each age-sex group of the population who are economically active (gainfully employed) in the labour force, depending upon the particular work force concept that is used in the country.

### 2.4.1.2 Estimates of employment and under-employment

This is a matter which is actually more relevant to general economic planning than to educational planning, but there are basic aspects in which it is significant in the latter

context also. For example if there is a sizable contingent of "unemployed" intellectuals, these may constitute a variable source of teachers for an expansion of secondary and higher education.

## 2.4.1.3 Occupational distribution of employed workers, by industry, branch, and sex

The cross-classified data on total number of employed personnel by occupation and industry are very significant for forecasting future manpower requirements and supplies. It provides a base for which future trends in the industrial composition and occupational categories of employment are set.

## 2.4.1.4 Educational qualifications of employed workers by occupations

These data indicate the distribution of personnel in each of the occupational categories by educational level (i.e. number of years of schooling) and some times type of education (general and vocational).

## 2.4.1.5 Distribution of labour force by level of education, age, and sex

These data are essential for the forecasting of future supplies of manpower with the various levels and type of education.

## 2.4.2 Classification of Industries

It helps for the purpose of current manpower inventory and forecasting future manpower requirements. The main reason for the industry break down is to permit an account to be taken of either or both of the following in assessing the future occupational composition of the labour force.

i. Growth rates of different branches of the industry whose occupational structure vary,

ii. Difference in future trends in occupational composition among the various branches of the industry.

## 2.4.3 The Occupational Classification System

Parnes (1962) asserts that the system of occupational classification varies from country to country according to needs of its economy, but a method of forecasting was devised in the meeting of the Directors of the Mediterranean Regional Project in order that the national team could follow this as closely as possible. This decision was taken by the Directors of the Mediterranean Regional Project National Teams at Lisbon early in 1962. They approved the following four classes of occupations:

Class A: All occupations for which a university education or an advanced teacher's college degree, or its equivalent would normally be required.

Class B: Occupations for which two or three years of education beyond the secondary level (12 years) may be required.

Class C: Occupations for which secondary school education (either technical or academic)

or its equivalent would normally be required.

Class D: All occupations not included in class A, B, and C.

Further more the class A occupations can be sub-divided into those that require scientific or technical education and those requiring general academic education. (Parnes, 1962: p.26). But the availability of adequate data on these categories of occupations is one of the constraints in the planning process. For example, in the USSR, in the report on the classification of occupations it is acknowledged that "greatest difficulty comes from errors in evaluation based on nomenclature of posts". Similarly Ivanov's criticism is that "the nomenclature still in use have been established without any thorough scientific analysis of the functions....of specialists with higher and secondary specialised education". (as quoted in Buttgereit, 1984: p. 311).

## 2.4.4 Forecasting Size of Total Labour Force

Estimating the size of the total labour force for the forecast year is fundamental to the exercise of forecasting manpower requirements. The crude projection can be made on the basis of the population forecast and application thereto of an assumed labour participation rate that may be the same as the present rate or may be adjusted on the basis of the anticipated trends. More satisfactory projections based on the application of the anticipated labour force participation rates to specific age, and sex of population, such as anticipated reduction in scheduled weekly hours or increasing opportunities for part-time work may be expected to increase the participation rate of married women in the active labour force.

### 2.4.5 Forecasting Total Employment Levels by Branches of Industry

Once the final projection of demand of goods and services has been made, it becomes necessary to use input-output analysis to establish production level of different industries that comprise the economy. The latter would then have to transfer into employment level on the basis of labour productivity, which would reflect quantitative and qualitative changes in capital equipment, improvements in the methods and organisations, and qualitative improvements in the labour force etc. The estimates are made on the following basis:

a. Employment trends.

b. Gross Domestic Product and its composition.

c. Productivity estimates.

### 2.4.6 Forecasting Occupational Composition by Branches of Industry

Changes in the occupational composition of total labour force over time are the result of the two distinct analytical processes:

a. The shifting distribution of employment among various industries with different occupational pattern, and

b. Changes in the occupational pattern within the individual industries.

### 2.4.7 Requirements and Supplies of Manpower by Educational Qualifications

It is necessary to make assumptions about the proportion of each occupational category

requiring each of the various levels of the education and training. The question arising is on what basis these assumptions are to be made. Some occupations are so homogeneous with respect to education required, that no difficulty rises. Most of the class A occupations require a university degree, for instance, physicians and dentists etc. In general there is a lot of criticism on the level of education required for various occupations of different classes.

### 2.4.8 Estimating Future Supplies of Manpower

The future "stock" of manpower of any category of the labour force, whether defined in terms of functions (occupations) or qualification is a result of:

a. the number of persons currently present in that category.

b. additions from new entrants or re-entrants to the labour force or

c. subtraction due to death, retirement or withdrawal from the labour force for other reasons.

### 2.5 METHODS OF FORECASTING MANPOWER REQUIREMENTS

There are different methods of forecasting manpower requirements in practice in different countries. All of the methods are complementary to one an other. Some of the most common methods are the following:

1. The Employers' Opinion Method.

2. The Incremental Labour-Output Ratio Trend Method. (ILOR).

3. The Density Ratio Method or Ratio of Saturation.

4. The International Comparison Method.

5. The Mediterranean Regional Project Method, or desegregation of GNP Method (which embody previously described elements of forecasting).

6. The Aggregate Method.

7. Harbison's Human Resource Method.

8. Trends Method.


## 2.5.1 The Employers' Opinion Method


This method of forecasting manpower has been used in developed countries, like UK, U.S.A., Canada, Sweden, and France. It has also been used by the developing countries with reference to their technical and scientific manpower. Psacharapoulos and Woodhall give an example from Indonesia,

> the Ministry of Mining and Energy asked for World Bank assistance to evaluate the present and prospective employment situation in the energy sector, where shortages of skilled manpower could interfere with the economic development of the country. A survey requested information on employers' actual manpower situation in 1981, and on their perceived manpower needs in 1985 and 1990. (Psacharopoulos and Woodhall, 1985: p. 79).

This approach to forecasting involves asking employers how much and what kind of manpower they expect to hire at certain wages in the future. This information can be collected by some sort of questionnaire survey or the equivalent, and making due allowances for such factors as possible alternative growth paths for their organisations and anticipated effects of technological changes.

Hillage (1995), states that the relationship between employers and the education system has also been recognized in the developed countries. For example, in the UK a close partnership between education and business is seen as an important element of government policy to improve the nation's competitiveness. The Education Secretary speaking at the London Chamber of Commerce and Industry, 18 January 1995 argued that:

> *we, in government, regard close links between education and business as a vital ingredient of our future economic success.... No business is too big or small to be involved in education business links. (Hillage, 1995: p. 1).*

The links between education and business vary in their intensity and purpose. At one extreme, an employer may attend the occasional careers evening or have an employee who is a school governor. At the other, some major employers have taken a strategic decision to involve themselves in many aspects of educational life. This has led some, such as Rover, Massey Ferguson and the Construction Industry Training Board, to develop and resource Partnership Centres which provide a work-based context for pupils to engage in curriculum-related activities. (ibid: p. 1). However, notable findings of the study undertaken by Hillage are:

> *the lack of evaluation done by employers and the little help they feel they get from 'Education Business Partnership' (EBPs) in this respect. Moreover, the study concluded that in most cases, from the employers' perspective, links are not self sustaining. (Hillage 1995:pp. 1-11).*

The claim that employers would surely be in a better position to indicate their future requirements, is incorrect because practically, it is very difficult to get reliable data by

asking industry. Zuckerman, in this context confessed that, "we discovered in our successive inquiries that one of the least reliable ways for finding out what industry wants is to go and ask industry". (Zuckerman, quoted in Hough, J. R. 1987: p. 35).

The problem relates to the fact that most of the employers have no such experience of compiling statistics on which to base a forecast for the demand of future manpower. In this regard they must know their future share of the market, which implies a knowledge of both the future state of the economy and their competitors actions. Furthermore, they have to know the future relative prices/costs and wages of the workers. Practically there is no such evidence that employers are fully aware of these conditions. It is the experience of many countries that overwhelmingly, employers tends to be over optimistic in their replies. It is recognised by the Jackson Committee, in 1966 that:

> the quality of employers' estimates is likely to depend on the size of the firm and on degree of sophistication in their manpower planning. (The report of the Jackson Committee, 1966, (quoted in ibid. p. 36).

Another problem inherent in this approach is that the employers may not be interested in the educational qualifications of, say, electrical engineering: their prime concern may be the number of people carrying out the job of electrical engineering. Sometimes they prefer an electrician with a diploma to a highly qualified electrical engineer, keeping the shortages of middle-level manpower in mind. In certain cases the employer offers a higher salary and other pecuniary benefits to the middle-level skilled persons, because he cannot afford to lose them (i.e. electrician, and machine operator etc.) due to their pivotal role in the industry. It is, however, accepted that this method is useful for short term (up to one year) planning but it does not suit medium (3-5 year) and long term (10 and more

than 10 year).

## 2.5.2 The Incremental Labour-Output Ratio Trend Method (ILOR)

This method tends to use the trend in the ratio of labour to output to estimate future manpower requirements. This method has mainly been used to forecast the manpower requirements in single occupations which tended to be ones requiring high-level qualifications, such as engineers, doctors, scientists, and teachers. According to Blaug, "labour" refers to a particular type of manpower in an occupational category, and "output" to industrial or national output/outcome. He quotes an example, of the Netherlands, forecasting of future demand for engineers which has been made by extrapolating a linear regression of the number of engineers on national income, using data for the period 1900-1956. (Blaug, 1970: p. 148).

This method can only be implemented in the developed countries that have time-series on output per individual cross-classified by sector, occupation, and type and level of education. In absence of time series, it becomes unreliable owing to the short-period instability of ILORs. Blaug quotes the example of the Zuckerman Committee 1956, which produced a 10 year forecast of the number of scientists and engineers output, but three years later this ILOR was four times what it had been in 1956, implying a sharp rise in ILOR. (Quoted in Blaug, 1970: p. 148).

This method of forecasting has the advantage of simplicity but its utility is minimal. The other limitation associated with this method is non-availability of reliable data for an

adequate time-series. If data are available, the assumption that future relationships can be drawn from the past is open to question.

## 2.5.3 The Density Ratio Method or Ratio of Saturation

This method involves two steps, the first is estimating stable functions of qualified manpower in the labour force of an economic sector, and the second, to apply this function to a demographic forecast of total labour force, distributed among the various sectors. This method is applied to the given ratio of two types of manpower, for example, teacher-student ratio, and doctor-patient ratio etc. Adjustment may be made for improvement in such ratios. But the experience with teachers, shows that the actual teacher-student ratios differ from official norms, such as the average size of the class, the average teaching load of teachers and the nature of subjects to be taught, the extent of part-time teaching, type and locality of school, level of school, and double shift arrangements. The effects of all these factors on teacher demand and supply, together with the problems of planning teacher numbers, have been thoroughly reviewed by Williams in 1979, who concludes that:

> *the planning of the teacher supply should not be confined to forecasting numbers and determining annual intakes to teachers training colleges, but that it should seek to maintain flexibility so that teacher supply can adjust to rapidly changing situations. (Psacharopoulos and Woodhall, 1985: p. 83).*

This method was popularly used in the USSR for long term planning. Similarly, in U.S.A. a forecast extrapolated the ratio of scientists and engineers employed in a given industry to the total employment in that industry up to 1970, on the basis of a linear trend

in the relevant density ratio between 1954 to 1959. Subsequent investigations, however, threw doubt on the assumption of stable employment in the industry. (Blaug, 1970:p. 149). Some other studies based on the labour-output ratio approach were conducted by eminent writers including, Woodhall on engineers in India, Gannicott on engineers in Sweden, Gannicott and Blaug on scientists and engineers in the UK, and Ahamad on teachers in England and Wales, and also doctors in the USA, the UK, and Canada. (See Ahamad, and Blaug, 1973).

However, forecasts made by this method are based on the concept of staffing norms. So called "labour balance" are drawn up for firms, industry, and sectors, in terms of such categories as skilled, unskilled, middle-level and high-level manpower, having regard to the average work load of workers as determined by their managers. These are adjusted for the upgrading of living standards over the plan period in the light of the best practice level in leading enterprises. Abegaz criticised this method by quoting an example from Sudan. He asserts that:

> the 'Sudan' norms clearly underestimate manpower needs and overestimate the share of professional and technical workers. The norms are, of course, susceptible to the poor quality of Sudanese data, and the fact that productivity has deteriorated over time. But they do give us minimum estimates of needs. (Abegaz 1994: p. 113).

## 2.5.4 The International Comparison Method

This method presumes that there exists "world manpower growth paths". Usually this method is applied in conjunction with the other methods but sometimes it is used alone. For example, France, has made use of time series in other advanced countries to help

forecast the distribution of labour force among 25 sectors of the French economy since 1960, these have been extended into the forecasting of educational requirements by applying normal density ratios. (Fourastie, quoted in Blaug, 1970: p. 150).

Blaug (1970) quotes the application of this method by Puerto Rico's 1957, forecast of distribution of the labour force by occupation and education up to 1975. In the absence of Puerto Rico's time series, it was decided to use the educational achievements observed in American occupational categories in 1950 as a model for Puerto Rico in the target year, 1975. The argument was that the productivity of labour in Puerto Rico would continue to lag about 25 years behind that of U.S.A., and to achieve an equivalent level of productivity, a parallel occupation group in the two economies must have equivalent educational characteristics.

The intercountry comparison is not appropriate unless the social, economic, and cultural conditions are identical and unless the country with which the comparison is made has satisfactorily met its targets. The same is true if the comparison is made between regions within the country.

OECD undertook a study with the data from 53 countries, and concluded that:

> *supply factors were generally dominant, possibilities of substitution existed between different categories of labour and few relationship between output and skilled labour mix were strong enough to justify transferring findings reached from international cross-sectional data at one moment in time to a single country attempting to forecast labour demand through time. (Hinchliffe, in Psacharopoulos, 1987: p. 319).*

## 2.5.5 Parnes MRP Method or The Mediterranean Regional Project Method

This method was initiated by bilateral agreement between the O.E.C.D. and the governments of six Southern European countries, Greece, Italy, Portugal, Spain, Turkey, and Yugoslavia. It represents an attempt to forecast national educational needs up to 1975 and to arrive at detailed plans, including financial estimates, for meeting these needs. In the end recommendations were to be set for policy makers in the respective national governments for action programmes in the field of education. The Directors of the MRP members of the O.E.C.D. Secretariat, agreed upon the following objectives.

i. Estimate for 15-year period 1960 to 1975 the "required" number of graduates each year from various levels of the educational system. For a level beyond primary, these numbers must be broken down by broad subject matter areas, at least into graduates of science and technical curricula and those of the other curricula, since the contents, as well as cost of these two broad divisions of the educational system, differ considerably.

ii. Estimate, in the light of (i), the number of teachers required in the different levels of educational system. As in the case of students, the teachers of pure and applied sciences at a level beyond the primary must be differentiated from all others.

iii. Estimate, in the light of (i), the number of additional class rooms, laboratories, school buildings and the amount of equipment required, and plan to optimal geographical distribution of such educational facilities in the light of anticipated population and the

distribution of existing facilities.

iv. Assess the qualitative adequacy of existing educational programmes and make recommendations for their improvements, including teaching methods and curriculum organization.

v. Assess the need for new or expanded educational and training programmes, outside the traditional educational structure, such as adult education programmes, apprenticeship-training programmes, and on the job training etc.

vi. Estimate for the total capital and costs of the expansion and improvement in the education implied by the results of (i) and (v).

vii. Establish a"time table" for achieving the required expansion and improvements over the 15 year period and prepare annual budgets showing total required educational expenditures in absolute figures and as percentages of gross national product. (Parnes, 1962: pp. 10-11).

This method proceeds in stages from an initial projection of a desirable GNP in the future year, as given by a prior economic plan, to supply of educated manpower required to reach it in the target year. The elements involved in forecasting manpower requirements and supplies as a basis for ascertaining the required expansion in the various levels and branches of educational system may be as follows;

i. The target GNP in, say 1993, is broken down by major sectors, such as agriculture, manufacturing, communication, and distribution etc.

ii. The sectoral GNPs are then broken down by industries.

iii. An average labour-output coefficient, the reciprocal of the similar concept of the average productivity of labour, is applied to the sectoral or industrial GNP targets yielding a forecast of labour requirements by sector or industry.

iv. The labour force is distributed among a number of mutually exclusive occupational categories. In this method 1400 occupations in 10 main groups divided into 75 sub-groups, and further 200 sub-categories were taken. The occupational classification for MRP is based on the International Standard Classification of Occupation, as discussed earlier under the heading of the Occupational Classification System.

v. The occupational structure of the labour force is converted into an educational structure by applying standard measures of levels of formal education required to perform satisfactorily in each occupation. Blaug, has summed up the process in the following equation. (He used GDP instead of GNP).

(GDP) (GDPs)/(GDP) (GDPi)/(GDPs) (Li)/(GDPi) (Lj)/(Li) (Le)/(Lj)  = Workers of education e, in occupation j, in industry i, and in sector s.

Where, (GDP) =  GDP originating in each year

GDPi =  GDPi originating in each industry

Li     =  the labour force in each industry

Lj     =  the labour force in each occupation

Le     =  the labour force with each level of education, and

L  ≥  $\Sigma$ Lsije

(Blaug, 1972: p. 52).

Blaug says that this method is supposed to be very comprehensive and is still popular among the manpower forecasters. The OECD was subsequently invited to carry out studies in Argentina, and Peru, and to give a number of seminars on it in Latin America, Asia, and Middle East. (Psacharopoulos, 1987: p. 336). Despite its popularity, this method has faced a lot of criticism. Parnes, himself recognised that:

> even if forecasting were an exact science, to speak of ascertaining precisely the future occupational structure of the work force implies a degree of rigidity in occupational composition that is unrealistic....there is no nation for which pattern of occupational mobility can be described with sufficient precision to permit making estimates of separations and accessions to specific occupations...there is frequently no unique and rigid relationship between educational background and occupational affiliation that would permit a knowledge of manpower requirements to be translated unambiguously into "educational output" figures. (Parnes, 1962: pp. 19-20).

It is quite surprising that despite the above recognition, Parnes remained involved in making forecasts for MRP for more than a decade. There are problems associated with the steps of conversion of occupational requirements to a level and type of educational requirements. The assumption is generally made in estimating manpower requirements that a certain relationship exists between occupation and the level and type of education. But practically, there are usually some people of higher or lower schooling in each category than is characteristic. This is because of the knowledge and skill acquired at

work by informal individual effort, and by a variety of courses on the job. For instance, this gap is often very obvious in lower and middle-level office workers and technical individuals, and it varies from country to country. In the USA, a representative labour group of people with less education than three years of college, only 30 percent replied that they had needed some kind of schooling or an organised course of longer duration to perform their work. Eight percent stated that their job required no specialised training at all, 50 percent that they had learnt the necessary skills while working, and 45 percent said that it had been a combination of chance that had brought them to their jobs, (Peter, 1981: p. 108).

## 2.5.6 The Aggregate Method

This method directly establishes the educational demand for the society ignoring all intermediary steps of establishing manpower. The educational requirements are met from the educational structure of other countries. The typical indices are, for example, enrolment ratios, percentage of GNP, allocated to education etc.

This method only provides data for general information on educational planning in any country. For instance, the total number of teachers currently employed in different levels of the education system etc. This method especially does not suit developing countries as they borrow the ideas from the developed countries which may not fit their needs, due to a wide gap in socio-political, economic, cultural, and even geographical and climatic conditions.

Another problem inherent in this method is that it does not provide sufficient information for educated manpower by occupation and by sector, and draws no distinction between the types of education that may be required. It is also claimed that this method does not provide much assistance for concrete decision making pertaining to manpower planning.

## 2.5.7 Harbison's Method of Human Resource Assessment or (The Target Setting Approach)

The prime concern of this method is with the concept of intellectual capital with the assumption that an "educated, skilled, and reasonably healthy population is an essential conditioned for economic growth. The main features of this approach are the following:

i.   To analyze the manpower requirements as specific goals.

ii.  More emphasis should be placed on making comparisons both within an economy and with other countries.

iii. To estimate the future requirements, the planners should concentrate on setting targets rather than making forecasts. The main purpose of target-setting is to indicate the direction of activity, which is helpful for achieving the specific goals.

iv. To establish separate targets for each level of education (ie. primary, secondary, and higher education). These targets are closely related to on the job training, changing the structure of incentives, and better utilization of manpower mix.

The problems inherent in this method are almost the same as with the other methods of forecasting manpower requirements. For instance, it involves problems in forecasting the requirements in larger occupational groups, the conversion of occupational requirements into educational ones, and determination of coefficients used for this purpose. Usually the targets of the economy are expressed by political leaders in the government sometimes with or without involvement of professionals. Furthermore, sometimes decisions are made purely on political basis that cannot reflect the actual situation of the requirements of the economy. In such conditions the target setting leads to wrong policy decision making. The other important problem inherent in this approach is that the targets set out by leaders may require high costs that would be beyond the means of the country. It means that this method is also open to question and cannot be justified both on theoretical and practical basis.

## 2.5.8 Labour Absorption

This is an efficiency and demand oriented method, dealing with the amount and kind of educational output that will be absorbed by the economy. This method was used in the Federal Republic of Germany and in France. For example, in France, the number of people entering occupations were estimated directly from the graduates of the school system for 7th Plan on the basis of 1970 Vocational Training-Qualifications Survey.

According to Williams (1993),

*in Australia, the process of absorption went smoothly during the fifties, sixties and early seventies, though less smoothly since, however, the employment rate of*

*graduates indicates that the process of absorption is still an active one. (Williams, 1993: p. 14).*

Labour absorption method is not free of criticism. Many critics have made comments on its validity in the economy. For example, according to a UNESCO study (1968),

*absorptive capacity is a looser term and refers to a country's capacity to provide some kind of employment for persons with certain educational qualifications. It expresses the maximum number of persons who can be employed without encountering redundancy or serious under utilization of skills. (UNESCO, 1968: p. 61).*

Moreover, the assumed relationship between educational qualifications and occupations, by manpower forecasters is also suspect. Practically, occupational requirements cannot be converted into educational requirements because there exists no precise relationship between education and occupation in any economy. It implies that forecasts based on the labour absorption method cannot be justified practically in the economy.

## 2.5.9 Trends Method

This is a mathematical technique rather than a manpower planning model in its own right. Some of the authors have used this technique in order to provide a synthesis of selected features of rate of return and crude manpower testing. (Youdi & Hinchliffe, 1985: p.17). This method assumes the existence of long-term trends drawn logically from the observations of the past. This method has been adopted in making five-years plans overtime in Pakistan. The trends may reveal different distinct elements when the level of employment or output are recorded over period of time. Harper (1987) suggested the following different elements.

## 2.5.9.1 A Trend

The trend may show a gradual and regular increasing or decreasing level of employment or output probably over some years. It can be represented as below:
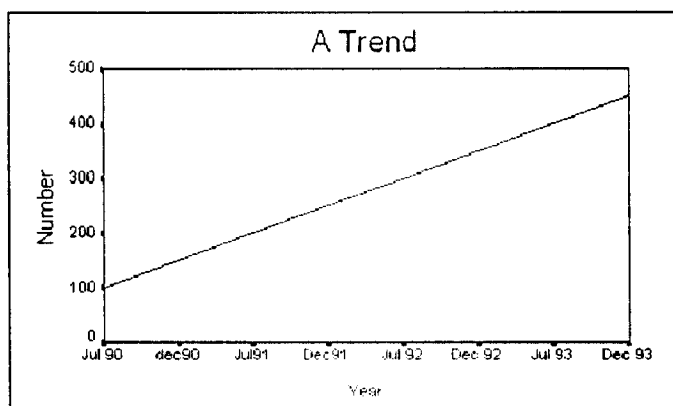


## 2.5.9.2 Cyclical Trend

It may be gradual but repeat upward and downward movements over a period of time. It can be depicted as below:
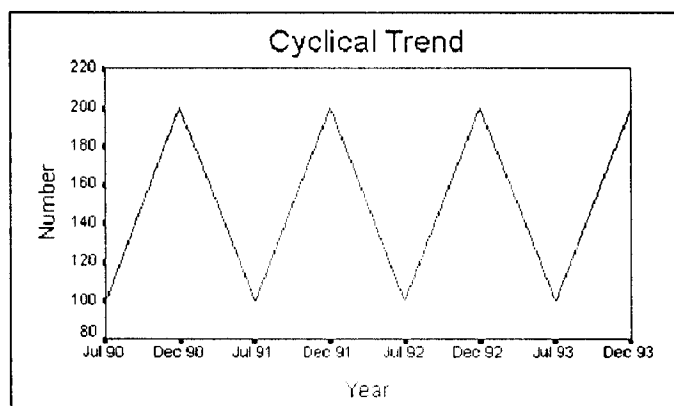
## 2.5.9.3 Seasonal Trend

This trend observes seasonal effects and it occurs when more than one time per annum

is recorded. It will record different levels of activity between say, summer and winter.

It is graphically displayed as the following:
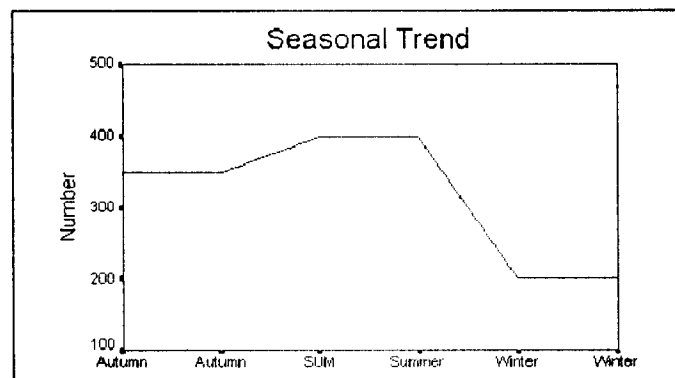
## 2.5.9.4 A Step Trend

A sudden change in the level of employment may occur due to some identifiable change in environment, such as cutback or increase in sales or introduction of some new technology. It is shown graphically as below:
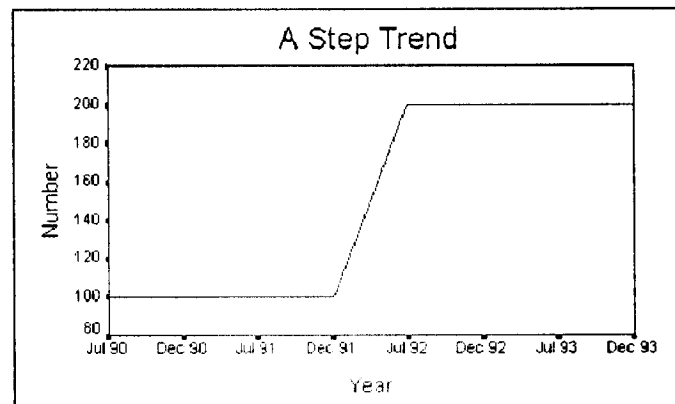
## 2.5.9.5 Random Fluctuations

These are series of changes in the level of employment that do not follow any obvious pattern. In this case the techniques such as the "moving average" will help to highlight any trend and suggest the amount of possible error in the forecast. It is represented as:
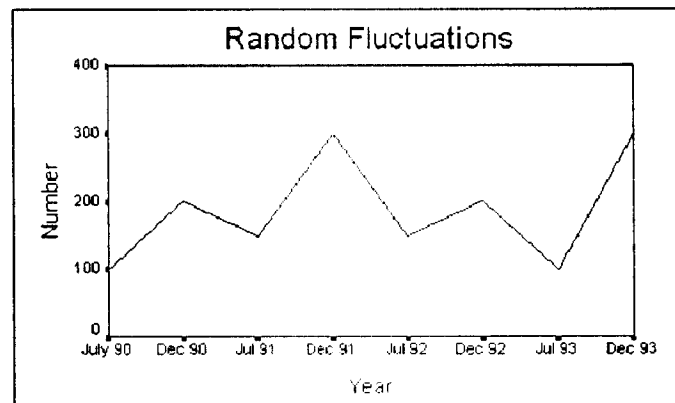


The major problem with this method is that it suits only certain circumstances especially when the trend line moves steadily. This method becomes of little use, when sharp changes in economic situation occur, as the different categories of occupations are not all equally affected.

## 2.6 CRITIQUE OF THE MANPOWER REQUIREMENTS APPROACH

The main objective of the manpower forecasting is to ensure that the supply of manpower becomes available at the time the demand materializes. It means that there will be no surplus or a shortage of manpower in the labour market. There can be no question, therefore, about the necessity of trying to take a forward look at manpower requirements and, over a period which can usefully forecast the demand for manpower. But in the present state of knowledge it is much more limited than it is usually admitted. Although we have long experience of planning, we still seem unable to know how to forecast for a definite period of time with anything remotely resembling the margins of errors (10 %) that are acceptable to economic forecasters. Especially in the case of educational decisions, only long term forecasting of manpower requirements is useful, where as its accuracy is open to question. Some critical studies on long term forecasting in USSR, Sweden, and in Iran, suggested that such forecasts invariably went wide of the mark. Khrushchev, acknowledged in a conference in 1959 that:

> *we do not have any scientifically reliable method of estimating how many and what kind of specialists we need in different branches of the national economy, what the future demand will be for certain kind of specialists and when such a demand will rise, a statement that has since been echoed by a number of Soviet Manpower experts. (quoted in Blaug, 1970: p. 159).*

The critics of manpower requirements approach have commented on different aspects of this approach, which are not taken into account during making forecasts. Some of the most important and frequently mentioned inadequacies relate to the following aspects.

## 2.6.1 Ignorance of Informal Economic Activities

Generally, manpower requirement forecasts are restricted to only formal employment sector, ignoring the informal economic activity, and self employed rural and urban occupations. This sector has a very broad spectrum of activities ranging from newspaper vendors and shoe shine boys to a labourer in agriculture and construction. It also includes the owners of the small repair shops. This is a significant segment of the labour market which cannot be ignored. Raizen (1991) quotes that researchers conclude that:

> *the informal training they observed is powerfully effective to satisfy the employers' immediate performance requirements but may not support a workers' long-term career planning. (Raizen 1991: p. 40).*

## 2.6.2 Neglecting the Supporting Staff in Making the Forecasts

In general, manpower requirements forecasts concentrate on high-level occupational categories, ignoring supporting manpower. In Canada, and USA, attempts are made to include all types of manpower, but in doing so, this activity becomes more complex and the chances of errors increase with the expansion of forecast. For example, in Canada, Ahamad found that:

> *three quarters of the occupational forecasts fell in 25 percent error range. A margin of error as wide as this would indicate that a forecasting method premised on the notion that it can provide the precise numbers needed by an economy is highly suspect. (quoted by Mace 1977: p. 26).*

## 2.6.3 Uncertainty of the Future

Manpower requirements approach gives the impression of prediction over the future situation which is hazardous due to the complexity of economic, political, and social changes or events. It is especially more risky in developing countries like Pakistan, where the political situation is seldom stable. Pakistan is faced with the problem of unstable civilian governments. For instance, since 1987 three civilian governments have been overthrown. In 1991, the Muslim League government had banned all types of new appointments in the public sector. In 1993, this government was overthrown by the president of Pakistan, and the interim government took charge. The interim government not only continued the ban on new appointments but issued orders to short list the number of employees in the public sector. All types of planning, especially the manpower planning in the country was adversely effected by the existence of these orders. Under these circumstances manpower planning, especially mid-term and long-term planning seems to be inappropriate in the country. Abegaz (1994) supported this by quoting an example from Sudan. He states that:

> rekindled civil war, unprecedented drought and an exodus of skilled labour all conspired to frustrate" long term planning" [1980-1990 in Sudan]. He further says that in 1989, the military coup ended several years of policy drift and disengagement with the "Brettonwoods institutions" (Abegaz 1994: p. 10).

Sometimes international events affects have adverse effects on planning activities the world over. For example, a study conducted by the Institute of Manpower Studies (IMS) (1986), claims that:

*the first "oil crisis" in 1973, not only did inject an unprecedented deflationary bias into the world economy but it also initiated a concerted search for fuel saving technologies and more cost effective working methods. The process received a fresh impetus with the second "oil crisis" in 1979, that brought in its wake the most severe output recession of the century. (Rajan 1986: p. 8).*

This evidence supports the idea that the future is quite unpredictable, and some unforeseen incidents can adversely affect the forecasts. In such conditions targets set out by manpower forecasters cannot be achieved, and all the planning activities are in vain.

## 2.6.4 Lack of the Informal Vocational Preparations

The purposes of manpower estimates are too narrowly conceived. The projections aim only at estimates of requirements by formal education, and do not take notice of the considerable proportion of vocational preparation taking place outside the formal system. No doubt, the formal system is a very important source of skilled manpower but on the job training needs, required changes in the structure of incentives, and measures for better utilization of manpower are also of great importance and cannot be ignored.

Today, it is recognized that education is not the only main determinant of development. Some skills and abilities helpful to development are not taught directly in schools, for example, communication skills and the ability to understand complicated instructions and so on, though these skills may be fostered directly or indirectly by formal education.

Tanguiane (1979), poses the question about the role of formal education for development when he points to the late 19th century Russia as an economy that experienced rapid industrialization despite the low education of its work force. To him it could be possible

by providing formal education supplemented by the intensive development of out-of-school education. Some commentators express the view that high performance in education are not necessarily followed by sound and sustained development. Hallak, gives the example that:

> *the outstanding performance of Japan and Korea, were apparently not founded solely on mass literacy and numeracy, but on socio-economic regulations and reforms, modern economic management. Education should probably be looked upon as a necessary, but not sufficient condition for economic development. (Hallak, J. 1990: p. 47).*

Usually manpower planning is concerned with the educated personnel and it neglects the uneducated or informally trained persons, but the evidence available in the literature on planning supports that in addition to formal education, informal vocational training and economic management should also be taken into account in the process of manpower forecasting.

## 2.6.5 The Data Constraints

The methods of forecasting manpower requirements prove to be suspect with regard to data collection. The required cross-classification of data are by occupation and industry, and by education and occupation for the relevant time period is very complex job. For example, generally at the minimum it requires:

a. The number of persons required in each occupation in the economy for any future year.

b. The present number of manpower in each occupation.

c. The annual number of withdrawal from each occupation due to death, retirement and

movement out of labour force: and

d. The annual number of separation from one occupation and accession to another as a result of the job changes. (Parnes, 1962: p. 19).

Usually these data are available only in census years at ten year intervals and hence are outdated. In addition, the education, occupation, and industry classification systems used have changed so much that such data are not usually comparable overtime.

In Pakistan, for example, it is admitted that inadequate data base for manpower planning has seriously hindered manpower planning in the country. (7th Five-Year Plan, 1988-93: p.89). It implies that inadequate data is one of the major problems inherent in manpower planning in the countries using MRA as a tool for manpower planning.

## 2.6.6 The Implications of the GNP Growth Rates

Manpower forecasts start with an exogenously determined GNP growth rate and then work out its implications for the occupational and educational structure of the labour force. But the problem is that the economists are, so far, unable to predict GNP growth rate successfully for more than one year. George Skorov (1968), criticised that if GNP is applied without reservation to developing countries this may be misleading. Firstly, GNP cannot possibly be measured with any degree of precision in countries with a large subsistence sector, and where the evaluation of the output and consumption is often a matter of guess work. Secondly, according to common usage in calculating GNP, salaries of the civil service, which are abnormally high in developing countries in relation to the

average per capita income, are considered as a component of GNP. Thus their increase inevitably swells the GNP figure. However it is argued that it should be subtracted from GNP. Thirdly, in many cases the overall GNP conceals a growing disparity between the modern and the traditional components of the national economy, between the various regions of a country, and between different social groups. It may thereby strikingly distort the picture of the actual progress achieved, as far as the bulk of citizens are concerned. (Skorov, 1968: p. 17)

There exists huge discrepancies between the actual and assumed rate of economic growth in different countries. For example, in 1969, Jolly observed huge discrepancies in Egypt, Ghana, Kenya, Sudan, and Uganda during the evaluation of these countries. The percentages of assumed growth rates by the planners of these countries were, "7.2, 5.5, 1.9, 6.1, and 1.9, but the actual rates differed significantly, as the achievements were 1.5, 1.5, 7.0, 11.1, and 5.7, respectively". (Jolly and Colclough, 1972: P. 224). Similarly, in Pakistan, the assumed GNP growth rate for the year 1992-93 was 6.5 percent but the actual achievement was only 3.5 percent. (Budget speech of Finance Minister, May 1993).

## 2.6.7 Time Gap

Manpower requirement estimates are made on a long term basis, (usually five year plus) because of the long schooling necessary to provide high-level skilled manpower, say, for a qualified engineer or a doctor, six to seven years are needed after secondary education. This period may vary from country to country according to their educational system. It

is observed that during the time period between the manpower forecast and the outcome of the forecast, (ie. number of graduates) the economic situation may change the demand significantly. Some critics argue that the labour market is flexible enough to make the idea of fixed manpower requirements useless and that forecasting techniques are unreliable. For them, an analysis of manpower trends, including both pattern of manpower utilization and the implications of alternative economic targets, rather than forecasts that may prove inaccurate, are needed.

The development plans for countries, where they exist, are not implemented within the time period specified. The gaps are often very wide, owing to unexpected shortages of professionals, technical and skilled personnel, unexpected delay in obtaining the financial resources, or unforeseen circumstances like, weather failure, political crises at national or international level and so on. For example, according to Wildavsky (1974), India's IIIrd Five-year Plan (1961-66) could not be launched by the end of 1966, with even the 1966-67 Annual Plan taking precedence.

## 2.6.8 Rural-Urban Migration

A great majority of the developing countries are faced with the serious problem of irreversible urbanisation, which may be out of control in some cases by the end of the 20th century. Particularly, the flow of urbanisation in developing countries is very high and increasing over time. For example, Hallak quotes that:

*in 1985, African urbanisation rate was 18.2 percent, Latin America's 68.9 percent and of Asia was 28.2 percent. By the end of the century, the projected rates are*

*42.2 percent, 76.6 percent, and 35.7 percent respectively. (Hallak, 1990: p. 59).*

On the one hand, this migration creates overcrowding of certain types of qualified manpower in the cities, causing unemployment, and on the other, creating scarcities of the same type of manpower in the rural areas. This is very common in developing countries.

This dilemma calls for pursuing of attempts to curtail the flow of rural to urban migration and to ameliorate this crucial problem.

## 2.6.9 International Migration

Not only is rural-urban migration of some importance, so also is international migration. Particularly, developing countries like, Pakistan, India, Sri lanka, Philippines, and Egypt etc. have had substantial outflows of trained manpower (especially the middle-level) to countries in the Middle East. According to Hollister (1983), "workers leave their home country as the world economic activity increases and return home after a world recession". (Hollister 1983: p. 80). This situation exacerbates the problems of the home country, on the one hand creating a shortage of trained manpower during the period when they are required by local economy and on the other, surplus of the same manpower when recession already makes it difficult to maintain absorption of manpower and economic growth. This situation can upset even the most carefully prepared manpower plan.

Today some countries are adversely effected by this international migration. For example, according to Bayasgalan, (1993),

*it has been experienced of China, that opening of doors to western countries has led to loss of significant proportion of highly qualified people. Many has gone first for further studies and have then remained in the host countries, either legally or illegally. (Bayasgalan, 1993: p. 80).*

## 2.6.10 The Misleading Effects of Forecasts on the Policy Decisions

There are times when the manpower forecast had supported what has turned out to be a wrong decision. Therefore, it is incorrect to claim that manpower forecasts always improve the policy decisions, or that some view of future development is better than none. For instance,

*the projections of doctors requirements for Britain, made in the 1950s suggested that too many doctors were being trained, and this led to the reductions in medical school enrolments. By 1960, however, it became apparent that a shortage of doctors was developing and rapid steps had to be taken to reverse the decision. (Ahamad, 1973: p. 313).*

Similarly in 1960s the series of forecasts of demand for scientists and engineers and vocational education teachers too went off the mark by showing the shortage of technically qualified manpower in the UK, whereas there was counter evidence which suggested that the UK was actually producing too many scientists and engineers. In this context Mace (1977), quotes Psacharopoulos and Blaug who dismissed the French and Thailand plans on the basis of high percentage of error, ie. 60 and 37 percent respectively. (Mace 1977: pp. 26-27).

As far as education is concerned, the effect of manpower planning on actual educational policy is open to question. Ahamad and Blaug, (1973) looked at this question and pointed out that in many cases manpower forecasts are simply used to buttress decisions for

educational changes already made on essentially political and social grounds. However, these decisions sometimes prove to be the wrong ones, and they concluded that forecasts do not always improve the policy decisions. Sanyal admits that, "even if the projections are very scientific and reliable, their validity may be in question if the educational system expands independently of the projected targets". (Sanyal, 1993: p. 11).

## 2.6.11 The Problems of Single-Valued Predictions

Forecasts based on the assumption of singled-valued predictions about the magnitude of critical variables and coefficient, cannot be falsified by simple comparison, such as, a forecast based on the achievement of GNP cannot be falsified because it is a misleading, and at the best, is subject to guesswork. In addition, it points out only single goal-rate of growth, and this in turn tends to over shadow the other stipulated targets. There may be adverse results of tremendous increase in GNP, such as an exceptionally high rate of unemployment and so forth. If GNP target is achieved, it does not confirm that the technique used was satisfactory. The correctness of the forecast may be due to the result of the factors which were ignored by the technique, for example, the correct figures may have been obtained because of adjustment of wages, which were not taken into consideration in the whole process. This problem can be depicted graphically as below:

| Manpower Target. | GNP Target | |
| --- | --- | --- |
| | Hit | Miss |
| Hit. | Forecast Confirmed. | Bottleneck other than manpower. |
| Miss. | Forecast failed. | ? |

(Based on: Blaug, 1972, P. 160).

## 2.6.12 Religious and Traditional Attitudes

In addition, the religious, ethical, and some traditional attitudes can also create problems in the process of educational planning. For example, in Pakistan, educated women are restricted to join in a limited number of the jobs in the labour market. (7th Five-Year Plan 1988-93, p. 281). This is due to some social customs and taboos in the society.

## 2.6.13 The Labour Market Signals

Some critics argue that the labour market produces the right signals in the form of shortages and surpluses of manpower, and that the participants in the labour market (employers and the employees) react to these signals. To them both employers and employees are in a position to react more rapidly than this model implies. Freeman gives an example of the market for college-trained manpower in USA, concluding that "students do respond to the market signals, and there are time lags, they are less rigid than might be expected". (in Psacharopoulos and Woodhall, 1985: p. 76).

However, manpower planners are of the view that producing forecasts will prevent such circumstances as cobweb cycles which create the imbalance between the supply and demand, and that may lead consumers or producers to overreact to shortages or surpluses.

## 2.7 ASSUMPTIONS OF FORECASTING MANPOWER REQUIREMENTS

As discussed briefly in chapter 1, the manpower requirements forecasts rest on various assumptions. The critical examination of the main assumptions of MRA regarding the education-occupation relationship is presented in the following paragraphs.

### 2.7.1 The Elasticity of Substitution Between Different types of Educated Manpower

In all manpower requirements approach methods, it is assumed that "the elasticity of substitution between different types of educated manpower is equal or near zero". (Ahamad and Blaug, 1973: p. 6). The standard manpower planning assumption is "near-zero elasticities of demand for different skills". (Blaug, M. 1970: p. 216). Many comments have been given on this assumption by different commentators. For example, Dougherty, (1972) asserted that "a number of econometric studies have more or less confirmed the fact that the value of this parameter is well above unity". (quoted in Youdi and Hinchliffe, 1985: p. 20). Youdi and Hinchliffe (1985) assert that:

> at the same time, however, the economic estimation of substitution has been criticised because of the usual aggregate production-function problems. An indirect, non-econometric way of assessing the degree of rigidity of the production structure is to compare with a country or across countries the changing distribution of manpower. The more extensive is the change in the distribution, the more de facto substitution possibilities must exist. The census material collected in different countries is unique in deriving indirect substitution "estimates" of this type. (ibid. p. 20)

Similarly Mace and Taylor (1975), conducted a study on the demand for engineers in the UK, and found that, "engineering jobs are filled by persons with a range of qualifications,

both in terms of level of qualification and subject of qualification". (Mace and Taylor, 1975: p. 189). It indicates that even in the specialized fields there is a possibility of substitution between different types of qualified persons by level and by type of qualifications. Some critiques find the possibility of substitution even more than one. For example, Bowles (1969), using data from 12 countries, found that, "the elasticity of substitution between different categories of educated labour was never less than eight". (quoted in Mace 1977: p. 28).

Similarly a study of the engineering labour market in the UK, undertaken by Mace and Taylor (1975), indicates not only that substitution is possible but also suggests why it is possible. They examined 12 British firms and concluded that:

> *the scope for substitution of people with different qualifications (even) in (engineering) jobs have been defined by qualification, is much greater than manpower forecasters would have believe. (Mace 1977: p. 29).*

According to a recent OECD report, "when the employment situation deteriorates, the employers raise their requirements. In other words graduates are recruited at a lower level and lower pay than previously. For example, in the UK, there is concern about the employment of engineers in technical jobs because of a shortage of technicians". (OECD, 1993: p. 65). Griliches (1969) and Welch (1970), Fallon and Layard (1975) explicitly tested for complementarity between capital and high-level skills with data from 23 countries for the 1960s. They found that "the direct elasticity of substitution between more educated and less educated labour is close to one". It is confirmed by OECD, (1970) and Tinbergen (1974). (quoted in Abegaz 1994: p. 74).

These studies provide evidence that the possibility of substitution between different categories of workers by level and type of education and occupation is well above the zero value assumed in MRA, and therefore, the MRA method of forecasting manpower requirements is suspect.

In this context the following factors should also be taken into account while making forecasts.

### 2.7.1.1 Inter-occupational mobility

In the process of forecasting the availability of manpower is derived by correcting the base year manpower stock for losses through mortality, retirement, and by adding the expected manpower coming from the educational system, but the effects of mobility of manpower in the work force are ignored. The mobility of manpower may be seen directly through a change of job or indirectly through a retraining programme. For instance, Hough states that:

> *Britain had in 1971 some 239,000 graduate engineers, of whom less than 39 per cent were employed in manufacturing industry; 36 per cent were employed in the 'white collar' categories, professional and scientific services (including education) and public administration and defence, and insurance, banking and finance. (quoted in Hough, 1987: p. 80).*

In this context Mace and Taylor (1975), claim that "mobility would be high if salary levels differed, and if the labour market were competitive". (Mace and Taylor, 1975: p. 190). It is, however, evident from the above studies that there exists considerable scope

for the mobility of workers either within or between firms.

The immediate question arising here is that of how the inter-occupational mobility of workers can be measured. Although it is very difficult to develop any pattern of occupational mobility with sufficient precision, which permits estimates of separation from and accession to certain occupations. We will explore this inter-occupational mobility of workers directly from the employees involved in this study. This will enable us to find out the extent to which this factor affects the estimate of the supply and demand for educated manpower in Pakistan.

## 2.7.1.2 Students' mobility

In making the estimates of the supply of educated manpower, especially from the formal educational system, students' mobility within the educational system is not taken into account. Practically, students' mobility within the educational system, cannot be neglected in planning education for employment purposes, because of its direct link with the supply of educated manpower. According to a UNESCO study of 1987, there exists a significant rate of students' mobility in the educational system among various countries. In the Philippines, for example, 18 percent of the students were studying in different fields of studies from the one they had wanted to study. Likewise, in Indonesia, Egypt, Botswana, and Sudan, these percentages are 10, 50, 20, and 61, respectively. (Sanyal, 1987: pp. 98-101).

Students' mobility has been observed in developed countries as well. For example,

according to an OECD study (1993),

*in the Netherlands, in 1990, 36 percent of those who dropout of university training take up other studies, while in Denmark, Spain and Germany, in 1987, these figures were 51.3, 55.8, and 29.3 percent respectively. (OECD, 1993: p. 58).*

We will investigate the prevailing degree of students' mobility, if any, and the extent to which it affects the estimate of the supply of educated manpower in Pakistan. The details of the procedure are given in chapter 6.

## 2.7.2 Elasticity of Education and Wage Rates

The other assumption of MRA is that, "all relative prices, wages and salaries remain constant". (Ahamad and Blaug, 1973: p. 9). This claim is misleading and cannot be justified. Jolly acknowledges the presence of elasticity of demand for educational labour with respect to wages, and gives the example from Puerto Rico, that "there is an equal percentage fall in employment for every percent increase in wages". (Jolly, 1968: p. 85). There is another example from Zambia, that a "10 percent increase in average earnings could decrease the employment by seven percent. (ibid. p. 85). Bowles, (1969) using the data from twelve countries, found that the elasticity of substitution between different categories of educated manpower was never less than eight. (quoted in Mace, 1986: p.67). It has been assessed that "the reduction of 3 percent per annum in real wages could increase future demand by 2 percent per year". (Jolly, and Colclough, 1972: p.230). Abegaz (1994) states that "the estimates for the industrialized group suggest that the wage elasticities are small but far from zero". (Abegaz 1994: p. 79).

According to an OECD study (1993),

> *in Italy, where employment prospects for engineers are very good, it can be seen that the proportion of engineers in total graduates fell from 15.8 per cent to 13.6 per cent over the period of 1979-88; in absolute figures this corresponds to a fall of 8 per cent. (OECD, 1993: p. 47).*

In this context Abegaz (1994) states that:

> *the organized private sector inevitably responds to the salary levels of the public sector. While public sector pay is theoretically a reflection of educational qualification, length of service, type of work done and the level of effort exerted, and the prevalence of surplus or shortage, the first two criteria are the most important. (Abegaz 1994: p. 22).*

The evidence available in these studies enables us to conclude that with the increase of wages, the demand for employees will fall, as employers substitute other types of manpower or other factors of production. This seems to be true for all time.

## 2.7.3 Assumptions of MRA Concerning the Production Function

Mace (1977), defines a production function as "a function that gives the maximum output that can be obtained, at an existing state of knowledge, from all possible given quantities of inputs". (Mace, 1977: p. 28). In MRA it is assumed that "it is possible to substitute inputs for each other in the production function process (hence fixed proportions)". (ibid. p.28). It implies that it is impossible for manufacturers to substitute labour for capital, or different types of workers for each other, in the process of production. Manpower forecasters assume that it is valid to lump together all the inputs in all sectors and sub-sectors of the economy. But practically this assumption has no theoretical or practical justification for the use of such a production function. In this context the following

assumptions are examined in this study.

## 2.7.3.1 Input-output relationship

Another assumption is that, " manpower inputs per unit of output are a fixed parameter". (Hinchliffe, 1987: p. 323). It implies that there is a fixed or stable relationship between inputs of different types of manpower and outputs. Psacharapoulos (1987), quotes this assumption as, "that there is only one combination of inputs that can lead to desired level of output". (Psacharapoulos, 1987: p. 334). A high degree of substitutability has been observed between inputs and outputs and it is claimed that the same level of output can be achieved with an alternative combination of labour and capital, skilled and unskilled labour, and if employees can choose between hiring highly educated workers and providing on the job training for less educated workers, then it is both more difficult and unimportant to attempt long term forecasts. It is difficult because the pattern of employment depends on a wide variety of factors, such as relative prices, rather than a fixed relationship between input and output. It is especially suspect, in the case of economies undergoing significant structural changes like Pakistan and other developing countries. It is less necessary for the reason that employers will be free to respond to a shortage or surplus of manpower by changing the combination of inputs, like changing the balance of education and training in their work force. (Psacharopoulos, 1985: pp. 75-76).

## 2.7.3.2 Uncertainty of labour productivity

In making forecasts expected changes in labour productivity are not taken into account, especially when this is due to improved or changed technology. It is assumed that "the present and past occupational patterns are solely a result of demand and that the availability or non-availability of manpower has no influence on occupational structures". (Hinchliffe, 1987: p. 320). In other words the technology and the labour product during the time period will be the same or change in a simple regular pattern, but in practice the changes in various sectors are quite irregular and uncertain overtime.

Both Hollister (1965) and Blaug (1967) point out that the studies of the labour productivity by Kendrick (1961) show that the changes have been quite irregular both over time and between economic sectors. As a consequence, they conclude forecasts of future changes are likely to be highly inaccurate. (quoted in Psacharopoulos, 1987: p. 320). Not only productivity, but even more important, the "mix" of manpower skills change with new technology, including brand new skills. For example, in Germany, the proportion of graduates in the public sector increased from 21 percent to 26 percent between 1976-85, and similarly in Norway, they increased from 26 percent to 37 percent between 1975-1989. (OECD, 1993: p. 95). It is claimed in the report that this increase was due to the spread of new technologies, and changes in the organization of the work. Similarly in the production sector, the introduction of "power looms" at home or in the lower scale has not only increased the output per worker, but also the functional composition of the work force has changed. Loom fixer, engineer, and personnel administrator are the examples of new occupations that would probably not exist in the simpler organization of the sector.

Findings of a study conducted by Bosworth and Dutton (1990), revealed that:

> *the linkage between technology and skills spread in two directions. First, shortage of appropriately skilled labour limit the rate of introduction of new technologies. Second, the introduction of new technologies impacts on the skill structure needed in the production process, causing shortages and surpluses to raise as diffusion takes place. (Bosworth and Dutton 1990: p. 54).*

Jolly and Colclough examined 33 manpower studies from African countries made between 1960-1970. In these studies, projections were most often made by a simple expansion of the existing posts making no allowance for changes in the occupational or educational structure. (Hinchliffe quoted in Psacharopoulos, 1987: p. 322). According to a study conducted by the Institute of Manpower Studies, "in the UK context, these changes [in labour productivity] have affected the utilization and allocation of productive resources, both labour and capital". (Rajan 1986: p.9). In the same way Abegaz (1994) comments that:

> *the link between the manpower plan and the educational plan however, cannot be too tight for several reasons: (a) a technologically progressive economy is likely to generate demand for new skills or new uses for existing skills which manpower planners cannot foresee accurately, (b) the educational system embodies social goals that cannot be reduced to just production functions, and (c) there is the practical problem of inter-ministerial coordination since the goal of building autonomous empires has proved endemic in bureaucracies. (Abegaz 1994: p. 19).*

These studies provided evidence that the fixed rate of growth in the labour productivity and rigid assumptions of MRA have resulted in inaccurate predictions of the demand for educated manpower. In this context planners must know that how much output a worker will produce in the period for which the forecast is made. Moreover, they must have the knowledge of labour utilization coefficient referred to the input-output ratio. But no one

can claim an increase in the labour productivity in any sector by simply increasing manpower. If, increase is noted, there may be various factors responsible for it, for example, change of technique, or addition of some new technology etc.

## 2.7.3.3 Treatment of Cost Considerations

The MRA assumes "that the relationship between the labour output and capital is determined by technological requirements and not by market forces". (Mace, 1977: p.32). One of the main problems inherent in making forecasts is ignoring the cost of workers, including additional qualifications, training and their cost-effectiveness and so forth. It would be expected that education is inversely related to the costs, that is the higher school fees and other related costs, the lower would be the private demand for education, every thing else being equal. According to Todaro (1989),

> *for poor people direct primary school costs often presents a major burden and real financial constraints. He quotes an example, that the average cost of sending a child to primary school (excluding opportunity cost) is typically in excess of 20 percent of per capita income. (Todaro, 1989: p. 339).*

The situation would be worse if the full opportunity cost is taken into account. The opportunity cost means "the earning foregone by mature students attending school and by workers acquiring on-the-job training". (Schultz, quoted in Blaug 1968: p. 13). There is another critical point that manpower forecasts ignore. That is the choice between the alternative ways of achieving the same level of output. It does not take the influences of relative prices into account, in determining the choices between the alternative techniques and combination of outputs. In this regard, Mace (1977), claims that:

*employers can produce the same output with differing combinations of workers, there are strong a priori reasons for believing that employers will demand that combination of workers and capital that can produce a given output at least cost. (Mace. 1977: p. 32).*

Similarly students are motivated by relative wage rates. Mace and Taylor (1975), found that "25 percent of the sample of employees with engineering qualifications were working in non-engineering jobs". (Mace and Taylor, 1975: p. 184).

These studies provide evidence that the assumption made by manpower planners about ignoring the effect of prices and cost in manpower forecasting must be rejected on both theoretical and practical grounds.

## 2.7.4 Education-Occupation Relationship

In the process of MRA it is assumed that "it is possible to ascertain the optimum amount of education for achieving specific growth rates". (Parnes 1962: p. 7). In other words "MRA attempts to foresee the future occupational structures of personnel with the qualifications which that structure demand". (Parnes 1962: p. 15). It implies that estimates of educational requirements can be made for different categories of occupations is an important assumption of forecasting manpower requirements. But practically the conversion of occupational requirements into educational requirements is highly suspect and one of the complex problems in manpower planning. The estimates of educational requirements cannot be made mechanically because in most of the occupations there is no precise relationship between education and occupation. For example, one cannot be sure whether an administrator of a certain department should have a university education,

because satisfactory performance is attributable to a function of native ability, psycho-motor skill, work experience, on the job training, and formal education. The same is true for the rest of the jobs. A survey of Sudanese graduates of higher education indicates that:

> *highly specialized programmes (such as law, engineering, and health care) tend to exhibit high correspondence with their respective professions but more general fields (arts and social sciences) tend to exhibit high flexibility in occupational choices. (Sanyal and Versluis (1976) quoted in Abegaz 1994: p. 125).*

Similarly, Bowles and Gintis, argue that, "the effective performance in most of the jobs, depends very little on directly usable cognitive skills and much more on certain non cognitive personality traits". (quoted in Blaug, 1992: p. 212).

Lindley (1981), quotes an example from the UK, that:

> *not all HQTM [highly qualified technological manpower] are employed in SET [scientific, engineering and technological] occupations and not all SETs [scientists, engineers and technologists] possess formal educational qualifications at degree (or equivalent) level. Even those who have formal qualifications have reached professional SET status by a number of routes. (Lindley, R.M. 1981: p. 78).*

The correspondence between education and employment seems to be loose and substitution possibilities between qualified manpower of different varieties exist in many countries. For example, in India, a study at the time of formulation of National Policy on Education in 1986 had shown that:

> *over 50 percent of the workers in the public sector in occupations requiring technical knowledge or skills, did not posses the relevant education or training*

*and 94 percent of the workers in occupations requiring general education did not posses formal education. (James, in Sanyal 1993: p. 59).*

Although Parne's last two suggestions (see paragraphs 4.6 and 4.7 in chapter 2) regarding the conversion of manpower requirements into educational needs are designed to overcome this problem but according to Cohen (1990), these steps have not been pursued in any of the plans that have been designed in the recent years. (Cohen, 1990: p. 215).

The evidence available in these studies enables us to conclude that the assumption of manpower forecasters concerning the education-occupation relationship is open to question and cannot be justified practically in the labour market.

## 2.8 CONCLUSION

The study of the various methods of forecasting manpower requirements which have been implemented to date, reveals that manpower forecasting is misconceived. It is acknowledged in this study that there exists no formula that can be applied mechanically to arrive at accurate manpower forecasts. At every stage of the process there is need for informed judgement and choice among alternative assumptions. Despite long experience in planning no country in the world has yet developed a method of manpower forecasting that would be considered as satisfactory in any respect. We found no evidence to support any of the assumptions of MRA concerning the education-occupation relationship. Manpower forecasters should consider the analysis of the consequences of alternative policies in terms of supply and demand for manpower, skill mix, and their relative costs. This implies that planners would have to adjust the preliminary estimates by taking into

account demand-side adjustments to changes in output mix and quality in order to calculate effective demand. Furthermore, they would also have to consider the likely impact of probable shortages or surpluses on relative wages in order to compute effective supply. For better results, it is suggested that the process of manpower requirements should be a continuous activity, in which forecasts are checked against the reality, and techniques and assumptions are constantly evaluated and updated.

# THE ECONOMIC STRUCTURE OF PAKISTAN

## 3.1 INTRODUCTION

It is impossible to separate a study on manpower planning in a country from its socio-economic context. The educational system and the labour market of a country cannot exist in a vacuum since both systems are either dependent upon or influenced by the overall economic development of the country. The history of economic development of Pakistan over the first forty years contains valuable lessons for both planners and policy makers. For this reason it is logical to describe the economic structure in Pakistan in this chapter. This chapter is followed by the description of manpower planning in Pakistan.

Since August 1947, the country has had to struggle against heavy odds. According to Bhatia (1990), "it was not merely paucity of natural resources, absence of an entrepreneurial class and trained labour force, and almost an utter lack of banking, insurance and similar other commercial and financial institutions, so necessary for building up a modern economy, that the country had to contend with at its inception. It had also to grapple with immediate problems of refugee rehabilitation, enforcement of law and order, which had been completely shattered by the events preceding and following partition, and setting up of an administrative machinery to perform essential government duties". (Bhatia, 1990: p. 278).

Despite rapid changes and some inherent problems the overall economic development of

the country has compared well with other developing countries of the region. According to a study conducted by the Hawthorn Institute of Education, Australia (1989), "the real growth rate GDP has averaged 6.9 percent during the Sixth Plan period (1984-88) as against an average of 5.3 for the period 1949/50 to 1986/87. (Hawthorn Institute of Education 1989: vol. 1, /2/ p. 1). In the 1990s the overall GDP growth has decreased compared to the growth rate in the 1980s. In 1991-92, the GDP growth had declared to a record of 2.28 percent. In 1992-93, it has improved to 3.96 percent. (Economic Survey, 1993-94: p. 1).

It is important to note that the traditional Pakistani family is based on a deep separation between the roles and responsibilities of males and females. Women are expected to maintain the household, bringing up children, and cater for the need of their husbands and rest of the family members. Males are expected to represent the family to the outside world. According to a study conducted by the United Nations Children Funds (1991):

> gender disparities exists in access to food, education and employment. Women additionally suffer from restricted mobility, little control over resources, limited decision making power, little awareness of their rights and limited aspiration. (United Nations Children Funds 1991: p. 146).

Before discussing manpower planning in Pakistan, it is helpful to describe the details of the economic structure of the country. This chapter undertakes the detailed review of the economic development of Pakistan since inception . It covers the land, demography, resources, and structural changes in the economy over time.

## 3.2  LAND

Pakistan came into existence on 14 August 1947, when British India was partitioned into two separate sovereign states, India and Islamic Republic of Pakistan. It is bounded to the west by Iran, to the north by Afghanistan and Tadzhikistan to the north east by China, and the south east by India. Pakistan covers an area of 796,095 square kilometres (sq.kms), and is the 34th largest country in the world. It comprises four provinces, Balochistan, North West Frontier Province (NWFP), the Punjab, and Sindh. Balochistan is the largest with an area of 347,190 sq.kms. followed by the Punjab 205,344 sq.kms., Sindh 140,914 sq.kms., and NWFP 74,521 sq.kms. Besides this the Federally Administered Tribal Area (FATA) covers 27,220 sq.kms. and the Federal Capital Area (Islamabad) 905 sq.kms.

## 3.3  DEMOGRAPHY

The total population was 124.45 million on January 1, 1994, and the projected population, at the growth rate of 3 percent per annum, would be 149.68 million by the end of this century. The total labour force was 34.98 million on January 1, 1994 out of which 24.73 million is in rural areas while 10.25 million is in urban areas. On the same date the total employed labour force was 32.93 million whereas 2.05 million were unemployed. (Economic Survey 1993-94: pp. 97,99). The Punjab is the most populous province with 56 percent of the total population, followed by Sindh 23 percent, NWFP 13 percent, Balochistan 5 percent, and FATA 3 percent. ( Economic Survey 1993-94: Table 13.1, p.97).

In 1992-93 the labour force was estimated at 33.80 million out of which 31.68 million persons were employed while 2.12 million were reported as unemployed. Overall the unemployment rate during 1992-93 was 6.28 percent (8.19 percent urban and 5.48 percent rural). (Economic Survey, 1992-93, p.117). In 1960 the urban population was 22.1 percent but in 1990 it has increased to 32.00 percent. (UNDP, Human Development Report, 1991). For 1992-93 it is estimated to be 38.07 million. It implies that the urban population is increasing by about 4.6 percent per year. (op.cit: 117). According to the Economic Survey 1993-94:

> *compared to rural areas the sex ratio has been higher in urban areas which is probably due to male dominated migration from rural to urban areas. Pakistan is a rare example of male majority as most countries have female dominated population. (Economic Survey 1993-94: p. 92).*

This rapid urbanization has resulted in a faster growth of large cities as compared to smaller ones, due to the installation of industries.

The age distribution of population has remained more or less the same during the period 1970-80. For the age group 0-14 years (46.3 percent), 15-64 years (50.5 percent in 1970 50.9 percent in 1980), and 65 years and over 3.2 percent and 2.8 percent respectively in 1970 and 1980).

In 1981, the literacy rate was 26.2 percent, 44 percent of the population aged 5-9 years were enrolled in primary schools, of which 57 percent were boys. In the same year only 14 percent of the population aged 10-16 years were enrolled in secondary schools,

comprised of 20 percent boys and only 8 percent girls, and only 2 percent out of those

aged population 20-24 years were reported to be entered into higher education.

The geographical characteristics of the country has made access to education for females

in rural areas very difficult. According to a study carried out by the United Nations

Children Funds (1991):

> *it was found out that only about 1/3 of girls primary schools in rural areas are located within one mile of a particular village. Hardly one fourth villages are within one mile distance of the nearest bus stop. The public transport of any kind is rare for rural female schools".* (United Nations Children Funds, 1991: p. 7)

According to the Economic Survey 1993-94, the literacy rate was 36.8 percent in Pakistan.

(Economic Survey 1993-94: p. 105). This figure is still very low compared to other

developing counties of the region, with Pakistan ahead of only Afghanistan and Nepal in

the Western and South-East Asian Region. One of the reasons given for this relatively

low figure is high population growth rate. (Hussain, 1987: p. 20). According to the

Economic Survey 1993-94 this rate is 3 per cent per annum in Pakistan. (ibid. p. 91).

The majority of the population is composed of Muslims. A negligible minority of Hindus

are settled in Sindh and Balochistan. Christians are widely spread and constitute about

3 percent of the total population. With the exception of the head of state and prime

minister, every post is open to all irrespective of their cast or creed. The constitution of

Pakistan guarantees the right to profess, practice and propagate their religions. Minorities

have their elected representatives both in Federal and Provincial Legislative and local

bodies.

## 3.4 RESOURCES OF PAKISTAN

Hussain (1987: p. 20-22) has grouped Pakistan's resources into three categories, namely minerals, biological, hydro-electric and power resources.

### 3.4.1 Mineral Resources

The country's coal reserves are estimated at 400 million metric tons, and those of iron ore at 520 million metric tons, but the quality of both the ores is stated to be poor. There is a huge reserve of lime-stone that is used in the manufacturing of cement in the country. There are also reserves of chromite, barite, celesite, antimony, aragonite, gypsum, rock-salt and marble.

Pakistan has very large reserves of natural gas, one discovered in 1953 at Sui (Balochistan) ranks among the world's largest with a reserve of 180 billion cubic meters. The first ever discovery in Pakistan was made in 1951, and several other fields have been discovered, including 78 wells at Sui. In 1987-88 and 1992-93, the production of gas was 1200 million cubic feet per day and 2095 million cubic feet per day respectively. On 31st March, 1994 the reserves of natural gas were estimated as 22.58 trillion cubic feet. The production of natural gas during July 1993 to March 1994 increased to 1724 million cubic feet (mcft) from 1599 mcft in 1992-93 and 1505 mcft in 1991-92. (Economic Survey 1993-94: p. 35). The expected availability of additional gas is 837 million cubic feet per day of which 414 million cubic feet will be from the pipeline system and 432 million

cubic feet will be met from isolated gas fields which will be used mainly for power generation and fertilization. (Seventh Five-Year Plan, p. 203).

In 1987-88, the supply of oil was 2.1 million tonnes (43,000 barrels per day), and the demand for petroleum products was projected at 14.3 million tonnes in 1992-93. On 31st March, 1994 the reserves of oil were 197 million US barrels. Currently 18 local and foreign oil companies are engaged in petroleum exploration activities in the country over an area of 174,000 square kilometre. The average oil production during July 1993 to March 1994, remained at 57,880 barrels per day. (op. cit. p. 35). The net local production of petroleum and its products will be 7.4 million tonnes leaving a deficit of 6.9 million tonnes by 1992-93 without conservation and 6.3 million tonnes with conservation. The expenditure on imported crude oil and its products net of exports is then expected to rise to about US $ 1.8 billion from US $ 1.00 billion at present, assuming imported crude oil prices rise broadly in line with world inflation and that conservation targets are met. In addition, US $ 0.2 billion will be paid to international oil agencies operating in Pakistan for their share in local production in 1992-93. (Seventh Five-Year Plan, p. 201). In addition, there is a reserve of radio-active minerals in the Punjab.

Pakistan, despite being richly endowed with the huge amount of resources of energy is faced with the deficit in this area. According to the Economic Survey 1993-94, the overall demand for energy growing at 12 percent per annum while the supply has grown by 7 percent per annum. (Economic Survey 1993-94: p. 35).

### 3.4.2 Biological Resources

Pakistan's climatic and soil conditions are varied. Balochistan is almost desert, whereas Sindh and the Punjab in the Indus Valley have fertile land, and most of the crops and orchards are cultivated in these provinces. The coastline has mangrove forests and the Himalayan foothills have vegetation and animal life similar to the types found in the Mediterranean and the Alps. The country also has marine resources.

### 3.4.3 Hydro-Electric and Power Resources

Although the water resources in Pakistan are poor, its hydro-electrical potential has been significantly developed. The Mangla Dam on the Jhelum river and the Terbela Dam on the Indus river have a generated capacity of one million and 2.1 million kilowatts respectively. In addition, the country has a large number of thermal plants, most of which use coal and natural gas. There is also a nuclear power plant with a generating capacity of 137,000 kilowatts. During July to March 1993-94 the installed generating capacity of electricity increased by 7 percent. During July to March 1993-94 it stood at 11,346 mega watt (MW) compared to 10,598 during the corresponding period previous year. Overall, the Water and Power Development Authority (WAPDA) supplied about 83.5 percent of the total power in the country to various sectors of the economy, whereas from the Karachi Electric Supply Corporation (KESC) it was 15.3 percent and Karachi Nuclear Power Plant (KANUPP) 1.2 percent. (Economic Survey 1993-94: p. 37).

## 3.5 SECTORAL ANALYSIS

Pakistan is predominantly an agrarian country. In 1988-91, 51.15 percent of the civilian labour force was engaged in the agriculture sector. The second largest sector of the economy is manufacturing followed by the social sector. Iqbal, (1989: pp. 47-60) has discussed all these sectors in detail. The description of these three sectors is as below:

### 3.5.1 Agriculture

Agriculture is still the biggest employment sector of the economy though its relative size has declined over time. In 1949-50, agriculture counted for 59.95 percent of the gross national product. The next ten years witnessed a satisfactory annual average growth rate of agriculture in the country. It was reported as 4.5 percent annually during that period. (Bhatia, 1990: pp. 282-283). In the early seventies its share in GDP was about 35 percent and in 1992-93 had reduced to 21.4 percent. In 1993-94 the agriculture sector has shown a positive growth of 2.63 percent against a decline of 5.28 percent during 1992-93. Its share in GDP has risen to 27.87 percent in 1993-94. Since 1991 there has been no change in the employed labour force in the agriculture sector. In 1991-92 its share in employment was 48.27 percent and remained the same in 1993-94. (Economic Survey 1993-94: pp. 9 and 100).

The decline in the share of agriculture in GDP is partly due to industrialization and is a normal feature of the growth process. However, the secular decline in its share is due to a very slow rate of growth in agricultural output. This stagnation is due to the lack of

technical breakthrough in this area. Lack of necessary inputs, especially that of water, the vulnerability to weather conditions and a disproportionately high share of crops in the agriculture production have also worsened the situation. The overall performance of the crops in this sector has been very poor and volatile over time. Part of the problem stems from the type of harvesting being practised in Pakistan. For example, cotton and rice are the major crops of the country. These crops have almost the same cropping season, but require very different climatic conditions. Therefore, in areas where both of these crops are sown, if rains are abundant, the rice crop will be very good whilst the cotton crop is damaged, if the weather is dry the cotton crop is good but the rice crop suffers. This conflict in weather requirements of rice and cotton crops has seriously undermined the overall performance of the agriculture sector.

Similarly, continuous reliance on the import of edible oil resulting from very slow growth in domestic production of oil seeds is also a matter for concern. Though the area under the modern varieties of oil seeds increased from 27930 hectares to 46340 hectares during the last three years, the yield increased from 827 kilograms per hectare to 980 kilograms in 1986-87 but dropped to 944 kilograms in 1987-88. The production of new oil seeds has suffered, on account of poor information facilities for the farmers. Depending on traditional information, the farmers are aware of a relatively traditional crops but they are not knowledgeable about new crops such as sunflower or sunflower seeds. The information is not made available to them therefore they are not aware of the incentives to grow new crops.

One of the serious problems facing the agriculture sector is the poor state of water

management in Pakistan. As a result, the supply of irrigation water in general and in the Barrani areas in particular has been found to be far less than the actual need.

The prevalent trend in the use of agricultural machinery is also not consistent with the requirements of the sector. While it may be desirable to use machines in agriculture, under no circumstances would this be done by displacing the rural labour force. The current practice of using large tractors in this sector neglects the natural differences in the requirements of the different types of farmers in different areas. The technology package for an area dominated by small farms obviously cannot be the same as required in an area dominated by larger farms. Similarly, a different set of tools and equipment may be required in Barrani areas compared to those used in irrigated areas. As a result the use of agricultural technology has been far less than optimal and a proportion of the labour force appears to have been made unnecessarily unemployed. According to the Economic Survey 1993-94, its present contribution to GDP is 23.87 percent and accounts for half of the total employed labour force of the country. Moreover, it is the largest source of foreign exchange earnings while it serves as the base sector for the country's major industry like cotton and sugar. (Economic Survey 1993-94: p. 9). In other words agriculture is the back-bone of the economy.

## 3.5.2 Manufacturing

This is the second biggest sector of the economy. Historically, industrialization and economic development have moved hand in hand in the country. In all five-year plans this sector has received much attention. Despite that, its performance has not been up to

the expectations. The growth rate of manufacturing sector was 5.4 percent of GNP in 1948-49 and 9.3 percent in 1958-59. (Bhatia, 1990: p. 279). The growth rate for the manufacturing sector during the seventies was 3.71 percent per annum while for 1992-93 it was 18.8 percent per annum. (Seventh Five-Year Plan, p. 315). The manufacturing sector showed resilience and maintained growth trend during 1993-94. The value in the sector as a whole grew by 5.63 percent against the targeted growth of 8.2 percent. However, the poor performance of the manufacturing sector during the seventies was due to the stagnation of the large scale manufacturing sector that grew at 2.49 percent during the period as compared to 9.14 percent in eighties. The small scale manufacturing by comparison grew at 7.29 and 8.39 percent for the same period of time respectively. Therefore, it can be safely concluded that the different rates of growth were largely due to the performance of large scale manufacturing. Since large scale manufacturing is much more affected by the government policies than the small scale manufacturing their relative performance over time has important policy implications. The value added share in the large scale manufacturing has been declining over time. It has dropped from 40.8 percent in 1969-70 to 31.9 percent in 1984-85. The growth performance of various industries has been quite varied. Cotton cloth which is still the largest industry has shown consistently poor performance over time. The production of cotton cloth registered growth rates of 8.25 percent per annum and 3.32 percent per annum during 1971/2-76/77 and 1976/77-87/88 respectively. During 1993-94, the textile industry suffered a serious set-back. The production of yarn increased by 5.47 percent while that of cloth declined by 3.63 percent due to low production of cotton in the country. Among the industries which have shown a good performance and have future potential are light engineering goods, chemicals and fertilizers, food manufactures, and rubber and plastic products. (Economic Survey 1993-

94: pp. 17-18).

### 3.5.3 Social Sector

After more than three decades of development planning, the quality of life in Pakistan is among the lowest in the world, and in terms of "Human Development Indicators" (HDI), its ranking is 120 out of 160 countries with the HDI value 0.311 on the scale ranging from zero to one. (UNDP Human Development Report, 1991). The human development indicator is the composite index of three variables: life expectancy, education, and per capita income. In Pakistan, these variables are 61 years, 34 percent, and US $ 380 respectively. At present 45 percent of Pakistan's population still does not have access to clean drinking water and health services. Similarly, 77 percent are living without sewerage facilities and only 35 percent of the population have the use of electricity, but it is only a part-time facility bearing in mind the massive load shedding during the extreme hot weather. It very much depends upon the 'monsoon' (rainy season) . In drought the situation is worse. Some areas, especially the rural areas are faced with this problem of load shedding for more than 8 hours daily in summer time. The telephone is only available to 6.7 percent of the population in Pakistan. (Seventh Five-Year Plan, and UNDP Human Development Profile 1991)

According to 1981 Population Census the literacy rate, in Pakistan, was 26.2 percent (male 35.1 percent and female 16 percent), and it is estimated to have increased to 36.8 percent (male 48.9 percent and female 23.5 percent) in 1993-94. (Economic Survey 1993-94, p. 105). These figures are for a very liberal definition of literacy. Pakistan with only

36.8 percent literacy rate is among the lowest in the world .

In the health sector only one doctor is available to 1880 persons. The housing conditions are also very poor and deteriorating further. According to the Housing Census 1980, there were 3.5 persons per room in 1980 as compared to 6 persons per room at present. The situation in rural areas would have been worse than this, but such data was not available. In 1991-92, the expenditure on health was still less than 1 percent per annum of GNP and 2.3 percent on education including 5 percent an Iqra Surcharge started in 1985 on all imports. (Economic Survey 1992-92, p. 143). The situation remained the same during 1993-94. In 1993-94, these figures are 0.75 percent for health, 2.20 on education including 5 percent an Iqra Surcharge. (Economic Survey 1993-94: p. 105).

It is of utmost urgency that planners and policy makers realize that GNP growth alone does not mean development and that the improvement in the quality of life indicators are also a quantitative contribution to development. Better health, education and skills lead to higher labour productivity and technical progress, (again a function of education) which in turn leads to higher capital productivity. One of the most important bottlenecks in the growth process is the technical gap, and we will suffer from technological backwardness and lower productivity unless we fill this gap by improving the literacy rate and skills levels.

Pakistan's major exports include raw cotton, cotton yarn and fabrics, rice, sports goods, carpets, leather and leather goods. Pakistan's skilled and semi-skilled labour force working in Middle East States is the source of foreign remittence. GNP per capita in

Pakistan was US $ 350 during 1988 and ranks at 26 out of 43 low income countries in the world. (UNDP, Human Development Report, 1991).

## 3.6 THE ROLE OF GOVERNMENT IN THE ECONOMY

The role of governments in the economy of Pakistan can be divided into three phases:

Phase I, from 1947 to 1971.

Phase II, from 1972 to 1977.

Phase III, from 1977 to date.

During the period from 1947 to 1971 successive governments followed economic policies assigning an important role to the private sector on the pattern of market economies, with the exception of manufacturing of arms and ammunition, hydro electricity, atomic energy, railway, telephone and telegraph. However, along with pro-private sector policies, there were many direct controls and regulations governing economic activity in the country during the fifties. In the sixties general deregulation and liberalization were witnessed in the country.

In 1972, the People's Party government issued the Economic Reform Order 1972, under which the government took over the management of 31 major manufacturing enterprises belonging to 10 different sectors. In 1974, Shipping, petroleum marketing and distribution companies, Pakistani commercial banks and life insurance business were also nationalised. In addition, some smaller manufacturing units, like flour mills, cotton ginning, rice husking, and the vegetable ghee industry were also nationalised. The government's policy

of massive nationalisation towards the private sector has discouraged private investment and affected the outcome of this sector. According to the study conducted by the Institute of Policy Studies, Islamabad,

> *bureaucratic management of nationalized units, lengthy, and rigid procedures for making decisions regarding even their day to day running, absence of proper incentive structure for employees and over-staffing under political pressures made operation of most of these units unprofitable. (Institute of Policy Studies, 1992: p. 23).*

After the overthrow of the civilian government in July 1977, Martial law was imposed in the country. During the Martial Law government a number of steps were taken toward privatization. In September 1977, flour mills, rice husking, and cotton ginning, and some Pakistan Industrial Development Corporation (PIDC) units were privatized. Similarly two foundries were also denationalized and handed over to their original owners. The Protection of Rights in Industrial Property Order, 1979 was promulgated to stop nationalization of industrial units by any government in the future. The main purpose was to restore the confidence of the private sector, which had been badly shaken by the previous policy. In July 1988, the National Disinvestment Authority (NDA) was established to examine the privatization of 14 public sector units and disinvestment of 20 percent of the shares of the nationalized commercial banks. The work of the NDA remained inconclusive due to the overthrow of the military dictatorship August 1988.

In December 1988, the People's Party came into power once again, and this regime clearly stated that "the Party will rely on the private sector to spearhead development while the role of the public sector will be essential in building an infrastructure" (Institute of Policy Studies, 1992: p. 24). This government decided to privatize 14 units through

the sale of shares to small individual investors and workers to avoid the risk of concentrated ownership. However, only 10 percent of the shares of Pakistan International Airline (PIA) could be denationalized during a 20 month period, and this government was dissolved by the president of Pakistan on the basis of political unrest.

In November 1990, a new civilian government came into power and their manifesto was that "a major programme of deregulation will be undertaken to enable the people to participate in the country's development, without bureaucratic control and hinderance". (ibid, p. 26). A committee was set up immediately with the task of suggesting recommendations on privatization and deregulation. Later in January 1991, a full-fledged Privatization Commission was set up to oversee the process of privatizing 115 industrial units, including 45 units nationalized during 1972-77. These units were to be sold to the private sector through auction. Their reserve price for the purpose of auction was fixed on the basis of a valuation by independent consultants.

Thirteen units of the Roti Corporation, most of which were not working and had real estate to sell, were advertised for sale in February and May 1991. As all the bids were below the reserve prices for individual units, none were accepted. By September 1991, this process of privatization could not succeed because bidders were not being given enough time and information to prepare bids. In September 1991, 102 units were offered for sale and about one month was given for bidders to acquire information about these units from their respective departments and to inspect the plants.

Regarding the privatization of commercial banks the Muslim Commercial Bank was

transferred to a private business group in April 1991, while that of the Allied Bank was transferred to the Allied Management Group, formed by the management and the workers of the bank, in August 1991. Moreover, permission for the establishment of 10 commercial banks in the private sector was given in the same period. To ensure broad-based ownership, they have to offer a minimum 50 percent of their shares to the public, and have to be registered with the stock exchange. Six shipping companies, two airlines (one for cargo and the other for both passengers and cargo) for operation on domestic routes only and one power generation plant have already been sanctioned in the private sector. In addition, the Telegraph and Telephone department has been converted into an autonomous body, namely the Telecommunications Corporation of Pakistan.

To attract "black money" (the money earned through unfair means) into productive investment, the government has assured prospective investors that no questions will be asked about the source of financing for investment, provided the letters of credit for the import of machinery are established, or contracts for local machinery are assigned before June 30, 1992. The equity capital ceiling at which the private companies are required to convert themselves into public companies has been increased from Rs. 50 million to Rs. 100 million. (Institute of Policy Studies 1992: pp.22-29).

In October 1993, this regime was replaced by the caretaker government. The caretaker government conducted elections within the period of three months. As a result of these elections the People's Party came into power for the third time. At present, the government intends to continue the policy of privatization of industrial units. In addition to the current Eighth Five Year Plan (1993-98), the direction of the government's long-

term policies reflect in the manifesto of the present government. Some of the priorities set by the present government are as below:

a. There will be no further nationalisation of industries but in some sectors small shareholders and workers will be encouraged in share ownership.

b. There will be development of the physical and social infrastructure with the rapid promotion of industrialisation.

c. Incentives will be provided to raise the level of technology. High technology industries will be planned to produce electronic equipment and components. Locally produced capital goods and machinery will also be encouraged to minimise the expenditure of foreign currency.

d. The private sector will be encouraged to come forward in the support of the industrial development programmes. More powers will be transferred to the provinces and there will be fewer bureaucratic controls.

e. It is proposed that projects with capital costs up to Rs. 1000 million will be provided with loans according to an agreed debt-equity formula. Projects with capital costs above Rs. 1000 million will require government participation unless the funds are supplemented through finances arranged by foreign participation. The government would consider providing help in setting up large scales units in the private sector by providing funds arranged through financial institutions.

The present government has initiated some programmes for balancing the social and economic development in the country. The success or failure of the programmes very much depends upon the budgeting, implementation and monitoring mechanism. However,

the programmes show the shape of plan and policy of the present government towards the overall development of the economy of the country. Some of the most important programmes are the following:

### 3.6.1 Social Action Programme (SAP)

This programme was launched in 1992-93 to address the imbalance and neglect of social development in a coordinated and concerned manner. Initially a 3 years SAP 1992-93 to 1995-96 was formulated but later it was overtaken and replaced by a 5 years SAP, 1993-98. The SAP focuses on broad targets and requires a huge outlay in its five areas covered, ie. basic education, primary health, nutrition, population welfare and rural water supply and sanitation.

The main objectives of the SAP are the removal of poverty, incorporation of gender concerns, improved rural access and environmental equality. The responsibility for implementation of the SAP lies with the provincial governments with the involvement of the private sector, non-governmental organizations (NGOs) and the community in general to make programme which is oriented to the majority of the population.

### 3.6.2 Pakistan Baitul Mal

The Pakistan Baitul Mal was established in 1992 with a capital of Rs. 2 billion to provide financial relief to widows, disabled persons, orphans and the destitute. A food stamps programme has also been introduced throughout Pakistan to help low income families in

the range of Rs, 1500 per month. The Baitul Mal spent Rs. 450 million on the disbursement of the food stamps Rs. 2.5 billion has been set aside for continued operation of the food stamps for the year 1994-95.

### 3.6.3 Rural Development

Rural development in Pakistan has not kept pace with the rapid progress and change that has characterized the advancement of the urban areas. This lag is both materially and qualitatively visible in general poverty, social amenities, as well as communication facilities. The various programmes of rural development that have been undertaken specifically to address these issues have had a history of mixed results that goes back to the Community Development Programme in the fifties, the Rural Works Programme in the sixties, the Integrated Rural Development Programme and Local Government System of the seventies. In 1985, the Five Point Programme was launched. In 1989 the People Works Programme and in 1991 the Tameer-e-Watan Programme were started. These efforts presented the various approaches that have evolved over time to accelerate the pace of rural development.

The present government has started some programmes for rural development to bridge the gap between the rural and urban areas of the country. These are the "Foreign Assisted Programme for Water Supply and Sanitation", "Farm-to-Market Roads", and "People's Programme". We shall discuss here only the People's Programme, because the government is expecting a lot from this programme. Since 6th December 1993 the Peoples Programme has been in operation. Initially Rs. 1749 million was allocated for

the period 1993-94. The basic concept and approach of the programme is the participation of the elected representatives of the people, senators and the members of the national assembly (MNAs). They will identify development schemes in their respective constituencies on the basis of their assessment of the development needs of the areas. The Peoples Programme seeks to redirect development efforts through a continuation of strategies that are helping to identify areas for quick uplift and that are influencing domestic policies towards the larger issue of the rural poverty. As an approach it falls under the overall umbrella of the agenda for change that is enshrined in the Peoples Party's Manifesto.

### 3.6.4 The Task Force on New Social Contract

The Task Force on the Social Contract was constituted to propose ways and means for a better balance of power, with redistribution of functions between the federation, provinces and local bodies in order to make government more effective and responsive to the needs of the people.

The transfer of power to the people at grass root level through the new proposed social contract is imperative for strengthening democracy, economic development and national security. The Task Force began its work in October 1993. A series of detailed consultations were held involving people from all strata of society in urban and rural areas to make the work effective and to bring it closer to reality. The Task Force prepared a draft report which now is under consideration by the government. (Economic Survey 1993-94 : pp. 121-126).

## 3.7 ISLAMISATION OF THE ECONOMY

The nature of the Islamic Economic System is such that it has to operate within the broad ethical framework of Islam in which a set of rules lays down the norms of the economic behaviour. The economic activity under the Islamic Economic System is guided by socially desirable objectives and moral values. Islam makes it socially obligatory to engage in activities which provides for necessities of life so that the people at large do not suffer. The Islamic Economic System is based on the 'Quran' (Muslims' holy book). Under the Islamic Economic System production and trade of certain undesirable goods has been prohibited, this provides the concept of allocating resources for production of socially desirable goods. Trades which cause indecency and immorality are prohibited. Although the individual's rights of property ownership has been recognised in Islam, this is an interim ownership since the ultimate ownership of all resources rests with God. The individual economic behaviour of a person is governed by moderation in consumption and abstinence from all prohibited practices.

Under the Islamic Economic System workers are treated as supreme. The employers have been given rules of conduct concerning the hiring or employing labour. The workers should be treated fairly and should also be given reasonable wages by employers. The worker is not to be burdened with excessive and heavy work beyond his physical capability. The workers are also required to discharge their duties honestly and not to do anything unjust against their employers.

A number of taxation measures can be taken by the government or state. The state is to collect "Ushr" and "Zakat" (Zakah) for the welfare of the community. Ushr is a "compulsory collection from land owners possessing more than 12 acres of land at a rate of 5 percent of the value of their crops after allowing cost of production". (Iqbal, 1989: p. 65). And according to the First Schedule of Zakat, by Zakat [we] mean "the compulsory annual deduction is made in respect of eleven types of assets: savings bank accounts and certificates, deposit certificates, National Invest Trust (NIT) units, Investment Corporation of Pakistan (ICP) mutual Fund certificates, government securities, shares of companies and statutory corporations, annuities, and provident funds, at the rate of 2.5 percent of the face value, paid-up value, surrender value, etc as the case may be. In addition to these compulsory deductions Zakah is also collected on a voluntary basis by the Zakat Committees". (Haque, 1987: pp. 452-53). The levy of Zakah affects the economy in a variety of ways. It discourages concentration of wealth and redistributes it to the poor thereby enhancing the social welfare of the community. Zakat, if properly delivered, serves as a social insurance since it is distributed among the poor and the needy. The process of Islamisation of the economy was started on a very modest scale in 1978-79, in Pakistan. Two areas were chosen for the initiation of the process of Islamisation of the economy, viz, elimination of interest and implementation of Zakah.

## 3.7.1 Elimination of Interest

This process started in November 1977 with the appointment of a Panel of Economists and Bankers by the Council of Islamic Ideology, to suggest a complete blueprint for an interest-free economic and financial system for the country. In addition, other committees

were set up during the course of the past five years to study the problems of the existing system and advise the government. On the basis of the report submitted by the Panel of Economists and bankers in February 1980, and the advice of other committees, the government launched a phased programme for elimination of interest from the economy.

According to this phased programme, in phase I, effective from July 1, 1980, the elimination of interest was suggested from:

a. Government transactions, and

b. Operations of Banks and other Financial Institutions.

In phase II, effective from July 1, 1981, the recommendations were to eliminate interest completely from the assets side of the banks and other financial institutions relating to domestic transactions and the remaining elements of interest in the domestic transactions of the government.

In the third phase, effective from January 1, 1982, the recommendations were that banks should not accept deposit on an interest basis from the public. They should accept fresh deposits only on a profit and loss sharing basis. Interest should be eliminated from inter-bank transactions and these transactions should be carried out on a profit and loss sharing basis. The State Bank should not provide finance to banks and other financial institutions on an interest basis and should bring necessary changes in the monetary policy. The actual process was not implemented according to the proposed schedule, but was introduced rather slowly. The major steps taken in this regard are summarised below:

i. In 1979, three public sector corporations namely House Building Finance Corporation (HBFC), Investment Corporation of Pakistan (ICP), and the National Investment Trust (NIT) were asked to conduct their operations on an interest-free basis.

ii. In June 1980, a new financial instrument named Participation Term Certificate (PTC) was introduced to replace debentures.

iii. From January 1, 1981, Profit Loss Sharing (PLS) accounts were introduced in all branches of commercial banks side by side with the conventional accounts.

iv. From January 1, 1985, the parallel system of interest based and interest-free based counters in commercial banks was stopped and all new banks and other financial institutions were provided finance on the basis of non-interest system.

v. From April 1, 1985, financing in case of firms and individuals was required to be provided on the basis of non-interest modes of financing.

vi. From July 1, 1985, banks were prohibited to accept any interest bearing deposits. All deposits were to be on profit loss sharing basis except deposits received in current accounts on which no interest or profit was to be paid.

According to a government announcement, with the measures introduced from July 1, 1985, the process of elimination of interest from the economy was completed with the exception of the government sector and international transactions. (Iqbal, 1989: pp. 61-63). This implies that so far the interest free system have not been implemented in all sectors of the economy.

### 3.7.2 Implementation of Zakah and Ushr

The collection and distribution of Zakah was institutionalised in June 1980 by promulgation of the Zakah and Ushr Ordinance. Collection of Zakah was enacted from the date of the ordinance while the collection of Ushr was enacted form March 1983. The institutional arrangements of the collection of Zakah is spread over all provinces and the Capital Territory of Islamabad. There are 36,672 local Zakat Committees in addition to 294 tahsil/taluqa/sub-divisional committees, 73 District Zakat and Ushr Committees, 4 Provincial Zakat Councils, and one Central Zakat Council at federal level. About 250,000 persons are working on a voluntary basis on these committees. (Haque, 1987:p. 452-53).

## 3.8 CONCLUSION

Finally, we concluded that enough emphasis has been placed on the need for systematic structural changes in the economy. The government believes that the need for such structural changes extend to the educational system where concrete programmes of action for human resources development are necessary to meet the requirements of employers in the labour market. In this context, we suggest there is a need to establish a significant relationship between the educational system and the labour market so that maximum cooperation in the implementation of an integrated economic strategy can be achieved. The economic structure of a country significantly influences the education system, its outputs and their demand in the labour market. The implication is that the education system and the labour market of Pakistan are either dependent upon or influenced by the overall economic development of the country.

CHAPTER FOUR

# MANPOWER PLANNING IN PAKISTAN

## 4.1 INTRODUCTION

This chapter describes in detail, the various manpower planning exercises conducted in Pakistan and the role of different organizations both at the Federal and Provincial level since its inception. It is followed by a "critical examination of manpower planning in Pakistan" in the next chapter. We have divided the planning period into three phases. The details of these phases are presented in the following paragraphs. Manpower planning is an activity concerning the educational and overall economic planning of a country. It may be useful to define explicitly the term "manpower planning" first. According to Ozay, "by manpower planning [we] mean a special function of decision-making in the on-going and regular process of economic policy management". (Ozay, 1985:p. 16).

Todaro defines manpower planning as "the long-range planning of skilled and semi-skilled manpower requirements and the attempt to gear educational priorities and investments in accordance with these future human resource needs". (Todaro, 1989:p. 635). According to Richter, "manpower planning is basically concerned with securing the right number of people with the right qualifications for the right jobs at the right time". (quoted in Abegaz 1994: pp. 8 - 9).

Bowey (1974), subdivided manpower planning into three broad categories of activity. Firstly, the assessment of the future requirements for labour. Secondly, the assessment of the firm's likely ability to train the labour it has at present, and calculation of optimum rates of replacements of the employees. Thirdly, the prediction of the firms' likely ability to acquire or attract labour of different types of requisite skills. (Bowey, 1974:p. 4).

In the context of manpower planning in Pakistan, "the supply of suitably trained manpower, with needed skills in the correct place at the right time, is whole essence of manpower planning". (Hawthorn Institute of Education 1989: /17/ p. 1).

Ideally manpower planning attempts to anticipate likely bottlenecks in the labour market arising from an imbalance in the supply and demand for manpower. This is achieved by taking into account various factors of the supply and demand for specific categories of manpower over time.

## 4.2 MANPOWER PLANNING ORGANISATION AND THEIR FUNCTIONS IN PAKISTAN

In Pakistan, the personnel dealing with the employment and manpower planning are spread over various ministries and departments at both the federal and the provincial levels. The Manpower and Overseas Pakistanis Division and Manpower Section of the Planning Commission at the federal level and the Directorates of Manpower and Training at the provincial level are the institutions directly charged with the task of employment, and manpower development.

### 4.2.1 Manpower and Overseas Pakistanis Division

The Manpower Division (MD) is one of the two divisions within the Ministry of Labour, Manpower and Overseas Pakistanis. It was established in 1973. In 1978 the Overseas Pakistanis Wing was attached to it. The Manpower Division (MD) prepares mid-term manpower plans. It also undertakes manpower projection exercises as inputs to the Five Year Plans. The main responsibility of the Manpower Division is to formulate, monitor and evaluate policies related to the development and utilization of human resources including overseas migration. The Manpower Division is divided into different wings, but the Research and Welfare Wing is directly involved in the task of manpower planning in Pakistan. This wing is divided into the following four sections.

i.   Employment Promotion Section.

ii.  Manpower Supply Section.

iii. Manpower Demand Section.

iv.  Research and Statistics Section.

The Employment Promotion Section is responsible for monitoring the employment situation and analysing trends in employment, unemployment and under-employment and changes in the characteristics of the labour force. It is also required to asses the employment impact of various ongoing or suggested programmes and projects and assist in policy formulation for employment promotion. Lastly, its functions include supervision and assistance to the employment exchanges, employment information bureaus, vocational guidance and youth employment, and national employment programmes and projects.

The Manpower Supply Section is responsible for making detailed projections of the growth of the labour force and changes in its social, economic, educational, gender, and other characteristics for the short, medium, and long term future. This section also monitors and assesses the supply of high level manpower from educational and training institutions and advises on the development of policies and programmes in the fields of education and training.

The Manpower Demand Section is concerned with monitoring and analysing the demand for manpower by gender, occupation, skill, and educational level. This section undertakes studies of the occupational patterns in various industries. Its functions are also to identify gaps, bottlenecks and shortfalls in development programmes, that may be attributable to manpower shortages.

The Research and Statistics Section is responsible for undertaking research on a wide range of issues related to human resource development, cooperating with a number of international agencies in this field, disseminating research results and other information on human resource development issues through publication of research papers, books, and through organizing conferences and symposia.

### 4.2.2 The Planning Commission

All development schemes emanating from various provincial and federal government agencies are submitted to the Planning Commission. The provincial governments have

the right to approve projects with a total budget of less than 60 millions, whereas for federal ministries this right is confined to projects costing less than 20 millions. The development schemes of provincial governments costing over 60 millions are approved by the Central Development Working Party (CDWP), headed by the Deputy Chairman, Planning Commission. The schemes of the federal ministries costing over 20 millions are approved by the Executive Committee of National Economic Council (ECNEC), headed by Minister of Finance.

The PC-I form (see Annex. E) on which schemes are submitted to the Manpower Section, consist of three parts A, B, and C. The Part-C is required to contain detailed information on manpower and employment. Sponsoring agencies are required to state clearly the manpower requirements by skill categories (professional, technical, skilled and unskilled), separately for project construction, execution and project operation. This part also requires information on (i) likely shortages by categories, (ii) steps required to make manpower available, for example, indicate as to whether the required manpower is locally available or not and also whether the shortage is temporary. (iii) personnel required to be trained locally and abroad by trade/skill/occupation , and (iv) the cost of mobilizing workers. The Manpower Section is responsible for the following functions:

a)    Preparation, processing and evaluation of plans, projects in the manpower sector.

b)    Formulation of annual plans, and annual development plans for manpower development within the framework of the national plans.

c)    Examination of development programmes related to the development of manpower in the economy.

d)    Review and evaluation of progress in implementing the national plans in consultation

with appropriate authorities and agencies.

e) Monitoring of development projects of federal ministries and provincial governments regarding their manpower and employment aspects.

f) Identification of problems and bottlenecks and suggestion of remedial measures concerning the development of manpower resources and functioning of the labour market.

Other institutions involved, directly or indirectly in manpower planning at federal level are:

i. The Ministry of Education, Islamabad.

ii. The Statistics Division, Islamabad.

iii. The Ministry of Women's Development.

## 4.2.3 The Ministry of Education

The Ministry of Education, in addition to operation and management of educational institutions, is charged with responsibilities for formulation of development plans and policies and their implementation in the country. This department is also responsible for scholarships and overseas studies, grants and for providing development educational budgets to the provinces. It discharges its functions through its different technical wings/sections and a number of autonomous bodies. Its technical wings are:

a) Administration Wing.

b) Planning and Development Wing.

c) Primary and Non-Formal Education Wing.

d) Institutions Wing.

e) Supports and Welfare Wing.

f) Curriculum Wing.

g) Children's Literature Cell.

Some of the important autonomous/attached organizations of the Ministry of Education are:

i.   The University Grants Commission.  (UGC)

ii.  The National Education Council.  (abolished by the Interim Government in October, 1994)

iii. The National Bureau of Curriculum and Text Books.

iv.  The Academy for Educational Planning and Management.  (AEPAM).

v.   The Central Bureau of Education.  (abolished by the Interim Government in October, 1994)

(Report of the National Manpower Commission 1989: p. 233)

These wings/sections/and attached organizations of the Ministry of Education are directly or indirectly involved in educational planning in the overall context of Five-Year Plan and policies.  It is not possible to describe the functions of each of these organization. However, it is worth giving some brief description of the following organizations because of the involvement of these institutions in human resource development planning in the country.

**i. The University Grants Commission (UGC)**

The University Grants Commission (UGC) is a federal level body which was established in 1974 in Islamabad. UGC is mainly responsible for the revision of curricula of graduate and post-graduate level courses in the country. It is also responsible for securing funds both recurring and non-recurring from the federal government through the Ministry of Education and releases these funds to the universities according to their appointment and requirements. UGC has also started in-service/pre-service training programmes for teachers in degree colleges and universities at the Academy of Higher Education. (Rasul, 1991: p. 32).

**ii. The Academy for Educational Planning and Management. (AEPAM)**

The Academy for Educational Planning and Management organizes training courses in planning and management for educational planners, administrators and supervisors working at different levels in the federal and provincial education departments. The main clientele of this organization include Principal of Colleges, District Education Officers (DEOs), Principals of Teacher Training Institutions and Planning Officers working on the Planning and Development Boards of the provinces. (Farooq, 1993: p. 12).

**iii. The National Bureau of Curriculum and Text Books**

The National Bureau of Curriculum and Text Books is mainly responsible for developing and reviewing the curriculum for Secondary Schools and Higher Secondary Schools at

federal and provincial levels in the country. The writing and publishing of textbooks is the responsibility of the Provincial Textbook Boards. However, they seek approval from the Ministry of Education for the publication of the textbooks.

### 4.2.4 The Statistics Division

The Statistics Division is responsible for the production of statistics on employment and manpower and other issues related to human resource development. In this context, this division undertakes censuses and field surveys and collects data from various organisations. It performs its functions through its different technical departments. Its technical departments are:

a. The Federal Bureau of Statistics. (FBS)

b. The Population Census Organisation. (PCO)

c. The Agriculture Census Organisation. (ACO)

A number of enquiries and surveys on related manpower and employment are conducted regularly by the Federal Bureau of Statistics, for instance, the labour force survey (LBS), the annual establishment enquiry (AEE), the census of manufacturing industries, the survey of small scale household and cottage industries, and income and expenditure surveys.

### 4.2.5 The Population Census Organization

The Population Census Organisation undertakes population censuses, and the Agriculture

Census Organisation undertakes agriculture censuses. Usually census data are available in census years at ten year interval. In Pakistan, the latest data available, was collected 14 years ago, in 1981. Political upheaval prevented a census being undertaken in 1991.

## 4.2.6 The Ministry of Women's Development

The Ministry of Women's Development was first established as a division and is responsible for (i) formulation of public policies and laws to meet the special needs of women, (ii) registration and assistance to women's organisations and (iii) undertaking and promoting projects for providing special facilities for women.

At the provincial level, the Planning and Development Departments (in the case of Punjab, Planning and Development Board) and the Departments of Education are the main agencies responsible for implementing government policies in the field of human resource development. These activities include collection, processing and dissemination of labour market statistics, employment promotion through employment counselling, training and apprenticeship schemes and administration, supervision and control of respective organisations in the field of training and employment promotion. (Report of the National Manpower Commission, 1989: pp. 229-236)

In the context of Pakistani manpower planning, it can broadly be divided into following three phases:

i. The period from 1947 to 1973.

ii. The period from 1973 to 1988.

iii. The period starting from 1988 to date.

## 4.3 THE PERIOD FROM 1947 TO 1973

In this phase a series of initial steps and measures were taken regarding employment and manpower planning. For this purpose, in 1947, the Department of Manpower and Employment was established in the country. Its prime concern was to deal with the military needs and to facilitate the rehabilitation of demobilised personnel. In 1955, the department conducted the first manpower survey in the country with the assistance of the International Labour Organization (ILO). The results of the survey were used as an input into the First Five-Year Plan (1955-60). On the basis of this survey, the estimates of the labour force, employment and unemployment were made for the year 1955 as a base year. It was assumed that for the plan period (ie. 1955-60) the employment would increase sufficiently to absorb the incremental labour force, but for the absorption of the labour force, particularly the rural labour, this plan did not have any comprehensive approach for assessment of manpower availability and requirements. (First Plan, /8/ p. 593).

In the Second Five-Year Plan (1960-65), some efforts were made to estimate the labour force for the plan period (ie. 1960-65), but this plan did not quantify the future employed and unemployed manpower. However, for some selected categories of manpower, the supply and demand were worked out on the basis of proposed physical and investment targets, which revealed a shortage of technical manpower. For example, according to the estimates about 4,400 graduate engineers of various types, architects, town planners and surveyors, 800 graduate chemists, physicists and other physical scientists, and 13,700

diploma level draughtsmen, scientific and engineering technicians would be needed by the end of the plan. About 2,400 and 3,000 diploma level technicians in these categories would have been produced during the plan period. (Second Five-Year Plan, /16/ P. 370).

To overcome the problem of a shortage of technical manpower, the plan suggested the following measures:

a) Mobility of technical workers should be encouraged between industries, occupations and geographic areas whenever trained personnel could be better utilized than in their existing locations.

b) Relaxation in age requirements of employment and incentives in pay, status and amenities.

c) Eliminating disparities between the pay and status of technical workers and other personnel.

d) Employment within the country of technical personnel should be encouraged by all means to stop the high rate of emigration.

e) Appointments of technical personnel on jobs of a technical nature.

f) On the job training facilities will be provided to the craftsmen.

g) Consulting the firms from abroad in this regard.

h) Arranging double-shifts in the existing technical institutions both in public and private sector. (ibid. p. 371).

These suggestions provide evidence that planning in Pakistan should be flexible and must consider the currently employed rate of wages in the labour market. Detailed comments will be made in the following chapter.

In the Third Five-Year Plan (1965-70), proper utilization of manpower was recognised as both a social challenge and economic requirement. This plan adopted an "international comparison method" to provide detailed labour force projections and sectoral break-downs of the labour force. The international comparison method will be discussed later on in this chapter. The plan also estimated the requirements of the country in some of the major groups of occupations, and four categories of education. The categories of education level to be taken into account were as under:

i. degree level and above

ii. diploma level (matric + three year diploma)

iii.certificate level (matric + training course less than three years)

iv.below certificate level (training without basic education of high school or equivalent).

On the basis of the pattern of development it was assumed in the Third Plan that there would be an acute shortage of highly educated professional manpower such as scientists, agronomists, veterinary surgeons, doctors, economists, and statisticians. (Third Five-Year Plan, /10/ pp. 218-221).

It is observed that the figures in the plan for employment and unemployment were given in mean values rather than numbers and hence involved arbitrary conversion ratios between the plan estimates and the available statistics.

## 4.3.1 The Study on Manpower and Educational Requirements in Pakistan

Ruud conducted a detailed study on manpower and educational requirements of Pakistan for the period from 1961 to 1990. It was published by the Planning Commission, Government of Pakistan in 1970. The study consists of two parts:

a) an exercise on projecting manpower and educational requirements,

b) a comparison of availabilities and requirements.

### 4.3.1.1 Objectives of the study

The main objective of the study was to serve as broad guidelines for target setting in the field of manpower for the Fourth Five-Year Plan (1965-70) and perspective plan (1976-90).

The other important objective was to present a conceptual and methodological framework which may serve as a guide to requirement estimates exercised in the future. Another objective was a comparison of availabilities and requirements for both manpower and education.

This was a less technical and a more policy oriented component of the study. It was claimed that this part covers speculative questions of interpretation and reliability of estimates and deals with the actual developments of the past and problems of the future. It also served as a link between the various projections and other analyses on one side and plan formulation on the other. (Ruud, 1970: p. 2).

## 4.3.1.2 Conceptual framework

The important features of the conceptual framework were as follows:

a) The recipients of education, including pre-service training were referred to as "students", regardless of their level of education, and recipients of in-service training of all types were named as "trainees".

The classification of education was based on a proposal for an international standard classification of education (ICED) prepared by UNESCO. According to the proposal, the classification is as below:

first level,

second level at lower stage,

second level at higher stage,

third level without degree,

third level with degree, and

third level with higher degree.

(ibid. p. 5).

The study projected only three major levels: first, second, and third. According to the study an educational programme or course belongs to the first level if it requires less than 8th grade in general education. It belongs to the second level if it requires at least 8th grade passed in general education before entry, and it belongs to the third level if it requires at least 12th grade or degree before entry. It is noteworthy that only courses of

at least 6 months full-time or equivalent part-time duration were considered in the framework. (ibid. p. 6).

Specialised education was divided into the following specializations:

Humanities and Social Sciences,

Natural Sciences,

Teaching and Education,

Law,

Commerce and Business Administration,

Craft, Technology and Engineering,

Medicines,

Agriculture, Forestry, and Fishery,

Home-Economics,

Other Areas.

(ibid, p. 6).

## 4.3.1.3 Stocks and flows

The study considered only four variables determining the change in any group over time. It followed the relationship which applies to the change in any group of entities during any given period of time. It is mathematically presented as:

$$a + b = c + d$$

where,

a = stock of entities in the beginning of the time period.

b = inflow of entities during the period.

c = outflow of the entities during the period.

d = stocks of the entities in the end of the period.

The study also followed the following system of symbols:

L   = labour force

S   = student population

Lct = outflow of labour force during the period t.

Sat = stock of student population at the beginning of the period.

Sbt = inflow (admission) of the students during the plan period t.

## 4.3.1.4 Admission, enrolment, graduation, and drop out of students

The authors of the study has taken into account the following variables:

$$a + b = c1 + c2 + d$$

where,

a = number of students on roll at the beginning of the (reference) year.

b = number of students who were admitted during the year.

c1 = number of students who completed (graduation) during the year.

c2 = number of students who left without completing (dropout) during the year.

d = number of students on roll at the end of the year.

**4.3.1.5 Reference dates and periods**

In the study, all the stocks were defined as the end of January and consequently, all annual flows were for the period 1 February to 31 January following year.

**4.3.1.6 Approach adopted in the study**

In the study, the "structural approach" was adopted . This approach lays emphasis on long term structural change and economic growth in development planning.

**4.3.1.7 Methods of projections**

In this exercise the methods actually followed were:

a) Manpower requirements by sector of economy.

b) Manpower requirements by occupation and level of education.

c) Manpower requirements by area of education.

d) Educational requirements by level and area of education.

**a. Manpower requirements by sector of economy**

This is a mathematical model, which was prepared by the International Labour Organization (ILO), and based on a regression analysis of about 40 developed and developing countries. This model relates employment in each of the main sectors to per capita national income is shown in the Table 4.1:

**Table 4.1**

Showing per capita national income by sector.

| Sectors | Functions | R |
|---------|-----------|---|
| log (100E0/N) | $1.783 - 0.106\ (\log Y/N)2$ | .712 |
| log (100E2-3/N) | $-0.014 + 0.105\ (\log Y/N)2$ | .825 |
| log (100E4/N) | $6.045 + 4.206\ \log Y/N - 0.676(\log Y/N)2$ | .826 |
| log (100E5/N) | $-2.193 = 0.581\ \log Y/N$ | .810 |
| log (100E6/N) | $0.046 + 0.072\ (\log Y/N)2$ | .827 |
| log (100E7/N) | $-1.124 + 0.487\ \text{Log}y/N$ | .800 |
| log (100E8/N) | $-1.124 + 0.344\ \log Y/N$ | .800 |

where

N       = Population.

Y       = GDP in 1960 US dollars.

Eo      = Employment in agriculture,forestry, and fishing.

E2-3 = Employment in manufacturing

E4      = Employment in construction.

E5      = Employment in gas, water, and electricity services.

E6      = Employment in commerce.

E7 = Employment in transport and communication.

E8 = Employment in services.

All these formulae were aggregated as below:

$\log (100Ei/N) = bo + b1 (\log Y/N) + b2(\log Y/N)2$

(Based on Ruud, 1970: pp. 10-11).

In this context, the following steps were taken:

a) Values for the independent variables Y and N were inserted for the base year 1961 as well as for all years of projection and unadjusted estimates of the dependent variables 100Ei/N for all years were arrived at.

b) All estimates (a) were adjusted by a constant factor which is equal to the difference between the unadjusted estimates of 100Ei/N for the base year and its actual value, (ie census).

c) The adjusted 100Ei/N estimates (b) were multiplied by the population estimates N and arrived at employment estimates Ei for all years.

It was recognised in the study that "the model was used only to project changes not levels of sectoral employment. Practically, this was made by adjusting the model estimates 100Ei/N to the actual for the base year 1961 and keeping this adjustment constant over the whole projection period". (Ruud, 1970: p. 12).

## b. Manpower requirements by occupation and a level of education

In this context, the following methods were used:

i.   Indirect Method.

ii.  Direct Method.

iii. International Comparison Method.

## i. Indirect Method

In this method the projections were made in two steps:

a) The sectoral employment estimates (Ei) were multiplied by occupational patterns of sectors of economy within each sector resulting in absolute estimates of employment by occupation.

b) The latter estimates of employment (EI) were multiplied by educational patterns of occupations resulting in the estimates of employment by level of education.

## ii. Direct Method

In this method a single step leading directly from sectoral projections to educational projections was taken into account. This step involved the multiplication of the sectoral employment estimates by educational (level) patterns of economic sectors resulting in estimates of employment by level of education.

### iii. International Comparison Method

This method is based on the population census 1961 and on comparable statistics from 10 foreign countries. It was assumed that "Pakistan's economy would tend to behave in the same way as the other countries". (Irfan, 1974: p. 199). The study made an assessment of the employment situation in the base year (ie 1961), and the percentage distributions of future employment, as given below:

a) Occupational patterns of economic sectors 1961-75.

b) Educational patterns of occupations 1961-75.

c) Educational patterns of economics sectors 1961-90.

The occupational patterns were projected on the basis of previous trends 1951-61.

The educational patterns were based on the assumption that there are linear relationships between employment patterns and levels of productivity.

After having compared the estimates from the three methods, final estimates were selected. According to the study, these estimates had the following characteristics:

a) The basis for 1961 is equal to the actual value for that year.

b) All estimates fall within a large range which is limited by the lowest other estimates on one side and the highest other estimates on the other side. (ibid, pp. 13-15).

### c. Manpower requirements by area of education

In this study, the "balanced growth" method was adopted which is a kind of judgement

in which the observations of relative distributions play a major role. In this procedure the relative distributions are calculated on the basis of alternative percentage growth rates. It was claimed that the growth rates finally selected resulted in the most reasonable relative future educational structure of the labour force. The study took some considerations into account, some of those are the following:

a) The need for specialists grows faster than for generalists in the country. This means that there will be relatively more specialists in 1990 than in 1961.

b) The trend towards specialisation must be reasonably high in light of the changing sectoral structure of the labour force.

c) If the stock of a certain category seems relatively low in the base year a relatively high growth rate is justified.

(ibid, pp. 15-16)

### d. Educational requirements by level and area of education

In the study conducted by Ruud, it was assumed that there is one category of education and one plan period of five years. It was generalized for various categories of education and for successive plan periods of different durations. In this context, different variables for a different set of population were selected. For example, the variables taken into account concerning the labour force were:

$$La + Lb = Lc + Ld$$

where

La = Persons in the labour force at the beginning of the plan period (i.e. First February 1970 for the period 1970-75)

Lb = Persons who joined the labour force during the plan period.

Lc = Persons who left the labour force during the plan period

Ld = Persons in the labour force at the end of the plan period.


For students the following variables were considered:


$$Sa + Sb = Sc1 + Sc2 + Sd$$

where

Sa = Students on roll at the beginning of the plan period.

Sb = Students who were admitted during the plan period.

Sc1 = Students who completed(graduates) during the plan period.

Sc2 = students who left without completing (dropout) during the plan period.

Sd = Students at the end of the plan period.


In addition the following coefficients were used in the study:


$\underline{a}$ = Lc/La    (for attrition ratio)

$\underline{p}$ = Lb/Sc1   (for participation rate)

$\underline{g}$ = Sc1/Sa   (for graduation ratio)


The following three equations were derived in this study:


i.   Lb = Ld - La + $\underline{a}$ La

ii.  Sc1 = Lb/$\underline{P}$

iii. Sa = Scl/g

These equations were used to calculate the stock of educated manpower at the beginning and the end of the plan period, the required inflow of labour force during the plan period (Lb), graduation of students during the plan period (Scl), and the enrolments of the students at the start of the plan period (Sa).

It is realised in the study that the model is rather crude for analysing the dynamics of the school population. It does not show explicit interflows between various levels and areas of school population, for example, the flow from lower to higher stage of second level general education. The study has emphasised specialised education as compared with general education. In this context, according to the study, the problem of interflow appears to be less important. (ibid. pp. 16-17).

## 4.4 THE PERIOD FROM 1973 TO 1988

In 1974, Irfan used the both "sector-wise" and the I.L.O. model for determining the manpower requirements for 1970-85. He worked out the availability of the labour force by two different activity rates. The rates used by Irfan were:

a) the five year average (1968-72) provided by the survey of Central Statistical Division, and

b) the estimates given by Karwanski's study on manpower planning in Pakistan.

### 4.4.1 Estimates of Manpower and Employment

In this study the labour force was estimated to be 20.6 million for 1970 and 30.98 million for 1985 according to Central Statistical Division whereas the corresponding estimates by Karwanski were 17.6 and 27.1 million respectively. The difference of about three million in the two estimates remained constant throughout the period 1970-85. This is due to the fact that both the studies were based on identical base population. In the case of requirements estimates, however, the estimated difference between the highest and the lowest, was increased from 1.5 million in 1970 to 8.7 million in 1985. Thus, the resultant unemployment estimates were 0.40 million (lowest) and 6 million (highest) for 1970, and were raised 2.04 million and 13.2 million in 1985. Ruud, used some of the findings of a "study group" on employment and manpower development undertaken 1970. The study revealed that:

a) On an average only one out of 15 applicants is placed in a job through employment exchanges.

b) Educated manpower has been 20 percent of the new entrants into the labour force since 1968, and 30 percent of these educated new entrants are unemployed.

c) Pilot studies in rural areas revealed an employment rate of 17.9 percent. (quoted in Irfan, 1974: p. 200).

These estimates are given in the table 4.2:

Table 4.2

Labour force, requirements and availability projections (1970-85).

(In 000's)

|  | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|
| **Labour force availability based on:** | | | | |
| a) CSO Activity Estimates | 20,619 | 23,510 | 26,991 | 30,985 |
| b) Karwanski's Estimates | 17,616 | 20,283 | 23,445 | 27,073 |
| **Requirements based on:** | | | | |
| **A. ILO model:** | | | | |
| i. Lowest | 14,609 | 16,065 | 17,012 | 17,811 |
| ii. Highest | 16,149 | 16,675 | 21,852 | 25,973 |
| **B. I.A.C.P. Unemployment Estimates:** | | | | |
| i. Lowest | 408 | 1,028 | 1,589 | 2,044 |
| ii. Highest | 6,010 | 6,455 | 9,879 | 13,176 |

(Based on Irfan, 1974: p. 203)

Note: CSO stands for Central Statistical Office, and IACP stands for Investment Advisory

Centre of Pakistan.

According to the estimates given in the Table 4.2, the unemployment rates in the country are very high and increasing over time. Similarly, Hussain states that on the basis of the existing trend "the unemployment as a percentage of the labour force can be anywhere between 0.4 percent to 42 percent in 1985". (Hussain, 1987: p. 63).

In 1975 the Civil Government was replaced by Martial Law government, and consequently the Fourth Five-Year Plan was abandoned. Annual development plans replaced the fourth five-year plan during that period. In 1978 the Fifth Five-year plan, (1978-83) was implemented in the country.

The Fifth Five-Year Plan took the following dynamics of population into account:

1. The total population as 75.62 million in 1977-78, while in 1982-83 it was estimated to be 86.90 million.

2. The population in working ages (10-64 year) was projected to increase from 49.4 million in 1977-78 to 57.1 million in 1982-83. The working age population in urban areas will be increased from 13.5 million to 16.8 million, twice the rate of increase in the rural working age population from 35.9 million to 40.2 million.

3. Less than one-third of the population forms the labour force. There are two reasons given in the plan for this gap between the labour force and the working-age population. Firstly, all persons above 10 years are considered to be the part of the working-age population, but according to plan, the participation rates in the 10-14 years and even the 15-19 age group are fairly low. Secondly, female participation in the labour force is only 6 percent of the working-age population.

4. The plan projected that there will be 36 percent increase in the female labour force by 1982-83.

5. The labour force was expected to increase by 3.84 million, from 22.22 million in 1977-78 to 26.6 million in 1982-83.

6. The net addition to labour seeking jobs within the country was expected to be 3.46 million. Assuming the rate of open employment is constant, an increase in employment opportunities of 3.38 million would be required.

7. The level of employment for 1977-78 had been estimated at 21.84 million.

(Fifth Five- Year Plan, /3/ pp. 15-17).

The Fifth Plan projections were related to the plan targets for sectoral contribution to the GDP growth. According to these projections the level of employment would rise to 25.22 million. The bulk of internal job creation ie, 48 percent would be in agriculture sector, 16 percent in manufacturing, 14 percent in wholesale and retail trade, and 11 percent in services. The details of employment level in 1977-78 and the estimated increase is given in the Table 4.3.

**Table 4.3**

Projections of employment by major sectors of economy 1978-83.

| Activity | Annual growth of GDP 1978-83 (percentage) | Internal Employment Level 1977-78 (millions) | Annual projected growth of Employment 1978-83 (percentage) | Projected Internal Employment level 1982-83 (millions) | Projected increase in Internal Employment 1978-83 (millions) |
|---|---|---|---|---|---|
| Agriculture | 6.0 | 12.31 | 2.5 | 13.98 | 1.62 |
| Manufacturing | 10.0 | 2.92 | 3.5 | 3.47 | 0.55 |
| Electricity, Gas and Water | 6.9 | 0.11 | 3.0 | 0.13 | 0.02 |
| Construction | 8.4 | 0.90 | 3.3 | 1.06 | 0.16 |
| Trade | 7.7 | 2.30 | 3.9 | 2.78 | 0.48 |
| Transport and Communication | 7.7 | 1.02 | 3.5 | 1.21 | 0.19 |
| Services | 5.0 | 2.23 | 3.0 | 2.59 | 0.36 |
| Total | 7.0 | 21.84 | 2.9 | 25.22 | 3.38 |

(Based on Fifth Five-Year Plan, P. 17)

i. To increase the agricultural income and overall employment opportunities in the sector, the following steps were suggested in the Fifth plan:

a) Promotion of small and agro-based industries through development of appropriate technology in rural areas.

b) Expansion of rural electrification, farm to market roads, infrastructure construction, water supply and drainage, and social service schemes etc.

ii. To increase the labour productivity the following measures were suggested:

Improving technology in small scale manufacturing, construction and such occupations which can provide gainful and productive employment to small and barrani farmers.

iii. The plan pointed out a trend of shortage of various technicians for the plan period, ie 1977-78 to 1982-83. It is observed that in 1977-78, this shortage was 4500, but it was estimated to have increased to 8500 by 1982-83. The detailed figures are given in the Table 4.4.

**Table 4.4**

Imbalances between the availability and the requirements of technicians for the period 1977-78 to 1982-83.

| 1977-78 | | 1982-83 | |
|---------|---------|---------|---------|
| Availability | Requirements | Estimated Availability | Estimated Requirements |
| 44,000 | 48,000 | 51,000 | 80,000 |

To overcome this problem of the shortage of the technical manpower for the plan period, ie 1977-78 to 1982-83, the manpower training programme was proposed to be launched by the federal government. The skill development training was proposed to be imparted through a modular system. The rural and the under-developed areas were to be given priority through farm machinery programmes. Along with enhancing the facilities for technical training, it was suggested that the migration situation be kept under continuous review to keep the balance between the demand and supply situation within the country and abroad.

In 1983 Cohen conducted a detailed study on an estimated framework for the Sixth Plan (1982/3-1987/8), with the collaboration of Pakistan/Netherlands Project On Employment Income And Basic Needs. The Manpower Division Islamabad, Govt. of Pakistan

published this study in February, 1983. In this study, demand and supply forecasts were made in detail, for the Sixth Five-Year Plan.

## 4.4.2 Demand Forecasts

These forecasts were made involving the following steps:

i. By mode of employment (wage, non-wage) and activity. Wage activities are those in which the worker is paid a salary at the going "free" market wage rate. For instance, teachers, doctors, engineers etc. Non-wage activities are those in which workers are not paid a salary at on going "free" market wage rate. For example, Housewife, and agricultural workers.

ii. Extension of forecasts to occupational groups.

iii. Extension of forecasts to educational levels.

The following parameters were utilized in applying the demand forecasts:

First, macro parameters relating to the growth of the labour force, unemployment rate, employment elasticities and sectoral growth. The unemployment rate is defined as "the number who claim that they had no work during the week preceding the survey and were actively looking for work". (The Report of the National Manpower Commission, 1989: p. 11). The employment elasticity is defined as "the rate of growth of employment divided by the rate of growth of output". (ibid. p. 17).

Secondly, the construction of activity/occupational cross-tables for wage employment and

for non-wage employment were based on the Annual Establishment Survey (AES) and the Labour Force Survey (LFS), both of 1978/9. The procedure adopted for this purpose consisted of the following steps:

a. Planners filled in the wage table for 1978/79 making use of the structure of Annual Establishment Survey (AES), 1978/79. Cells which exceed the total for Labour Fore Survey (LFS), were allocated fully to wage employment.

b. They obtained the non-wage table after deducting the wage employment from the LFS.

c. They checked the plausibility of the obtained cells in tables wage and non-wage, only when absolutely necessary applying common sense reallocations.

d. They applied the Regression Analysis method to validate wage to the observed total by activity and occupation for 1978/79 and similarly, for non-wage employment.

e. They computed the matrices of distributional rates for wage and non-wage which provided the basis for forecasting occupational requirements in the text.

Thirdly, the extension of the demand forecasts to educational levels is based on the occupational/educational cross-tabulation of the LFS, 1978/79.

(Cohen, 1983; Appendix I: p. 38)

## 4.4.2.1 By mode of employment (wage, non-wage) and activity

In this mode employment was categorised into wage employment consisting of employers and employees, and non-wage employment consisting of self-employed persons and unpaid family helpers.

According to the study the wage employment was 30 percent of the total employed, and it was declining in contrast to the growth of GDP which has been accelerating. As a result the employment elasticity for wage category has declined from 2.03 in 1970/71-1974/75 to 1.66 in 1970/71-1978/79, and to 1.26 in 1970/71-1981/82. (Cohen, 1983: p. 3). This implies a decrease in the elasticity of 0.44 for the plan period (1982/3-1987/8).

Non-wage employment was stated as 70 percent, but non-wage employment elasticity was declared as 0.32 only in the country. (ibid. p. 3).

The study showed the past elasticities for wage and non-wage employment by activity as below:

i. The construction and electricity sub-sectors had the highest wage employment elasticity, followed by trade, manufacturing and agriculture. Non-wage employment elasticity was the highest in electricity, followed by services, agriculture and trade. It appeared that there was no easy entry for non-wage workers into manufacturing, construction and transport because of a requirement of specific knowledge or capital. The detail are given in the Table 4.5.

**Table 4.5**

Annual growth rates and employment-output elasticities, by mode of production and activity 1970/71-1978/79.

| Activity. | Annual Growth GDP (percent) | Annual Growth of | | Employment-Output Elasticity. | |
|---|---|---|---|---|---|
| | | Wage Employment (percent) | Non-wage Employment (percent) | Wage Employment | Non-wage Employment |
| Agriculture. | 2.58 | 3.54 | 1.48 | 1.37 | 0.57 |
| Mining. | 4.20 | 2.09 | -25.00 | 0.50 | -5.95 |
| Manufacturing | 3.91 | 7.01 | 0.25 | 1.79 | 0.06 |
| Electricity. | 7.57 | 18.62 | 6.54 | 2.46 | 0.86 |
| Construction. | 7.35 | 19.54 | -4.20 | 2.66 | -0.57 |
| Trade. | 4.72 | 8.68 | 2.46 | 1.84 | 0.52 |
| Transport. | 6.26 | 8.57 | -3.03 | 1.37 | -0.48 |
| Services. | 8.07 | 9.35 | 5.48 | 1.16 | 0.68 |
| Total. | 4.84 | 8.03 | 1.29 | 1.66 | 0.27 |

(Based on Cohen, 1983: p. 5).

This study is based on the following assumptions:

i. Wage employment is directly determined by demand factors such as mode of employment and sector of economy, sex, region, educational qualifications and relevant experience.

ii. Non-employment is the result of interaction between the demand and supply factors. (ibid. p. 3).

## 4.4.2.2 Projection of wage employment by activity

The study made forecasts of wage employment for the plan period, (ie. 1982/3-1987/8) based on the demand parameters. In the study it is claimed construction and electricity have the highest wage employment elasticity, followed by trade, manufacturing and agriculture. The non-wage employment elasticity is the highest in electricity followed by services, agriculture and trade. On the basis of the employment elasticity it was forecasted that the manufacturing sector would be providing an addition of about a half million waged jobs during the 1982/3-1987/8. Construction is the next sector with an addition of about one third million wage jobs during the plan period. The contribution of other sectors was considered to be about 0.57 giving a total increase in wage employment of 1.41 millions.

## 4.4.2.3 Projection of non-wage employment by activity

The study forecasted the non-employment for the whole economy for the plan period, as below:

Firstly, non-wage employment was obtained as the difference between total employment and the wage employment, for 1987-88, this was 29.41 - 9.00 = 20.41 millions. Secondly, non-wage employment was forecasted in one round by applying elasticities to growth targets and initial levels of non-wage employment. In adjustment factors regarding non-wage employment amounted to 0.96 in 1987-88. It implies that effective demand might outgrow supply in the non-wage employment segment by about 4 percent. Such an outgrowth of the demand over supply among the self employed and family helpers usually materialises in the form of a reduction in under-employment level, and therefore an improvement in the remuneration levels. (ibid,p. 7). Table 4.6 sums up these projections:

**Table 4.6**

Employment 1978/9 and projected labour requirements for the Sixth Five-Year Plan period, 1982/3-1987/8. (in millions)

| Activity. | Wage employment (1982/3) | Wage employment (1987/8) | Non-wage employment (1982/3) | Non-wage employment (1987/8) | Total employment (1982/3) | Total employment (1987/8) |
|---|---|---|---|---|---|---|
| Agriculture | 1.72 | 1.89 | 11.54 | 13.34 | 13.26 | 15.23 |
| Mining | 0.03 | 0.03 | 0.004 | 0.004 | 0.03 | 0.03 |
| Manufacturing | 1.78 | 2.25 | 1.98 | 2.00 | 3.76 | 4.25 |
| Electricity | 0.15 | 0.20 | 0.007 | 0.01 | 0.16 | 0.21 |
| Construction | 0.96 | 1.33 | 0.31 | 0.32 | 1.27 | 1.65 |
| Trade | 0.42 | 0.52 | 2.55 | 3.20 | 2.97 | 3.72 |
| Transport | 0.69 | 0.79 | 0.40 | 0.41 | 1.09 | 1.20 |
| Services | 1.84 | 1.99 | 0.97 | 1.14 | 2.81 | 3.13 |
| Total | 7.59 | 9.00 | 17.76 | 20.41 | 25.35 | 29.41 |

(Based on Cohen, 1983: p. 8).

N.B. The employment figures for 1978/9 are based on the Labour force Survey and the Economic Survey, 1978/9.

In this context, the wage employment for 1982/83 is the result of projecting employment figures of 1970/71 to 1982/83 via applying the relevant past GDP growth and relevant past elasticities of employment.

## 4.4.2.4 Extension of forecasts to occupational groups

According to this study, the demand forecast by mode of employment and sector of activity can be extended to make forecasts by a broader group of occupations. It was expected in the study that the occupational composition for wage employment is more elaborated than non-wage employment, with the exception of professional occupations. It was considered that, as wage employment develops over time the type of occupations tend to become more diversified and their job descriptions more sophisticated. The self-employment, except for professional occupations, tend to be stagnant in their occupational composition.

The occupational composition for large scale firms as compared to smaller firms was noted to be very different because of their production techniques and input. Thus such data by size of firm were not available for the plan period.

### a. Procedure

The procedure adopted by the study, for making forecasts by mode of activity, and occupation falls into two stages:

Firstly, construct two separate activity/occupational matrices for wage employment and non-wage employment. Secondly, multiply the macro forecasts achieved in the Table 3.6, by these matrices in appropriate ways.

Regarding the first step, the Labour Force Survey (LFS) contains questions on status, activity and occupation. This information is used in the study to make these matrices for the plan period. However, LFS give tables of activity/occupation for total employment only, without a disaggregation into its wage and non-wage components. In this context, two matrices for wage employment and non-wage employment were separately prepared, based on LFS and Annual Establishment Survey (AES) both of 1978/9. ( ibid. p. 38).

Regarding the second step, application of the obtained matrices showed the detailed forecasts by activity/occupation for wage employment and non-wage employment.

The study concluded that the wage employment group of production workers was the largest, accounting for one half of the wage employment. In non-wage employment agriculture workers were predominant with their share of 75 percent. Over the plan period the following growth in the total employment of occupational groups was forecasted as below:

Professional 12 percent, administrative 16 percent, clerical 14 percent, sales workers 25 percent, service workers 16 percent, agriculture workers 15 percent, and production workers 15 percent. (ibid. p. 13).

**4.4.2.5 Extension of forecasts to educational levels**

Forecasts of labour requirements by educational level were based on :

i. A matrix giving the educational composition of occupational groups.

ii. Multiplication of this matrix by occupational forecasts.

Regarding the first step, the Labour Force Survey (LFS) of 1974/5 was utilized for similar

calculations in the context of the Fifth Five-Year Plan, since a more up to date survey was

unavailable at that time. This survey provided an educational-occupational matrix by the

seven occupational groups and the following seven levels of education.

1. Less than primary including illiterates

2. Primary but less than middle

3. Middle but less than matric

4. Matric but less than intermediate

5. Intermediate but less than degree

6. Degree but less than post-graduate

7. Post-graduate

Regarding the second step, multiplication of the LFS matrix by occupational forecasts, as

specified above, gave the educational needs for 1982/3 and 1987/8 respectively.

Over the plan period the following growth in educational requirements forecasted is given

in Table 4.7:

Table 4.7

Table showing the growth of the educational requirements for 1982/3 to 1987/8.

| Level of Education. | Requirements from 1982/3 to 1987/8 (Percentages) |
|---|---|
| Less than primary including illiterates. | 16 |
| Primary. | 17 |
| Middle. | 16 |
| High. | 17 |
| Intermediate. | 16 |
| Degree and Post-graduates. | 15 |

(Based on Cohen, 1983: p. 14).

### 4.4.3 Supply Forecasts

The parameters of supply forecasts are based on the implicit estimates for the Fifth Five-Year Plan, adjusted with regard to the following:

a. Enrolment by class by year (+/- beginning of school year, end of calender year) (ENRc,t). Where c stands for class and t stands for year.

b. Growth rate of first class primary enrolments (gfp)

c. Transition rates (trn),

These parameters reflect Sixth Five-Year Plan policies of higher enrolment targets. Here we present the summary of projections made for supply forecasts for the Sixth Five-Year Plan, 1982/3 to 1987/8.

### 4.4.3.1 Projections of school enrolments, school graduates and the educational composition of the labour force

The implemented educational allocations in 1977/8-1982/3 have fallen short of the targets for the Fifth Plan. As a result, the enrolment levels in 1982/3 fell below the projections by about 1 - 1/2 year depending on the educational levels considered. This study tried to ratify this lag by expanding enrolments in primary education significantly, from a level of 7 millions in 1982/3 to 11 millions in 1987/8. While enrolments in middle secondary and higher secondary were raised by 0.702 and 0.252 millions respectively over the plan period, it was expected that the impact of this expansion in primary and secondary enrolments on school graduates who enter the labour force would be felt partly later in the Sixth Plan but mostly in the Seventh Plan. To stimulate the policy propositions a simple projection model of educational enrolments, school leavers and labour force had been utilized. This model made use of the transition parameters between one class and another which were implicit in the Fifth Plan. Adjustments were applied to these parameters to reflect the policies of the Sixth Plan. For example, enrolment at the first year of primary education was allowed to grow at 10.5 percent per annum. Transition rates from primary to middle secondary and then to higher secondary were raised so as

to result in the proposed enrolments.

It is considered in the study that part of the school leavers do not participate in the labour force, and the remaining participating in the labour force are allocated over the six educational levels (already mentioned), levels 2 to 7. The rest of the group, that with lower than primary education, including illiterate, group 1 is obtained by deducting the labour force with the above six educational levels from the projected total.

Despite the efforts made for more education at primary level within the Sixth Plan, the results show that the proportion of the labour force with least education, (group 1), still maintained a majority of 73 percent of the total labour force at the end of the plan period.

### 4.4.3.2 Projections by occupational groups

The study revealed the percentage increases in the supply by occupational groups over the plan period as below:

Professional 17 percent, administrative 21 percent, clerical 21 percent, sales workers 27 percent, service workers 16 percent, agriculture workers 14 percent, and production workers 15 percent.

In terms of calculation these were drawn as below:

a. The educational/occupational distributional rates in 1982/3 and 1987/8 were determined so that each column adds up to 1.0.

b. The outcome was multiplied by the projections by educational levels, 1882/3 to 1987/8

to attain the projected supply of labour by occupational group for 1882/3 to 1987/8.

(ibid. p. 19).

## 4.5 THE PERIOD FROM 1988 TO DATE

### 4.5.1 National Manpower Commission Report

In 1989, National Manpower Commission Islamabad, conducted a survey to estimate the

imbalance between the demand and supply flows. In this context, the commission took

the following flows into account:

1. Educated manpower in the educational system.

2. Demand for and supply of educated manpower.

3. Emerging imbalances in supply and demand.

The study used the output of educated personnel during 1977 at matric and above level,

and projected that trend for the future period. The details of the projections are presented

in Table 4.8

## Table 4.8

Output of educated personnel during 1977-1986 at matric level and above level.

(in 000s)

| Year | Matric | | Inter | | Graduate | | Post-Graduate | | Total | |
|------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|
| | A | P | A | P | A | P | A | P | A | P |
| 1977 | 287 | 142 | 149 | 48 | -- | -- | -- | -- | -- | -- |
| 1978 | 367 | 176 | 207 | 58 | -- | -- | -- | -- | -- | -- |
| 1979 | 363 | 184 | 215 | 72 | -- | -- | -- | -- | -- | -- |
| 1980 | 374 | 208 | 234 | 68 | 85 | 31 | 11 | 7 | 704 | 314 |
| 1981 | 379 | 216 | 139 | 73 | 86 | 32 | 12 | 7 | 716 | 328 |
| 1982 | -- | -- | -- | -- | 87 | 33 | 13 | 7 | -- | -- |
| 1983 | 459 | 262 | 311 | 97 | 107 | 36 | 16 | 8 | 893 | 403 |
| 1984 | 507 | 290 | 350 | 108 | 142 | 47 | 16 | 8 | 1015 | 453 |
| 1985 | 547 | 276 | 380 | 124 | 148 | 55 | 18 | 10 | 1093 | 465 |
| 1986 | 591 | 323 | 403 | 137 | 165 | 56 | 25 | 13 | 1184 | 529 |

(Based on the National Manpower Commission report 1989, p. 95).

Note: A = appeared  P = passed

According to the Report of the National Manpower Commission (1989), roughly 323,000 students pass the matriculation examination every year. That constituted about 1 percent of the total labour force in Pakistan. The study revealed that 55 percent of those who passed the matriculation examination got admission into F.A/F.Sc for further education. Those who actually entered the job market after matriculation accounted for 7 to 8 percent of the total increase in the labour force. This would leave about 25 to 30 thousand matriculates per annum unemployed.

Students who have passed the intermediate level or those who have failed at the higher level and joined the labour force have increased the unemployment in educated manpower by 25 to 30 thousand per annum at this level.

The annual increase of graduates entering the work force, after graduation is about 30,000. According to the Pakistan Engineering Council, at the time of survey, there were about 35,000 engineers in Pakistan. Assuming a working life span of 35 years, the country needed on average 1000 engineers per year for replacement of retiring personnel, but the annual production is 3,000. This means that the net increase per annum is about 6 percent.

According to the Report of National Manpower Commission (1989), in 1980's, the annual supply of doctors from medical colleges was 4,000 per year. However, an equivalent investment in the development of health facilities could not be made, and this resulted in an over supply of doctors during the 1980's. Therefore the admissions have been reduced

to 3,500 per year. On the basis of these admissions the annual flow of doctors would be 3,500 until the mid 1990's. (Report of National Manpower Commission,1989: pp. 91-92).

At post-graduate level the projected demand for educated personnel is 12,000 against the supply of 13,000 per annum. Similarly the imbalance between the supply and demand for educated manpower has been calculated. For this purpose the report used the following participation rates for educated manpower with different levels of education.

Firstly, this was achieved by using participation rates of 0.70, 0.70, 0.77, and 0.94 for matriculates, intermediates, graduates and post-graduates respectively. Secondly, using participation rates of 0.15 and 0.20 for the failed candidates in inter and graduate examination. Thirdly, the difference between employment for different levels of educated persons during 1982/83 and 1986/87 has been taken as an additional employment demand. (ibid. p. 99) The imbalance between supply and demand for educated personnel is presented in Table 4.9.

Table 4.9

Imbalance between the supply and demand for educated manpower based on the LBS of 1986-87.

(in 000s)

| Education Level | Educated Labour Force Supply | Demand (employed) | Imbalance (unemployed) |
|---|---|---|---|
| Matriculates | 94 | 68 | 26 |
| Intermediates | 62 | 34 | 28 |
| Graduates | 32 | 29 | 3 |
| Post-Graduates | 13 | 12 | 1 |
| Others | 21 | 11 | 10 |
| Total | 222 | 154 | 68 |

(Based on the National Manpower Commission report 1989, p. 81).

## 4.6 ASSUMPTIONS

The National Manpower Commission and the Planning Commission, Pakistan, have both made very similar assumptions in making manpower forecasts for the period 1985 to 2005, and 1988 to 1993 respectively. These are:

1. The crude labour force participation rate is assumed not to change significantly from

29.4 percent as given in the Labour Force Survey of 1986-87, mainly because of the increased participation of females, is expected to be neutralised by the increase in admission in educational institutions. The crude participation rate is worked out by dividing the labour force with total population. As mentioned earlier in this chapter, the National Manpower Commission used the following participation rates in estimating the supply and demand flows:

a) Matriculates    = 0.70

    Intermediates    = 0.70

    Graduates    = 0.77

    Post-Graduates    = 0.94

b) Failed candidates in:

    Intermediate    = 0.15

    Graduation    = 0.20

2. The labour force is expected to increase from 31 million in July 1988 to about 45 million in 2000 with the growth rate of 3.1 percent per annum.

3. It is estimated that the return migration would be 86,000 per year, between 1988 to 1995 and 20,000 per year between 1995 to 2000.

4. The overall employment elasticity with respect to real output is assumed to be 0.4 for the plan period. The employment elasticity is defined as the rate of growth of employment divided by the rate of growth of output. These estimates indicate that with an expected growth rate of labour force by more than 3 percent per annum, the economy

is faced with the formidable task of creating 1.25 million jobs annually if the situation of the supply and demand for educated manpower in the country is not to worsen.

## 4.7 CONCLUSION

In this chapter we have discussed various methods and assumptions of manpower forecasting employed in manpower planning in Pakistan. In this regard different studies conducted at various times were examined. As mentioned earlier in Chapter 2, the literature on manpower planning provides evidence that these methods and assumptions of manpower forecasting are suspect. We explored and have commented on the methods and assumptions employed in manpower planning in Pakistan. The details of these comments will be presented in the following chapter.

# CHAPTER FIVE

# CRITICAL EXAMINATION OF MANPOWER PLANNING IN PAKISTAN

## 5.1 INTRODUCTION

As stated earlier in Chapter 4, manpower planning in Pakistan is meant for "the supply of suitably trained manpower, with needed skills in the correct place at the right time". (Hawthorn Institute of Education 1989: /17/ p. 1). The prime concern of manpower planning in Pakistan is to ensure that the supply of the manpower becomes available when the demand materializes. There can be no question, therefore, about the need to take a forward look at manpower supply and demand for the future. As discussed earlier, (paragraph 5 in Chapter 4), although Pakistan has the experience of more than thirty years of manpower planning, planners are still unable to forecast for a definite period of time with any degree of precision. Particularly in the case of educational decisions only long term forecasts are useful, whereas their accuracy is increasingly open to question. As a consequence it has been extremely difficult to develop realistic educational and training policies to meet the needs of the overall economic development of the country. Keeping this factor in mind, it is necessary to comment on the different aspects of manpower planning exercises in Pakistan. Some of the most important and frequently mentioned inadequacies relate to the followings aspects:

## 5.2 THE DATA CONSTRAINTS

The methods of forecasting manpower requirements prove to be suspect with regard to the process of data collection. As stated in Chapter 2, the required data are cross-classified by occupation and industry, and by education and occupation for the relevant time period and this is a very complex job. For example, generally at the minimum it requires:

a. The number of persons required in each occupation in the economy for any future year.

b. The present number of manpower in each occupation.

c. The annual number of withdrawals from each occupation due to death, retirement and movement out of labour force: and

d. The annual number of separating from one occupation and accession to another as a result of the job changes. (Parnes, 1962: p.19).

Usually data on manpower are based on the data available in census years at ten year intervals. In Pakistan, the latest data available, was collected 14 years ago, in 1981. It was to be collected in 1991, but because of political upheaval it was not possible. Thus projections are generally based on the data collected in 1961, 1972, and 1981. The latest census was conducted in March 1981. (Economic Survey 1993-94: Table 1.2 p. 2). In the Economic Survey 1993-94, data for district-wise population is based on the 1981 census. (ibid. p. 9). This shows that the latest data on the population of the country is based on outdated.

As mentioned earlier in Chapter 4, the other main source of data on employment and manpower and other human-related issues is the Statistics Division, Government of Pakistan. In this context, labour force surveys (LFS) are conducted quarterly but the results are published on an annual basis. Since 1984-85 the LFS has been published on a regular basis, but before this these were published only on three occasions. LFS are expressed in either percentage of the total population, as percentage of the total employed population or as a percentage of working age population (10-60 years). Furthermore, it only covers the establishments that employ 20 or more persons. It omits about **70 percent** of employed labour force by neglecting those employed in small manufacturing units with under 20 employees, and those who are self-employed. (Hawthorn Institute of Education 1989: p. 7). This shows that the labour force surveys are inadequate and inconsistent for the purpose of the manpower planning in the country.

In addition, the education, occupation, and industry classification systems used have changed so much that such data are not usually directly comparable over time. For example, in Pakistan, the basic principle of classification of jobs is at four distinct levels. These are:

| | |
|---|---|
| Major Group | 1 Digit |
| Minor Group | 2 Digit |
| Unit Group | 3 Digit |
| Occupation | 4 Digit |

The major group represents a very broad field of work compared to a specific type of

work to be performed. Minor groups are created only where a relatively large number of workers are involved, and consequently cover a broad range of occupations. The unit group is a cluster of occupations related to each other by the similarity of the work done. An "occupation" is the narrowest category which is specifically identified in the classification system. However, practically, this classification cannot be related to the numerous training courses, both in terms of level and title of the courses. It is also admitted in the official documents that an inadequate data base for manpower planning has seriously hindered manpower planning in the country. (7th Five-Year Plan, 1988-93: p.89).

## 5.3 LACK OF CO-ORDINATION

As discussed in Chapter 4, in Pakistan, manpower planning is done both at federal and provincial levels. There is a lack of coordination between the federal and provincial levels on manpower needs necessary to meet changing circumstances in the country. Almost all manpower plans are prepared by planners in isolation without consulting the other body. There is no coordination between different organizations at federal level. For example, the Ministry of Education formulates the education and training policies without consulting manpower plans prepared by the Planning Commission, and labour market requirements. The lack of a close link between educational planning and the labour market requirements consequently resulted in an imbalance in the supply and demand for educated manpower. For example, as discussed in Chapter 4, According to the National Manpower Commission Report (1991), in 1986-87, supply of educated manpower was 222,000 compared to a demand of 154,000. (see Table 4.9). The National Manpower

Commission used the following participation rates in estimating the supply and demand

flows:

| | |
|---|---|
| Matriculates | = 0.70 |
| Intermediates | = 0.70 |
| Graduates | = 0.77 |
| Post-Graduates | = 0.94 |

Moreover, there are inadequate links and coordination between different sections within

an organization. For example, there does not seem to be adequate coordination between

different sections of the Manpower Division, and also between the planning section and

other sections of Planning Commission. The lack of coordination has supplemented the

problems inherent in manpower planning in Pakistan.

## 5.4 STRUCTURAL PECULIARITIES OF THE ECONOMY

The labour market in Pakistan is highly segmented, across a variety of structural barriers.

First, there is a "soft-jobs" market for public sector jobs (civil, military and the public

enterprises), which is perpetually in disequilibrium due to excess demand for jobs to

which supply is restricted by a variety of means, and which provide rents associated with

low-effort, secure, public sector employment, with possibility of supplementing income

through moonlighting. It is this market in which labour demand operates through voters

pressure to influence government policies.

Second, the "hard-jobs" market in which jobs are often available, but which are not sought through political influence. This market is further segmented into the formal and informal sectors (mainly in urban areas) and the agricultural versus non-farm (in rural areas). According to this document, particularly in agriculture where it is least clear what full employment means, there is contradictory evidence of rising real wages and seasonal shortages, co-existing with low productivity and under-employment. This is largely because of a shift away from agriculture to non-agricultural employment and the growing move away from tenancy farming toward owner-cultivation. It is also due to declining labour intensive farming because of increasing mechanization in the country. Finally, very little is known about the highly segmented non-farm rural labour market in which job creation has been pursued by a variety of government policy initiatives. (An approach Paper for Eighth Five-Year Plan 1993-98: pp.42-43). The ever changing structural peculiarities of the economy make the process of manpower planning more complex and unreliable.

## 5.5 IGNORING INFORMAL ECONOMIC ACTIVITIES

In Pakistan, the manpower requirement forecasts are restricted to only the formal employment sector, ignoring the informal economic activity, and self employed rural and urban occupations. This sector has a very broad spectrum of activities ranging from newspaper vendors and shoe shine boys to a common labourer in agriculture and construction. It also includes the owners of the small repair and maintenance shops. According to a study by Hawthorn Institute of Education (1989) this constitutes **70 percent** of the total labour force. Thus manpower forecasts ignore 70 percent of the

labour force, which means that they provide very unreliable and misleading estimates of total supply and demand for manpower in the labour market

## 5.6 LACK OF THE INFORMAL VOCATIONAL PREPARATION

In Pakistan, the purposes of manpower estimates are too narrowly conceived. As discussed earlier in Chapter 2, (see paragraph 6.4) the projections aim only at estimates of requirements by formal education, and ignore of the considerable proportion of vocational preparation taking place outside the formal system. No doubt, the formal system is a very important source of skilled manpower but on the job training needs, required changes in the structure of incentives, and measures for better utilization of manpower are also of great importance, and cannot be ignored.

One of the major problems in the employment market is the part played by the informal sector, both in the provision of skilled persons and in the provision of sub-contracting services to the formal sector. A study conducted by the Hawthorn Institute of Education (1989), also provide us with evidence on this

> *there is a considerable evidence that the forward and the backward linkages between the formal and informal sectors are very strong, with employers in the formal sectors relying heavily on sub-contracting arrangements in order to circumvent employment legislation". (Hawthorn Institute of Education, (1989; P. 18)*

Today, no one can claim that education is the only main determinant of development. Some skills and abilities helpful to development are not taught directly in schools, such as communication skills and the ability to understand complicated instructions and so on,

though these skills may be fostered directly or indirectly by formal education.

A previous study conducted by Tanguiane (1979) poses the question about the role of formal education for the development when he, points to the late 19th century Russia as an economy that experienced rapid industrialization despite the low education of its work force. To him it was made possible by providing formal education supplemented by the intensive development of out-of-school education. Some commentators express their views that high performance in education are not followed by sound and sustained development. As discussed in Chapter 2, Hallak, gives the example that:

> *the outstanding performance of Japan and Korea, were apparently not founded solely on mass literacy and numeracy, but on socio-economic regulations and reforms, modern economic management. Education should probably be looked upon as a necessary, but not sufficient condition for economic development. (Hallak, J. 1990: p.47).*

This is evidence that manpower forecasting should not be based on only formal education but in addition to modern economic management, informal vocational training should also be included in this process in the country.

## 5.7 COMPLICATIONS IN THE PC-I FORM

In Pakistan, especially in the government and semi-government sectors projects are developed according to the PC-I Form. It was first introduced by the Planning Commission, Government of Pakistan, in 1974. Since then it has undergone many changes, but it is still open to criticism because it provides vague information and leaves

much to be interpreted by the project manager. It is worth noting that the "manual of instructions for filling the PC-I" is almost non-existent and only a few people know about it. In the absence of a suitable manual, the person filling in the PC-I form is left with no guide but his own personal initiative, knowledge and imagination. According to Athar (1989), if, it is available, "the manual provides little to help the project planner develop a good project plan". (Athar, K. 1989: p. 124). It does not provide adequate information for project demand, studies and outputs, technical aspects of the project management and administration and the implementation of the project/plan. The evidence available in Chapter 2, shows that the improvements in the PC-I form cannot compensate for inadequacies in the planning.

## 5.8 METHODS OF MANPOWER FORECASTING

If we have a look into the history of manpower planning in Pakistan, despite all efforts, it is not very satisfactory and not free of criticism. The projections of the supply and demand for manpower in each economic sector by occupation and level of education were first made in the country's Third Five-Year Plan (1965-70).

As discussed in Chapter 4 (see paragraph 3.1.7), various methods of manpower forecasting were employed in the country. These methods are open to question. It is worth having some comments on the methods of manpower forecasting employed in Pakistan.

### 5.8.1 Growth Rate of GDP in each Economic Sector and Relevant Employment Elasticity (Labour Productivity)

In this method the employment elasticity was calculated by analysing the past relationship between the growth in GDP and the growth in employment in each sector. The projections based on this are indeed precarious because the employment elasticities that are based only on past relationship cannot take into account the structural changes and changes in manpower "mix" which are brought about by improved/changed technology or productivity.

As stated in Chapter 4, (paragraph 6) the crude labour force participation rate is assumed not to have changed significantly from 29.4 percent as given in the Labour Force Survey of 1986-87. Similarly, the overall employment elasticity with respect to real output was assumed to be 0.4 for the plan period. This implies that the technology and the labour product during the time period will be the same or change in a simple, regular pattern, but in practice the changes in various sectors are quite irregular and uncertain over time.

The previous studies conducted by Hollister (1965) and Blaug (1967) point out that the studies of the labour productivity by Kendrick (1961) show that the changes have been quite irregular both over time and between economic sectors. As a consequence, they conclude forecasts of future changes are likely to be highly inaccurate. ( quoted in Psacharopoulos, 1987: p. 320). Not only productivity, but even more importantly, the "mix" of manpower skills change with new technology, including brand new skills. For example, in Germany, the proportion of graduates in the public sector increased from 21

percent to 26 percent between 1976-85, and similarly in Norway, they increased from 26 percent to 37 percent between 1975-1989. ( OECD, 1993: p. 95). It is claimed in the report that this increase was due to the spread of new technologies, and changes in the organization of the work.

Similarly in Pakistan, in the production sector, the introduction of "power looms" at home or at the lower scale has not only increased the output per worker, but also the functional composition of the work force has changed. Loom fixer, engineer, and personnel administrator are examples of new occupations that would probably not exist in the simpler organization of the sector. Jolly and Colclough examined 33 manpower studies from African countries made between 1960-1970. In these studies, "projections were most often made by a simple expansion of the existing posts making no allowance for changes in the occupational or educational structure". (Hinchliffe quotes in Psacharopoulos, 1987: p. 322).

It is observed that the rate of growth and elasticity assumptions have resulted in inaccurate predictions of the demand for educated manpower. No one can claim increase of production in any sector by simply adding the new manpower because labour productivity has been quite irregular both over time and between economic sectors. If increase is noted, there may be various factors responsible for it. For example, change of technique, or addition of some new technology etc.

As far as the GDP growth rate is concerned, manpower forecasts are suspect tools to work out its implications for the occupational and educational structure of the labour force.

But the problem is that the economists are so far, unable to predict GDP growth rate successfully ahead of more than one year at best. In a previous study conducted by George Skorov, (1968) it is criticised that if GNP is applied without reservation to developing countries this may sometimes be misleading. (see Chapter 2 for details).

As discussed in chapter 2, there exists huge discrepancies between the actual and assumed rate of economic growth in different countries. For example, in 1969, Jolly observed huge discrepancies in Egypt, Ghana, Kenya, Sudan, and Uganda during the evaluation of these countries. The assumed growth rates were, 7.2, 5.5, 1.9, 6.1 and 1.9 per cent, but the actual rates differed significantly, as the achievements were 1.5, 1.5, 7.0, 11.1, and 5.7 per cent, respectively. (Jolly and Colclough, 1972: P. 224).

Similarly, in Pakistan, the assumed GDP growth rate for the year 1992-93 was 6.5 percent but the actual achievement was only 3.5 percent. (Budget speech of Finance Minister, May 1993). It is commented that projections made on the basis of the achievements of GDP targets cannot be falsified or verified because it is a misleading, and at best, is subject to guesswork.

In addition, it points out only single goal-rate of growth, and this in turn tends to overshadow the other stipulated targets. There may be adverse results of a tremendous increase in GDP, such as an exceptionally high rate of unemployment and so forth. If GDP target is achieved, it does not confirm that the technique used was satisfactory. The correctness of the forecast may be due to the result of the factors which were ignored by the technique. For example, the correct figures may have been obtained because of

adjustment of wages, which were not taken into consideration in the whole process.

Sometimes the assumed GNP targets are not achieved for various reasons. In these conditions manpower forecasting will mislead the policy decision makers in the country. For example, as discussed in Chapter 2, (see paragraph 6.6), and earlier in this chapter, in Pakistan, the assumed GNP growth rate for the year 1992-93 was 6.5 percent but the actual achievement was only 3.5 percent.

### 5.8.2 International Comparison Method

Due to a lack of reliable data projections of supply and demand for manpower for the Third Five-Year Plan (1965-70) the international comparison method was applied on the assumption that Pakistan's economy will tend to behave in the same way as that of other comparable countries. In this context, the experience of 40 developed and developing countries were taken into account for estimating the requirements of labour force for the period 1960-90. (First Regional Cooperation Development (RCD) Report, May 1974: p. 199). As discussed in Chapter 2, this method was also used by Puerto Rico (1957) and France (1960). (see paragraph 5.4 in chapter 2).

Many critics have made comments on this method of forecasting. As discussed earlier in Chapter 2, OECD undertook a study with the data from 53 countries, and concluded that:

> *supply factors were generally dominant, possibilities of substitution exists between different categories of labour and few relationship between output and skilled labour mix were strong enough to justify transferring findings reached from*

*international cross-sectional data at one moment in time to a single country attempting to forecast labour demand through time. (Hinchliffe, quoted in Psacharopoulos, 1987: p. 319).*

It is, therefore, criticised that an intercountry comparison is not appropriate unless the social, economic, and cultural conditions are similar and unless the country with which the comparison is made has satisfactorily met its targets. The same is true if the comparison is made between regions within the country.

## 5.9 ASSUMPTIONS

As discussed earlier in Chapter 4 (paragraph 6), various assumptions of manpower forecasting were used in manpower planning in Pakistan. The National Manpower Commission and the Planning Commission, Pakistan, have both made very similar assumptions in making manpower forecasts for the period 1985 to 2005, and 1988 to 1993 respectively. These are:

1. The crude labour force participation rate is assumed not to change significantly from 29.4 percent as given in the Labour Force Survey of 1986-87 mainly because the increased participation of females is expected to be neutralised by the increase in admission in educational institutions. The crude participation rate is worked out by dividing the labour force by the total population. The National Manpower Commission used the following participation rates in estimating the supply and demand flows:

a) Matriculates     = 0.70

   Intermediates    = 0.70

   Graduates        = 0.77

   Post-Graduates   = 0.94

b) Failed candidates in:

Intermediate    = 0.15

Graduation    = 0.20

2. The labour force was expected to increase from 31 million in July 1988 to about 45 million in 2000 with the growth rate of 3.1 percent per annum.

3. It was estimated that the return migration would be 86,000 per year, between 1988 to 1995 and 20,000 per year between 1995 to 2000.

4. The overall employment elasticity with respect to real output was assumed to be 0.4 for the plan period. The employment elasticity is defined as the rate of growth of employment divided by the rate of growth of output. These estimates indicate that with an expected growth rate of labour force by more than 3 percent per annum, the economy would be faced with the formidable task of creating 1.25 million job annually if the situation of the supply and demand for educated manpower in the country was not to worsen.

The validity of these assumptions is open to question in a real-working situation. As stated in Chapter 2, a lot of criticism is made on these assumptions by different commentators the world over. We, however, have comments on these assumptions in the perspective of Pakistan's manpower planning.

### 5.9.1 Education-Occupation Relationship

In Pakistan, the International Standard Classification Of Education (ISCED) and International Classification of Occupations (ISCO) (see Chapter 4) were employed in making projections for manpower requirements by occupation and level of education. These are based on the statistics on education available in 1961. In the base year (1961) there were no separate figures for general education, humanities and social sciences, and natural sciences but only showed a total for these areas. This type of statistic does not fully serve the purpose of manpower planners. If, the detailed statistics are available, even then the assumption that "educational requirements can be made for different categories of occupations" is open to question.

As stated earlier in Chapter 4 (paragraph 4.2.5), forecasts of labour requirements are based on precise relationship between the levels of education and occupation. But in practice the conversion of occupational requirements into educational requirements is highly suspect and one of the complex problems in manpower planning. The estimates of educational requirements cannot be made mechanically because in most of the occupations there is no precise relationship between education and occupation. For example, one cannot be sure whether an administrator of a certain department should have a university education, because satisfactory performance is attributable to a function of native ability, psycho-motor skill, work experience, on the job training, and formal education. The same is true for the rest of the jobs.

In this regard as discussed earlier in Chapter 2, the literature on manpower planning

provides adequate evidence. For example, the studies conducted by *Abegaz (1994)*, Bowles and Gintis (1969), Lindley (1981) and James in Sanyal (1993), provided us with evidence that there is not precise relationship between education and occupation. (see pp. 95-96)

Although Parne's last two suggestions (see paragraphs 4.6 and 4.7 in Chapter 2) regarding the conversion of manpower requirements into educational needs are designed to overcome this problem but according to Cohen (1990), these steps have not been pursued in any of the plans that have been designed in the recent years. (Cohen, 1990: p. 215).

The evidence available in the present and previous studies enables us to conclude that the assumption of manpower forecasters concerning the education-occupation relationship is open to question and cannot be justified practically in the labour market of Pakistan.

## 5.9.2 Elasticity of Substitution

In all methods of manpower planning in Pakistan, the possibility of substitution between different categories of educated manpower by level or type of education is not taken into account. (see on pp.19-20 in Chapter 4). In other words it was assumed that "the elasticity of substitution between different types of educated manpower is equal to or near zero". As discussed in Chapter 2, many commentators have made comments on this assumption. For example, Dougherty, (1972) asserted that" a number of econometric studies have more or less confirmed the fact that the value of this parameter is well above unity". (quoted in Youdi and Hinchliffe, 1985: p. 20).

As discussed earlier in Chapter 2, the studies conducted by Mace and Taylor (1975), Mace and Taylor (1977), James (1993), OECD report (1993), and (Griliches (1969) and Welch (1970), Fallon and Layard (1975) in Abegaz 1994: p. 74). revealed that there is a possibility of substitution between different types of qualified persons by level and by type of qualifications. Moreover, Bowles (1969), found that, "the elasticity of substitution between different categories of educated labour was never less than eight". (see paragraph 7.1 of Chapter 2).

In Pakistan, there exists no such data which provides information on the possibility of substitution between different types of manpower in the labour market. However we expect there exists a reasonably high degree of substitution between different categories of educated personnel in the country. In this regard, we will collect data from the respondents during the survey. The details of the data collection will be presented in Chapter 6.

These studies provide evidence that the possibility of substitution between different categories of workers by level and type of education and occupation is well above the zero value assumed in MRA, and therefore, the MRA method of forecasting manpower requirements is suspect.

## 5.9.3 Treatment of Cost Considerations

As mentioned earlier in Chapter 4 (paragraph 4.3), in Pakistan, the supply forecasts are based on the following:

i. Projections of school enrolments, school graduates and the educational composition of the labour force.

ii. Projections by occupational groups.

As mentioned earlier in the paragraph 5.1 of this chapter, in 1989, the National Manpower Commission Islamabad, conducted a survey to estimate the imbalance between the demand and supply flows. In this context, the commission took the following flows into account:

i. Educated manpower in the educational system. How these are estimated was discussed earlier in chapter 4. (see paragraph 5.1 of Chapter 4).

ii. Demand for and supply of educated manpower. The estimates of the labour supply have been projected from 1985 to 2010 under two different scenarios. Firstly, under the high growth scenario, the growth in population is projected at 3.15 percent per annum between 1990-2000 declining to 3.03 percent per annum between 2000 to 2010. Secondly, in the low growth scenario the growth in the population is projected at 2.5 percent per annum between 1990 to 2000 and 2.4 percent per annum between 2000 to 2010. It is claimed in the study that in making projections authors have considered the demographic shifts, changes in participation rates and net overseas migration.  For this purpose the survey used the following participation rates in estimating the supply and demand flows:

a) Matriculates       = 0.70

   Intermediates      = 0.70

   Graduates          = 0.77

   Post-Graduates     = 0.94

b) Failed candidates in:

Intermediate    =  0.15

Graduation    =  0.20

iii. Emerging imbalances in supply and demand. The details of this were also given earlier in the 5.1 paragraph of Chapter 4. For details see the Table 4.9 in Chapter 4.

It is noticeable that none of the above studies have considered the wage rates and other costs in making the projections for the supply and demand for manpower in the labour market. They assumed that all these factors would remain the same during the plan period. One of the main problems inherent in making forecasts is ignoring the cost on workers, including opportunity cost, additional qualifications, training and their cost-effectiveness and so forth. As defined in Chapter 2, the opportunity cost means "the earning foregone by mature students attending school and by workers acquiring on-the-job training". (Schultz, quoted in Blaug 1968: p. 13). It would be expected that education is inversely related to the costs, that is higher school fees and other related costs, the lower would be the private demand for education, everything else being equal. As discussed in Chapter 2, many commentators have debated these assumptions. For example, Todaro (1989), Mace (1977), Mace and Taylor (1975). (see paragraph 7.3.3 of chapter 2).

In Pakistan, none of the manpower planning exercises has considered these factors in making forecasts for the supply and demand for educated manpower in the economy. However, these studies provide evidence that the cost considerations should not be ignored

in making forecasts for the supply and demand for manpower in the labour market.

### 5.9.4 Students' and the labour Force Stocks and Flows

As stated earlier in Chapter 4, in the context of labour force and student stocks and flows it was generalized for various categories of education and for successive plan periods of different durations. In this context, different variables for a different set of population were selected. For example, the variable taken into account concerning the labour force were:

$$La + Lb = Lc + Ld$$

where

$La$ = Persons in the labour force at the beginning of the plan period (i.e. First February 1970 for the period 1970-75)

$Lb$ = Persons who joined the labour force during the plan period.

$Lc$ = Persons who left the labour force during the plan period

$Ld$ = Persons in the labour force at the end of the plan period.

It is noted that inter-occupational mobility of workers is not taken into account in forecasting the labour force stocks and flows for plan periods.

For students the following variables were considered:

$$Sa + Sb = Sc1 + Sc2 + Sd$$

where

Sa   = Students on roll at the beginning of the plan period.

Sb   = Students who were admitted during the plan period.

Sc1  = Students who completed(graduates) during the plan period.

Sc2  = Students who left without completing (dropout) during the plan period.

Sd   = Students at the end of the plan period.


In addition the following coefficients were used in the study:


$\underline{a}$  = Lc/La   (for attrition ratio)

$\underline{p}$  = Lb/Sc1  (for participation rate)

$\underline{g}$  = Sc1/Sa  (for graduation ratio)


The following three equations were derived in this study:


i.   Lb  = Ld - La + $\underline{a}$ La

ii.  Sc1 = Lb/$\underline{P}$

iii. Sa  = Sc1/$\underline{g}$


These equations were used to calculate the stock of educated manpower at the beginning and the end of the plan period, the required inflow of labour force during the plan period (Lb), graduation of students during the plan period (Sc1), and the enrolments of the students at the start of the plan period (Sa).


It is criticised that the model is rather crude for analysing the dynamics of the school

population. It does not show explicit interflows between various levels and areas of school population, for example, the flow from lower to higher stage of second level general education. Moreover, this model ignores student's mobility within the educational system.

This model does not take the inter-occupational mobility of workers and student's mobility into account. Both these factors count in the manpower planning exercises and should not be neglected in the manpower planning exercises. As discussed earlier in Chapter 2, the literature on manpower planning provides adequate evidence. Some consideration of these factors is given in the following paragraphs.

### 5.9.4.1 Inter-occupational mobility

The process of forecasting the availability of manpower is derived by correcting the base year manpower stock for losses through mortality, retirement, and by adding the expected manpower coming from the educational system, but the effects of mobility of manpower in the work force are ignored. The mobility of manpower may be seen directly through a change of job or indirectly through a retraining programme. For instance,

*using the data of UK for 1971, it is found that out of 239,000 graduate engineers only 39 percent were employed in the manufacturing industry, whereas 36 percent were employed in the "white collar" categories of different departments of the public sector. (Hough, 1987: p.80).*

It is very difficult to develop any pattern of occupational mobility with sufficient precision, which permits estimates of separation from and accession to certain

occupations, due to unavailability of data on inter-occupational mobility of workers in the country. There is hardly anything about the inter-occupational mobility in the data available in Pakistan. In this context we will collect data from the respondents during the survey.

### 5.9.4.2 Students' mobility

Students' mobility within the educational system also cannot be neglected in planning education for employment purposes because of its direct link with the supply of educated manpower. As discussed earlier in Chapter 2, according to Sanyal (1987) and a study conducted by the OECD (1993), there is evidence that students' mobility cannot be neglected in making estimates of supply and demand for educated manpower with a degree of precision. Nothing about the students' mobility is given in the data available in Pakistan. We will investigate this factor in the present study by collecting data from the respondents. (see paragraph 7.1.2 ).

There are some other factors that are not taken into account in Pakistani manpower planning. These are :

### 5.9.5 Rural-Urban Migration

Pakistan is faced with a serious problem of irreversible urbanization. For instance, the urban population in Pakistan has increased from 15.4 percent to 28.3 percent of the total population during the period 1947-1981, and estimated figure for this population in 1991-

92 is 34.71. (Economic Survey 1991-92: pp. 120, 140). The pattern of inter-provincial migration shows that there is a considerable flow of population from rural to urban areas. Overall 88 percent of the total migrants move from rural to urban areas within and between provinces. (Hawthorn Institute of Education 1989: p. 21). On the one hand, this migration creates overcrowding of certain types of qualified manpower in the cities, causing unemployment, and on the other, creating scarcities of the same type of manpower in the rural areas.

In Pakistan, the rate of growth of urbanization is increasing over time. For example, according to Economic Survey 1992-93, this rate has increased from 4.58 percent in 1989-90 to 8.19 percent in 1993. This dilemma calls for pursuing of attempts to curtail the flow of rural to urban migration and to ameliorate this crucial problem inherent in planning.

## 5.9.6 International Migration

Not only is rural-urban migration of some importance, so also is international migration, particularly in developing countries like Pakistan. During the seventies and mid eighties a substantial outflow of trained manpower (especially the middle-level) to countries in the Middle East and North America was witnessed. According to the study conducted by the Hawthorn Institute Australia (1989), "at the height of the labour export boom in the early mid 1980's, it was estimated that at least 3.3 million Pakistanis of working age were living abroad". (Hawthorn Institute of Education 1989, vol. 1 ch. 4: p. 17). This includes all categories of workers: unskilled, semi-skilled, highly skilled and professionals

or highly qualified workers. Some of them have only basic literacy. Others are educated workers having various level and types of education, including the general education and specialised fields.

The Middle Eastern economies are now moving from the stage of infrastructure construction into manufacturing. As a result the service and the demand for technical and professional workers has increased although the peak demand of the early 1980's is not likely to be reached again in the future. However, this situation has decreased the demand for unskilled and semi-skilled workers in these economies. An analysis of the skill composition of migrants in 1985 as compared to 1981 shows that the percentage of skilled and highly skilled workers had risen from 44 percent to over 50 percent. Correspondingly, semi-skilled and unskilled categories declined from 55 percent to 49 percent. (Hawthorn Institute of Education 1989, vol. 1 ch. 4: p. 19). This change in demand for different categories of workers reflects the shift in the Middle Eastern economies from construction to maintenance and service workers.

The pattern of migration from each of the provinces was uneven. In terms of percentage of provincial population, the pattern was as under:

North West Frontier Province (NWFP)      5.35 percent.

Baluchistan                              1.87 percent

Sindh                                    1.58 percent

Punjab                                   1.55 percent

(ibid. p. 17).

This situation exacerbated the problems of the country, creating a shortage of trained manpower during the period when they were required and conversely, a surplus of the same manpower when recession already makes it difficult to maintain absorption of manpower and economic growth. This situation can upset even the most carefully prepared manpower plan.

## 5.10 UNCERTAINTY OF THE FUTURE

Pakistan, since its inception, has been faced with the political upheavals and unstable civil governments. This situation has adversely affected the planning in the country . For example, the Fourth Plan was left in suspension due to political disruption from 1970 to 1972 resulting in the secession of Bangladesh, and annual development plans were adopted until 1978 by the Martial Government.

Similarly once again, the country had to face political upheaval during the period 1987-1993. Since 1987 three civilian governments have been overthrown. In 1991, the Muslim League government banned all types of new appointments in the public sector. In 1993, this government was overthrown by the president of Pakistan, and an interim government took charge. The interim government not only continued the ban on new appointments but issued orders to decrease the number of employees in the public sector because of financial constraints in the sector. To date, the situation is the same, though the Pakistan People Party government has taken office. The future of manpower planning especially mid-term (3-5 year) and long term (5-20 year) in Pakistan, is increasingly open to

question.

Manpower forecasting gives the impression of prediction over future time which is hazardous because of complexity of uncertainty of the future in Pakistan. It implies that it is extremely difficult to make mid term or long term projections of supply and demand for manpower where the political situation is seldom consistent. Similarly the inconsistent economic and social changes/events have also made the manpower planning in the country more risky.

## 5.11 CONCLUSION

In this chapter we critically examined the different manpower planning exercises carried out various times in Pakistan. We made comments on various methods and assumptions employed in these manpower planning exercises in the country. One important point is that a very little is reported on women in any of the forecasts. The evidence available in this study and in the literature on manpower planning enabled us to conclude that assumptions of manpower forecasting concerning the education and occupation relationship are suspect and cannot be justified practically in Pakistan.

# CHAPTER SIX

# RESEARCH QUESTIONS AND METHODOLOGY

## 6.1 INTRODUCTION

As mentioned earlier in Chapter 1, the study focuses on an investigation of the relationship between education and occupation with special reference to the manpower planning in Pakistan. The relationship was determined by the respondents' (employees and employers) labour market experiences. It involves discovering the characteristics of employees, for example, their educational qualifications and the nature of their job etc. It also involves the demands of employers, and the factors to be taken into account in preparing manpower plans. In this context, a survey was conducted to collect data from a sample involved in the study. We will find answers to the research question and the subsequent sub-questions, concerning the validity of assumptions of manpower planning, in the context of the education-occupation relationship, in Pakistan.

We start this chapter by discussing the research question, sub-questions, issues related to the labour market experiences of the respondents and sources of data followed by the tests for evaluation. The next section contains a description of the data required for this study, significance testing and the instrument used for collecting data from the respondents. The remaining is the procedure adopted in this research which is presented highlighting occupational groups and the selection of the sample. The summary of the chapter presented as the conclusion.

As mentioned in Chapter 1, the study addresses the following questions and issues related to labour market experiences of respondents:

### 6.1.1 Research Question

Is the education-occupation relationship assumed in Pakistani manpower planning valid ?

### 6.1.2 Sub-questions

What is meant by manpower planning, what does it intend to accomplish in Pakistan ?

Is the experiences of employers and employees consistent with the assumptions that manpower planners make concerning the education-employment relationship ?

In what ways are employers influenced by manpower plans ?

What is the prevailing degree of substitution between qualified manpower and occupations in the country?

What criteria should be used to measure the success of manpower planning, regarding the relationship between education and occupation in Pakistan ?

How can one identify the problems of manpower planning in Pakistan in the context of the education-employment relationship?

How and what can a researcher find in the literature pertinent to the research question ?

### 6.1.3 Issues Related to the Educational System

What role does manpower planning play in educational planning?

How are the manpower forecasts made?

How are manpower forecasts matched with the supply of educated manpower, and what factors affect the supply ?

### 6.1.4 Issues related to the Labour Market Experiences of the Educated Employees

To what extent are the needs of the job met by the content and structure of the educational system, in the view of the employees?

What type of training do the employees need to enter into the labour market, and how long do the training programmes last ?

What factors do employees take into account while entering into a specific occupation ?

What is the degree of correspondence between academic performance and job performance as perceived by the employees ?

### 6.1.5 Issues Related to the Labour Market Experiences of the Employers

What are the recruitment methods and selection criteria for a job and how relevant are they as perceived by the employers?

What is the degree of relationship between academic performance and the job performance as perceived by the employers?

Do employers plan, and what factors do they take into account when they prepare

manpower plans ?

What are the main problems they are faced with in making estimates of manpower requirements for their concern ?

What measures do the employers suggest to overcome the problems of a shortage of the manpower for their concern?

## 6.2 SOURCES OF DATA

There are two major sources of data for this study, namely the primary and secondary sources. The primary sources are defined as the "first hand information such as the testimony of an eyewitness, an original document, a relic, or a description of a study written by the person who conducted it". (Fraenkel, and Wallen, 1993: p. 555). The secondary data is defined as the "second hand information, such as a description of historical events by someone not present when the event occurred". (ibid. p. 556).

Data was collected from both primary and secondary sources on manpower planning. The secondary data mainly came from the analysis of documents published by the government of Pakistan and other national and international agencies. The studies conducted by eminent scholars in this field were also be critically examined. The primary data for empirical work was collected via questionnaires from employers and employees involved in this study. The respondents was randomly selected from their respective population set within the target areas. The details of the sampling of the respondents are presented later on in this chapter.

Regarding the collection of primary data we preferred to contact the respondents in person from all sectors of the economy. The face to face contact provided us with an opportunity to get additional information on manpower planning which could be collected from the questionnaires. In doing so, we expected to be able to discover what experiences have been taking place in the real-working situation in the country. Moreover, this enabled us to explore what respondents know about the techniques of manpower planning employed, and to what extent are they satisfied with the process of manpower planning in the country.

For collecting data from the respondents we designed two separate questionnaires for employers and employees included in the sample. (see appendix A and B). The design of the questionnaire is explained fully later on in this chapter. This information was transformed into quantitative data by counting the number of respondents who gave a particular response. We analyzed and interpreted the data collected from the respondents involved in the study by the statistical software SPSS programme at the Institute of Education, University of London. Doing so enabled us to investigate the actual situation of the relationship between education and employment in Pakistan.

## 6.3 TESTS FOR EVALUATION

Critics have applied different tests to asses the validity and accuracy of techniques of manpower planning in various countries of the world. The description of all those tests is beyond the scope of this study. However, it is worth to explain two of them which were applied in this study. These are the following tests:

### 6.3.1 Accuracy Test

This test involves the comparison of the forecasts to the realization. It implies that a forecast is judged in terms of accuracy of the outcome for the plan period, (ie. 1982/3-1992/3). This method has inherent limitations that cannot be ignored. Firstly, it can be applied only after the end of the plan period has been reached, which could be in some cases up to twenty years. Thus this method could be applied only to the forecasts whose plan period has been reached. Secondly, all of the statements about the future have a degree of uncertainty, and the accuracy test might be considered unfair in cases where the conditions on the basis of which the forecast was made have not been met. For instance, in 1992, unexpected heavy rains and flood in the rivers damaged the economy of Pakistan and consequently, only 3.5 percent growth rate of GNP could be achieved against the presumed 6 percent for the period 1992-93. (The Finance Minister recognized this in his budget speech, in June, 1993). But this is an exceptional case and can happen anywhere the world over. These incidents makes the planners' work more problematic. Thirdly, forecasts about human behaviour provide only approximations to actual behaviour and include unpredictable elements consisting of the effects of the variable which was ignored. Thus any observed inaccuracy may be a chance occurrence. Even where the forecast is confirmed, this may not mean that the technique employed is accurate. The accuracy of the forecast may be the result of the factors which were not taken into account while making the forecast. For example, the accuracy may only have been achieved because of wage adjustment, which in fact was neglected.

Despite limitations inherent in an accuracy test, this is to recognise that any forecast may differ from the actual outcome, but the forecast can only be considered as inaccurate if the difference is statistically so large that contradictory policy decisions are compatible with it.

The following equation, suggested by Youdi and Hinchliffe (1985: p. 22) would be applied to measure the percentage forecast error.

$E = Lkt(actual) - Lkt(predicted) / Lkt(actual)$

where

> $E$ = the percentage forecast error
>
> $L$ = labour force
>
> $K$ = occupation
>
> $t$ = target year

Theil (1966) suggested" that a forecast is useful if it reduces the level of uncertainty as to the actual outcome below the level of uncertainty that prevailed before the forecast was made". (quoted in Ahamad, B. and Blaug, M. 1973: p. 23). Similarly Cairncross (1969) suggested "that a forecast has to be judged in terms of the policy advice to which it leads, and not in terms of the accuracy of the forecast itself". (quoted in Ahamad, B. and Blaug, M. 1973: p. 24).

It implies that a forecast which reduces the uncertainty of the future outcome to a level that helps in decision making is useful for policy purposes. In this study, the same criterion has been suggested to judge the accuracy of the forecasts made in Pakistan over

time.

According to Ruud (1970), "the need for 'specialists' will grow faster than for 'generalists' in Pakistan, and that there will be relatively more specialists in 1990". (Ruud, 1970: p. 15). He further points out that among non-agricultural occupations in Pakistan the fastest increase from 1961 to 1975 will be the group of professional, technical and related workers (ie. 98 percent). (ibid. p. 19).

Contrastingly to the Ruud, the Report of the National Manpower Commission (1991), shows a shortage of 'scientists' and 'technologists' in the country. (National Manpower Commission, 1991: p. 146). In this context, "agriculture is the main absorbent of the labour force (51.15 percent) followed by industry (12.69 percent) and trade (11.93 percent). (Labour Force Survey 1989-90: p. 97).

The findings of these studies /official documents raised the question of accuracy of manpower forecasts made in the country. To verify these findings we asked the respondents (employers), whether they consider a shortage of trained manpower exists for their specific field in the labour market of Pakistan. If yes, what are the main reasons for this shortage. We were then able to test the accuracy of the forecasts made in the country.

## 6.3.2 Relevance Test

According to Youdi and Hinchliffe (1985), "this test asks what assumptions should have

appeared or what considerations should have been taken into account while the forecast was being made, but in fact was neglected". (Youdi and Hinchliffe, 1985: p. 21). For example, have the planners considered the financial implications of implementing their manpower forecast. To illustrate the use of "relevance test" we shall take two examples of manpower forecasting in Pakistan. The first by Ruud and the second by Irfan.

In Ruud study "Manpower and Educational Requirements of Pakistan" for the period 1961-1990. In this study he adopted the "market approach" for making supply and demand projections and considered only the unemployment and stocks and flows of the vacancies. He neglected to consider the sectoral, occupational and educational structures of the labour force and employment which are necessary for projecting supply and demand. (Ruud, 1970: pp. 9-10).

Similarly in the Irfan study, an "ILO Model" (an international comparison approach), was adopted by the planners. It was assumed that Pakistan's economy would tend to behave in the same way as that of the other countries. This study was based on the experiences of forty developed and developing countries estimating requirements of the labour force for the period of 1960-1990. (Irfan, 1974: p. 199). But this intercountry comparison is not appropriate unless the social, economic, political and geographical conditions are similar and unless the country with which the comparison is made has successfully met its targets. Most probably all these factors cannot be taken into account in making manpower forecasts. Thus this approach seems not to be relevant to Pakistan and thus fails the "relevance test".

There exists a large number of factors which should be taken into account during the process of forecasting, such as, change in technology and its likely effects of the labour production, elasticity of the substitutions of the educated manpower, rural-urban migration and so on. This method measures the degree of relevance to reality of the factors taken into consideration while making a forecast.

In this study, we critically examined the relevance of the factors that have been taken into account in making forecasts in an actual-working situation in Pakistani manpower forecasting. By applying this method we were able to explore what considerations should have been taken into account while the forecast was being made, but in fact were neglected. This criterion provided us with evidence that allowed us to draw conclusions about the validity of the assumptions of MRA concerning the education-occupation relationship in the context of manpower planning in Pakistan.

## 6.4 THE DATA NEEDED

We collected data from respondents within the target areas, Islamabad and Rawalpindi in Pakistan. As mentioned earlier in chapter 1 (see p. 3 of chapter 1), it was collected through structured questionnaires, and was analyzed by SPSS programme at the Institute of Education, University of London. For analysis and interpretation of data the objective information is required so that it can be transformed into a number/percentage and statistical form. This was drawn from a sample representing the whole population within the target areas : Rawalpindi and Islamabad. This would be possible if the data is quantitative and statistically significant. Thus the requirement

of the study is for quantitative data presented in number/percentage.

## 6.4.1 Secondary Data

The secondary data, needed for the study mainly came from Censuses, National Plans, Economic, and Labour Force Surveys, and the manpower reports published by their government departments. These provided with information on manpower planning exercises performed in the country overtime. Other secondary resources used were periodical reviews, reports, and documents published by various international agencies, for example, UNESCO, OECD, ILO, and so on. It also included the books/articles written by distinguished authors in this area.

The analysis of the literature on manpower planning we expected would provide adequate evidence to test the validity of the assumptions of MRA concerning the education-occupation relationship in general the world over and especially in Pakistan.

## 6.4.2 Primary Data

As discussed in Chapter 5, (see paragraph 2), the data available for manpower planning is inadequate and inconsistent for the purpose of manpower planning in the country. Keeping this factor in view, the primary data, to be collected in this research was collected from the employers, and employees within the target areas. The data collected related mainly to the labour market experiences of the employees, and the employers. The data was collected through structured questionnaires (see Annex A

and B, for the questionnaires given to respondents).

In this context we will also critically examined the original studies/documents on manpower planning in Pakistan conducted/written by various authors or agencies overtime. These studies provided a deep insight into manpower planning in general and especially in Pakistan.

On the basis of the information obtained through these questionnaires, we present the tables highlighting the actual education-employment relationship in Pakistan. The more important tables are listed below:

1. Sample of the respondents broken down by sector of the economy.

2. Sample broken down by gender.

3. Sample broken down by sub-sector of the economy.

4. Reasons given by employees for entering higher education.(percentage of respondents).

5. Reasons for change of field of study by the graduate employees (percentages of respondents).

6. Selection criteria used by employers.

7. Factors affecting employees choice of job.

8. Factors causing job change.

9. Usefulness of qualifications in meeting the requirements of the job.

10. Factors taken into account by employers in making their manpower plans.

11. Employers in public and private organizations ranking of options to fill vacant positions.

12. Reasons given by employers for the shortage of trained manpower for their concern.

13. Employers ranking of measures to overcome the shortage of trained manpower for their concern.

## 6.5 SIGNIFICANCE TESTING

Statistical tests are major help for data interpretation. Using statistical tests we were able to compare the findings of the employers' and employees' data. This was able to determine whether the probability of any differences between these findings were based on chance and enabled testing for the validity of the assumptions of MRA concerning the education-occupation relationship in Pakistani manpower planning.

We employed the Pearson Chi-Square tests at the 5 percent level (ie. $p < 0.05$), in interpreting the empirical data, because usually this is considered an acceptable level of confidence in either accepting a finding as reliable or rejecting it as sufficiently improbable. According to Fraenkel and Wallen (1993), "the chi-square is a non parametric test of significance appropriate when the data are in the form of frequency counts; it compares frequencies actually observed in a study with expected frequencies to see if they are significantly different". (Fraenkel and Wallen, 1993: p. 548). Differences at 0.05 level indicate that the probability is only 5 out of 100 that the differences would be accounted for by chance. The Pearson Chi-Square tests at the $p < 0.05$ level was employed to provide us statistically significant findings for rejecting or accepting the validity of the assumptions of MRA examined in this study.

The findings of this study were based on the numbers/percentages of the respondents and will be compared to the findings of other studies conducted in this area. It was hoped that this comparison will provide adequate evidence to support the findings of the study. On the basis of the evidence available in the present study and literature on manpower planning we were in a position to draw a conclusion about the validity of the assumptions of MRA concerning the education-occupation relationship in the context of manpower planning in Pakistan.

## 6.6 INSTRUMENT FOR COLLECTING DATA

In this study the questionnaires and interviews were used as an instrument to collect the data from the respondents. Use of both questionnaires and interviews are a way of collecting data from respondents by asking them rather than by observing and sampling them. Through these tools we expected to get more objective information required for this study.

However, there are some limitations inherent in this method of collecting data from the respondents. For example, the respondents must cooperate when completing questionnaires or interview. They must tell what is rather than what they think ought to be or what they think the researcher would like to hear. Similarly they must know what they feel and think in order to report it.

To overcome these limitations we designed a covering letter explaining the nature and purpose of this study. We delivered this letter to the respondents together with the

questionnaires. It was hoped that this letter would not only save our time but also that of the respondents in completing the questionnaires or interviews. In addition to this, an endorsement letter from the Institute of Education, University of London, was given to endorsed the importance of the study. We expected that they would feel more secure if they knew that the Institute of Education, University of London was behind this study. Both letters were intended to enable us to get maximum cooperation from the respondents during completing questionnaire.

The other main reasons for selecting this method of collecting data from the respondents are the followings:

a) The respondents are educated, widely scattered and busy who would probably prefer to answer questionnaires when it is most convenient to them.

b. They have no difficulty in understanding the printed word.

c) The method is more economical in terms of money and time for the researcher, and can provide a large sample for a lower total cost compared with any other method.

d) The questionnaires can be delivered in groups especially, in the case of employees, when they can be collected at the spot. It was hoped that this method would increase the response rates to a considerable extent.

e) The questionnaires are anonymous and thus it was expected that the respondents would not hesitate to respond.

f) The chances of bias would be minimal because the respondents would be free of any pressure of being observed.

g) Printing the available response categories would make scoring easier and more exact.

It was expected that data collected in this way would be more objective and reliable for testing the validity of the assumptions of MRA concerning the education-occupation relationship employed in Pakistan.

Based on the research design, the employee questionnaire starts with a set of questions on personal characteristics of the sample, followed by the educational status and labour market experiences of the employee sample. The employee questionnaire mainly focuses on the following:

i. What are the employees' highest academic qualifications and to what extent are their qualifications useful to the needs of the job performance?

ii. Did they receive any training to get their present job, if yes, how long did this training programme last.

iii. How important do they think each of the following criteria is for the appointment to their present job?

Academic record, aptitude tests, interview, past experience in a similar type of job, personal contacts with the employer, and parental status and family background.

iv. Did they change their field of study during their education? If yes, what were the main reasons for that change?

v. Did they change their job recently, if yes what were the main reasons for that change?

The employees' responses to these questions provided information necessary to explore the following issues from the employees' point of view:

To what extent are the needs of the job met by the content and structure of the educational system, in the view of the employees?

What type of training do the employees need to enter into the labour market, and how long do the training programmes last ?

What factors do employees take into account while entering into a specific occupation ?

What is the degree of correspondence between academic performance and job performance as perceived by the employees ?

On the basis of the evidence available in the employee survey we will be able to test the validity of the following assumptions in the context of manpower planning in Pakistan.

1. The assumption that the elasticity of substitution (supply and demand) between different types of educated manpower is zero or near zero.

2. The assumption of manpower planning that the estimates of educational requirements can be made for different categories of occupations.

3. The assumption of manpower forecasting that all relative prices, wages and salaries remain constant.

The employer questionnaire is mainly based on the issues related to their labour market experiences and various aspects of manpower planning in Pakistan. It also covers the issues related to manpower planning in a real-working situation within the country. The employers' questionnaire addresses the following questions:

i. What methods do the employers use to recruit employees with different levels of

education?

ii. How important do they consider each of the following criteria in the selection of employees for their concern?

Academic record, aptitude tests, interview, past experience in a similar type of job, personal contacts with the employer, and parental status and family background.

iii. Do they provide in-service training to the educated workers of the organization ?

iv. Does training differ for different occupational categories? If yes, please specify the differences:

v. Which of the following options do they take into account to fill a vacant position in their organization?

a. Hiring untrained manpower at low salary.

b. Hiring highly skilled workers at high rate of salary.

c. Hiring skilled craftsmen instead of institutionally trained workers.

d. Upgrading the job.

e. Rotating the workers on different types of jobs.

f. Adjusting the working hours of the present workers.

g. Introducing new technology

vi. Do they prepare manpower plans in their organizations ? If yes, what time period do they plan over ?

vii. Do the employers think that there is a shortage of trained manpower for their concern?

viii. How important do the employers think each of the following measures is to overcome

the problem of shortage of trained manpower for your concern?

a. More emphasis on practical training.

b. Providing in service and on the job training.

c. Frequent changes in curricula in consultation with employers.

d. Provision of modern scientific laboratories.

e. Hiring foreign consultants to train the local workers.

f. Raising the salary and other monetary and non-monetary benefits.

g. Starting double shift in technical institutions.

h. Integrating vocational subjects with the general education at secondary level.

i. Opening more technical institutions in the country.

The employers' response to these questions will provide us with information to explore the following issues from their point of view:

What are the recruitment methods and selection criteria for a job and how relevant are they as perceived by the employers?

What is the degree of relationship between academic performance and the job performance as perceived by the employers?

Do employers plan, and what factors do they take into account when they prepare manpower plans ?

What are the main problems they are faced with in making estimates of manpower requirements for their concern ?

What measures do the employers suggest to overcome the problems of manpower planning for their concern?

On the basis of the evidence available in the employers' survey we will be able to test the validity of the following assumptions in the context of manpower planning in Pakistan.

1. The assumption that the elasticity of substitution (supply and demand) between different types of educated manpower is zero or near zero.

2. The assumption of manpower planning that the estimates of educational requirements can be made for different categories of occupations.

3. The assumption that the pace of change in technology and labour productivity during the planning period is predictable.

4. The assumption of manpower forecasting that all relative prices, wages and salaries remain constant.

5. The assumption of a fixed or stable relationship between inputs of different types of manpower and output.

6. The assumption of a fixed and stable relationship between labour output and capital.

Finally findings of the both employers and employees surveys were compared to draw the overall conclusion about the validity of the assumptions of MRA concerning the education-occupation relationship in the context of manpower planning in Pakistan.

## 6.7 PROCEDURE

Prior to the actual study, we conducted a pilot study. For this purpose a sample of about 50 respondents including a sample of employees, and employers, were selected from their respective organizations within Islamabad. The results of this study enabled us to test and

refine our instruments.

We delivered and collected the questionnaires from the respondents at the spot. In the case of the busy respondents this was made when it was most convenient to them. Hopefully it was possible for us to collect the empirical data within the target period, i.e from 1st August to 31st October, 1994.

We will analyzed and interpreted the empirical data collected from the respondents involved in our study using SPSS at the Institute of Education, University of London. The findings of the study were applied to the wider population of a kind similar to the samples.

### 6.7.1 The Target Population

Our study is mainly related to literate or educated manpower in the country. It was not possible for us to collect data from all individuals for our concern due to a lack of resources in terms of time and money. Keeping the constraints of the time survey in view we selected a random sample from the target population The sample groups for the study were drawn from the following sets of population within the target area :

a. Employers. (including the government, semi-government, and the private sectors).

b. Employees. (including the government, semi-government, and the private sectors).

## 6.7.2 The Target Areas

The individuals for our concern are scattered throughout the country. It was not possible for us to have an access to every part of the country. In this context we selected the twin cities of Rawalpindi and Islamabad for the following reasons:

a) Islamabad is the capital of Pakistan and most of the manpower planning work at federal level is done in this city. We were able to interview and collect secondary data more easily from planners as they were in this city.

b) This city fully represents the public sector of the economy for our concern, because almost all head offices/directorates of public organizations are situated in it.

c) The industrial area in these cities, especially in private sector, represents all types of private firms including small local (recruiting only 10 persons) and big multinational firms such as the Wilson Pharmaceutical Industries, Industrial Area Islamabad and the Save the Children US, F-7, Islamabad.

d) These cities are situated very close to each other and it was possible for us to collect from the respondents from these cities within the target time period.

The organizations within the target area were selected from the latest published list of establishments in the country, employing 10 or more workers. For overall conclusion we compared data collected from both employers and employees included in the sample. For this purpose the size of the both samples had to be compatible so that statistically significant results could be drawn from the findings of these samples   It was proposed that about 100 employers and 500 employees will be selected from their respective

population set. In this context, we delivered 120 questionnaires to employers and 550 to employees to overcome the risk of low response rate. They were selected from both the public and private sectors. The details of the samples are given in Chapter 7. (see the Table 7.2 and 7.3). We expect that we will be able to contact this number of employers and employees within the time period.

All major types of occupational groups of the employees from each stratum will be included in employee sample. For this purpose we consulted the following studies:

1. International Standard Classification of Occupations, published by ILO.

2. Standard Occupational Classification vol.I, (1990):published by the Office of Population Census and Survey, London.

3. A Study of the Occupational and Educational Requirements and Supply of the 6th Five-Year Plan, 1983-88, published by the Government of Pakistan.

4. IIEP (1968) Manpower Aspects of Educational Panning.

5. Department of Employment London (1972) Classification of Occupations and Directory of occupational Titles vol. II.

## 6.8 OCCUPATIONAL GROUPS

On the basis of these documents we classified the occupational groups as follows:

i.   Administrators/Managers

ii.  Professionals and the related skilled workers.

iii. Clerical and related workers.

iv. Sales workers.

v. Production workers.

vi. Any other. Not elsewhere classified (nec).

### 6.8.1 Administrators/Managers

The group of occupations whose main tasks consist of the direction and coordination of the functioning of organizations including internal department and sections, often with the help of sub-ordinate managers and supervisors. (Standard Occupational Classification, 1991: p. 43). For instance, secretary, deputy secretary, general manager, director, deputy director, assistant director, section officer, and administrator officer etc.

### 6.8.2 Professionals and Related Skilled Workers

The group of occupations whose main tasks require a high level of knowledge and experience in the Natural Sciences, Engineering, Life Sciences, Social Sciences, Humanities and related fields. Their main tasks consist of practical application of an extensive body of theoretical knowledge, increasing the stock of knowledge by means of research and communicating such knowledge by teaching methods and by other means. For example, natural scientists, engineers, health professional, teaching professionals, legal professionals, business and financial professionals, architects, town planners and surveyors, economists, statisticians, certified accountants, librarians, jurists, authors, journalists, and other professionals. (ibid. p. 73).

### 6.8.3 Clerical and Related Workers

The group of occupations requiring the knowledge and experience necessary to record, organise, store and retrieve information, compute data, and perform client oriented clerical duties. Their main tasks involve typing work, processing and other secretarial skills, business machines, sorting, classifying, filing, and despatching administrative and business records; providing information to clients, assisting librarians and draughtspersons, and routing information through organizations. (ibid. p. 133). For example, clerical supervisors, assistants, stenographers, steno typists, card and tape punching machine operators, computer machine operators, transport and communication supervisors, telecommunications workers, book-keepers, cashiers and related workers, government non-gazetted officers and so on. (A Study of the Occupational and Educational Requirements and Supply of the Sixth Five-Year Plan, 1983-88: pp. 66-70).

### 6.8.4 Sales Workers

It covers occupations whose tasks require the knowledge and experience to buy, sell or demonstrate goods for wholesale or retail consumption. Their main tasks involve a knowledge of sales and techniques including the visual display of goods at the point of sale, familiarity with cash and credit handling procedures and certain amount of record keeping associated with those tasks. (op. cit. p. 213). For instance, buyers, brokers and related agents, sale representatives, sale assistants and check-out operators, mobile market and door to door salespersons, merchandisers technical salesmen, commercial travellers, insurance, real estate securities, and auctioneers etc.

### 6.8.5 Production Workers

The occupations where a degree of skill is required by experience and/or some training. It includes workers employed on jobs where at least one month training is considered essential. (Manpower Aspects of Educational Planning, 1968: p. 61).

## 6.9 SELECTION OF THE SAMPLE

As researchers it is not possible for us to contact or administer questionnaires to collect data from all the population. According to Fraenkel and Wallen (1993), "population is the group of people to which the researcher would like the results of a study to be generalizable; it include all individuals with certain specified characteristics". (Fraenkel and Wallen, p. 554). To achieve the representative samples to general Pakistani situation, the sample groups were selected at random from their respective set of population within the target area.

The random selection limited the probability of choosing a biased sample. The target population for our concern is found in different strata. In this study, the stratified random sampling method was adopted. It was expected that a representative sample could be selected by this procedure because it controls for selection invalidity based on preselected variables in a systematic way. Furthermore it is appropriate to use with those variables identified as presenting the greatest potential source of selection bias. According to Fraenkel and Wallen (1993), the validity is "the degree to which inferences can be made

based on results from an instrument; depends not only the instrument itself, but also on the instrumentation process and the characteristics of the group studied". (ibid. 1993: p. 558).

We expected, the stratification would add precision in ensuring that the sample contained the same proportional distribution of respondents on selected parameters as the population. We also expected that stratified random sampling would enable us in screening members of the population into and out of the study for reducing the variability of the sample. The variability means "the extent to which scores differ from one another". (ibid. p. 558).

For this purpose the whole population was stratified in such a way, that possible similar units from each of the strata could be drawn at random. The details of the procedure for each of the target groups are given below.

## 6.9.1 Sampling of the Employers

As discussed earlier in this chapter, (see paragraph 7.2) we intended to include 100 employers and 500 employees in their respective samples. The size of the sample varied according to the number of employers available in each sector. We delivered and collected the questionnaires at the place of work, but in the case of busy respondents a delivery and collection of questionnaires was made which is most convenient to them. For this purpose the respondents were contacted by telephone at their job or at their residence. It was hoped that the face to face contact would provide an opportunity to overcome any problem faced by the respondents, i.e. understanding the language/terminology of the

questions. A team of 5 to 7 volunteers from Allama Iqbal Open University Islamabad, gave their time in contacting the respondents. They also assisted in delivering and collecting the questionnaires from the respondents.

## 6.9.2 Sampling of the Employees

Stratification of the employees was done on the basis of the different categories aiming to include equal proportions of various sections of the target population. We included female workers in the sample, although the females' participation rate in the labour market is only 7 percent. (Economic Survey 1991-92: p. 131).

The employees were stratified in the following way:

a)  the economic sector,

b)  industrial groups,

c)  occupational groups.

### 6.9.2.1 The economic sectors

There are three major sectors of the economy, namely, the government, semi-government, and the private sectors. All these sectors were included in the sample in equal proportion.

### 6.9.2.2 The industrial groups

This was the second category to be considered in stratifying the target population. These

groups are mentioned in each of the Five-Year Plans, Economic Surveys, and the Labour Force Surveys, published by the Govt. of Pakistan. The respondents included in the sample were selected randomly from all of these industrial groups. However, these were taken from the latest published list of establishments of the country, employing ten and more workers. The industrial groups are as below:

i.    Agriculture

ii.   Mining and Quarrying.

iii.  Manufacturing.

iv.   Electricity, Gas, and Power.

v.    Constructions.

vi.   Wholesale/Trade, Business, Hotels and Restaurants.

vii.  Transport and Communications.

viii. Banking, Insurance Real Estate and Business Services.

ix.   Community, Social and Personal Services.


**i. Agriculture**


This major division covers activities primarily relating to agriculture, such as growing of field crops, fruits, vegetables, nuts, seeds, tree nurseries, except those of forest trees, bulbs, flowers both in open and under glass, tea, coffee, cocoa and rubber plantation, raising of life stock. It also includes the establishments primarily engaged in landscape gardening, soil conservation services, salinity control services, flood control services, and the processing of agricultural products on farms. (Pakistan Standard Industrial Classification Of All Economic Activities, 1970: pp. 1,25).

## ii. Mining and Quarrying

This division covers activities primarily relating to the extracting, dressing and refining of minerals, liquids, and gases such as coal, ores, crude petroleum, natural gases, etc from under-ground or surface mines, quarries, pits and wells. Extraction of stone, clay and sand, or other non-metallic minerals is also included in this division. (ibid. p. 33).

## iii. Manufacturing

Manufacturing is defined as the mechanical or chemical transformation of inorganic or organic substances into new products whether the work is done by power-driven machines or by hand, whether it is done in a factory or in the worker's home and whether the products are sold at wholesale or retail prices. It includes food manufacturing, manufacturing of dairy products, production of vegetable oils and ghee, grain milling and products, manufacturing bakery products, manufacturing beverages and tobacco, processing and blending tea and coffee, textile, wearing apparel and leather industries, manufacturing wood and wood products, manufacturing paper and paper products, manufacturing chemicals, petroleum, coal, and plastic products, manufacturing metallic products, machinery and equipment and other similar industry. (ibid. pp. 4-14, 42).

## iv. Electricity, Gas and Water

This division covers activities primarily relating to generation, transmission and

distribution of hydro/thermal/nuclear electricity, gas, steam and water to household, industrial or commercial users. It includes Water and Power Development Authority (WAPDA), oil and Gas Development Corporation (OGDC), Pakistan Atomic Energy Commission (PAEC), and other gas manufacturer and distributers. (ibid. p. 107).

## v. Construction

This division covers activities primarily relating to construction such as new works, additions, alteration, maintenance and repair of buildings, highways, streets and culverts, heavy constructions of such projects as sewers and water mains, railway roadbeds, piers, tunnels, sub-ways, elevated high-ways, bridges, viaducts, dams, drainage projects, irrigation and flood control projects, sanitation projects, water-power projects, gas mains, pipe lines and all other types of heavy construction, marine construction, construction of dock, harbours and waterways, water wells, airports, athletic fields, parking lots, communication system and all other construction whether undertaken by private bodies or government authorities. Carpentering, plumbing, plastering and electrical work carried out in the field of construction is also included in this division. (ibid. p. 109).

## vi. Wholesale and Retail Trade and Restaurants and Hotels

This division covers activities mainly related to the sale of goods and commodities, whether on wholesale or retail basis. The sales of commodities consumable in the premises of their transactions, catering and lodging services in hotels, restaurants and other such establishments are included in this division. (ibid. p. 114).

## vii. Transport and Communication

This division covers activities mainly related with the transportation of passengers and freight by hand, water or air, services related to transport, warehouse, which sell their services to persons other than owners of the warehouses, telephone, telegraph, radio, television, teleprinter, postal services, and other communication services. (ibid. p. 137).

## viii. Financing, Insurance, Real Estate and Business services

This division covers activities mainly concerned with the banking of all types and development of credit and financial institutions, investment and security and commodity brokage, under-writing and other services relating to finance. (ibid. p. 143).

## ix. Community, Social and Personal Services

This major division covers activities mainly related to rendering of services, such as governmental services, education and health services, social and community related services, recreational services, personal and household services. It includes repair services which are not covered by manufacturing and Wholesale and Retail Trade and Restaurants and Hotels. (ibid. p. 147).

**x. Government Administration**

The institutions included in this group are mainly concerned with the administration and coordination between different organizations in the public sector. The main tasks involve the approval of the policy matters regarding the administration, management, financing and so on. It also includes the approval of the different projects/plans including annual development plans, mid-term plans (3-5 year) and perspective plans (15-20 year). The release of budgets and other financial matters are also dealt with by this group. Many institutions are included in this group. For example, Ministry of Interior, Finance Division, Planning Commission, Manpower Division, Management Services Division, and Public Service Commission etc.

## 6.9.2.3 The occupational groups

There exists, different occupational groups in various organizations in each sector of the economy, but the proposed occupational groups are as under:

i. Administrators/Managers

ii. Highly-skilled workers

iii. Middle-level skilled workers

iv. Semi-skilled workers ( holding a training certificate from any recognised institution)

v. Clerical staff

vi. Other Supporting Staff

Efforts were made to select an equal proportion of respondents from each of the strata of

the target population. To get an adequate and representative sample, the sample ratio varied according to the number of respondents available in each stratum. The variability of the characteristics within a sample group, was also be taken into account. The greater the variability in the stratum, the higher the sample ratio to maximise the precision of the results. We expected that stratified random sampling of respondents would help us in reducing the variability of the sample.

## 6.10 SUMMARY

The central concern of this study was to explore the validity of the assumptions concerning the relationship between the education and occupation in Pakistani manpower planning. Following the methodology the samples of employees and employers were selected randomly from their respective population set within the target area, Rawalpindi and Islamabad. The primary data for empirical work were collected via questionnaires from the respondents. On the basis of the analyzed data we will be able to investigate the prevailing relationship between education and occupation in Pakistan. It was hoped that findings of the study would provide evidence to test the validity of the assumptions of MRA concerning the education-occupation relationship in Pakistani manpower planning.

CHAPTER SEVEN


THE SAMPLE AND THE RESPONSES


## 7.1 INTRODUCTION


The central objective of the study was to explore the nature of the relationship between education and occupation with special reference to Manpower Planning in Pakistan. We followed the method discussed in Chapter 6 to collect the empirical data from the respondents, ie. employers and employees involved in the study. For this purpose, we used the structured questionnaires as an instrument to collect the empirical data from respondents involved in the study.


Prior to the actual study, in June, 1994, a pilot study was conducted. For this purpose a sample of forty respondents, 10 employers/heads of the departments and 30 employees was selected. The sample was selected from the High Commission for Pakistan, with advise from a delegation of educationist/administrators from Pakistan, who were visiting the UK at that time. We discussed with them the problems concerning the clarity of the language/terminology used in the questionnaires. We refined the questionnaires in the light of the comments made by them. The results of the pilot study enabled us to refine the questionnaires. Thereafter the questionnaires were used to collect the empirical data from the target population.


As discussed in Chapter 6, questionnaires were delivered and collected by the researchers

in person. In the delivery and collection of questionnaires we were assisted by a group of five colleagues from the Allama Iqbal Open University and Federal Government Secondary School No.2 Islamabad. On July 25, 1994, we met those colleagues to explain the purpose of the study and how they were to collect the data from respondents. Interviews with respondents were arranged at their convenience. Their cooperation enabled us to collect the data within the target time, ie. from July, 26 to September 29, 1994.

The empirical data collected from the respondents was loaded and tabulated into the SPSS programme at the Institute of Education, University of London. The data was analyzed using appropriate statistical techniques from the SPSS and these are described in the chapter "Analysis and Interpretation". (see Chapter 8).

## 7.2 CHARACTERISTICS OF THE SAMPLES

To achieve a representative sample of employers and employees the sample groups were selected at random from their respective set of population within the target areas as mentioned in Chapter 6. To enable the selection of a representative sample a stratified random sample was used, the purpose of which was to allow the population to be stratified so that similar units could be randomly drawn. The details of the samples included in this study are given below.

### 7.2.1 Sampling of the Employers

Overall we contacted 120 employers including government, semi-government, and the private sectors and received 95 (ie.76.6 percent response rate) completed questionnaires from them. Of these three questionnaires were invalid, with the remaining questionnaires analyzed by us. (see appendix C). As discussed in Chapter 6, where possible we collected the questionnaires on the spot, but in the case of busy respondents delivery and collection of the questionnaires were made when it was most convenient to them. We contacted the respondents by telephone at their place of work and in some cases at their residence. A group of five colleagues as described earlier assisted me in contacting the respondents. They also assisted in delivering and collecting the questionnaires from the respondents. With the questionnaires we included an introductory letter highlighting the purpose of the study. (see appendix D). We assumed that after conducting a pilot study, there would be no problem of understanding the language/terminology of the questions addressed in the questionnaires. But at the time of collecting the completed questionnaires from the respondents, we discovered that some problems still remained. For example, we discovered that the word "employer" was not clear to all employers, especially in the government sector. Some felt the employer questionnaire was not related to them. They considered the responsibility of employment of workers to be that of the government. These problems were resolved in our interviews with the respondents. This also increased the response rate to a considerable extent.

We included government, semi-government and private sectors proportionally in the employer sample. We related the proportion of the employer sample to the investment

allocated by the government at national level during the 6th Five-Year Plan for 1987-88. This was 45.37 percent government, 13.91 percent semi-government and 40.71 percent private sector. (7th Five-Year Plan 1988-93, p. 325).

The details of the employers involved in the study, from each sector is given in the table 7.1.

## TABLE 7.1

Frequencies and the percentages of the employers included in the study by sector.

| Sector | Value | Frequency | Percent |
|---|---|---|---|
| government | 1 | 37 | 40.2 |
| semi-govt. | 2 | 23 | 25.0 |
| private | 3 | 32 | 34.8 |
| Total (Employers) | | 92 | 100.0 |

## 7.2.2 Sampling of the Employees

Stratification of the employees was made on the basis of the different job categories aiming to include a proper proportion of various sections of the target population. We also included female respondents in the employee sample for their opinions, although their participation rate in the labour market is only 7 percent. (Economic Survey 1991-92:

p. 131). The number of female respondents in the employee sample was 68 (ie.13 percent), which indicates that the participation rate of females in the sampled areas is significantly greater than the overall participation rate of females in the country.

Not only is the participation of women higher than the national average in these cities, the educational level of women is also higher. The literacy rate of females in the sampled areas is higher than overall in the country. (Economic Survey 1993-94: p. 6). The regional distribution of the employees by gender is given in the Table 7.2.

## TABLE 7.2

Table on regional distribution of the employees by gender. (percentages).

| Sex | Rural | Urban |
|---|---|---|
| Males | 54.64 | 45.36 |
| Females | 23.54 | 76.46 |
| Overall | 50.53 | 49.47 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 23.10102 | 2 | .00001 |

=================================================================

The respondents were asked to state their domicile, as given on their official certificate of residence. This relates to the place of birth rather than current place of residence.

The percentage with an urban domicile was greater in the sample (50.53 percent) than in the country as a whole, where 28 percent is classified as urban. (Government of Pakistan, Population Data Sheet 1992).

The fact that nearly half of the sample is classified as urban reflects the general trend towards urbanization, noted by the Economic Survey 1991-92, which states that:

> Pakistan is faced with a serious problem of irreversible urbanization. For instance, the urban population in Pakistan has increased from 15.4 percent to 28.3 percent of the total population during the period 1947-1981, and estimated figure for this population in 1991-92 is 34.71. (Economic Survey 1991-92: pp. 120, 140).

Overall findings of the Table 7.2 shows that a high percentage (49.47) of respondents belong to urban locality. This is greater than the overall percentage of urban population (ie. 28 percent) at the national level. The result of Pearson chi-square test revealed that there is a significant difference between the males and females by domicile.

The characteristics of the sample are also consistent with the results of a previous study conducted by Hawthorn Institute of Education (1989), which showed that 88 percent of the total migrants move from rural to urban areas within and between provinces. (Hawthorn Institute of Education 1989: p. 21). On the one hand, this migration creates overcrowding of certain types of qualified manpower in the cities, causing unemployment, and on the other, creates scarcities of the same type of manpower in the rural areas. Moreover findings of this study indicates that, in Pakistan, the rate of growth of urbanization is increasing over time. Since the sample was drawn from the Rawalpindi and Islamabad area the high proportion of respondents with an urban domicile may also

reflect the fact that their parents may have migrated to Islamabad from other parts of the country when it came into existence as a capital of Pakistan, in 1961.

Results of this table also suggest that a higher percentage of female had an urban domicile. There are several possible reasons for this difference. Some women apply for a new certificate of domicile on marriage; this will reflect their husband's domicile rather than their own place of birth. A second possible explanation is related to the location of schools for girls. There are more girls' schools located in urban than rural areas, and since the females in the sample had a higher educational level than average, it is not surprising that a high proportion state that they have an urban domicile. Furthermore, those who migrate to Rawalpindi or Islamabad are likely to be of higher status and educational qualifications than the national average, and therefore more able to support females' participation in education and the labour market.

Finally there are more job opportunities for women in urban than in rural areas, which may also help to explain the higher proportion of female respondents with an urban domicile.

The sample of the employees covers most of the economically active population, that is from 16 to 55 years. This sample is depicted in the figure 7.1.
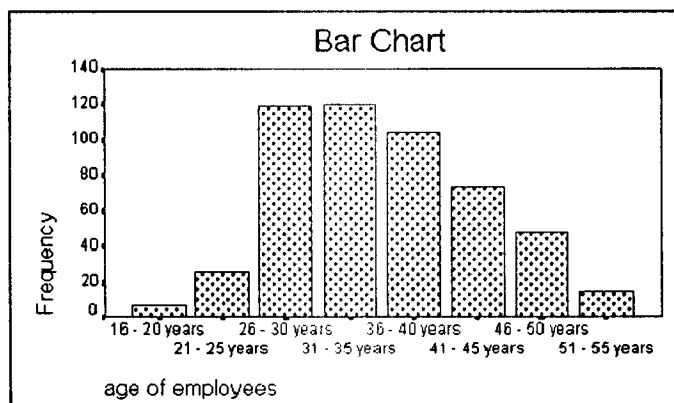
**Fig. 7.1** Showing the frequencies of age groups of the employees.

The employees, as discussed in the methodology chapter, were stratified in the following way:

a) according to the economic sector,

b) according to industrial groups,

c) according to occupational groups.

### 7.2.2.1 The economic sectors

There are three major sectors of the economy, namely the government, semi-government, and the private sectors. As discussed earlier, all three sectors were included in the sample in proportion to their numbers in the labour market. We delivered 550 employee questionnaires in all, and 537 were returned by the respondents. Out of these questionnaires 18 were invalid and 519 were valid. Thus we had a valid employee's response rate of 94.36 percent. The details of the employees by sector are given in the table 7.3.

TABLE 7.3

Frequencies and percentages of employees included in the study by sector.

| Sector | Value | Frequency | Percent |
|---|---|---|---|
| government | 1 | 296 | 57 |
| semi-govt. | 2 | 144 | 28 |
| private | 3 | 79 | 15 |

N = 519

The sample appears biased towards the non-private sectors. The main reasons for this were:

1. Although we contacted proportionally a similar number of private employers, 34.8 percent, (see Table 7.1), we had only 15.2 percent private employees in the employee sample because many employers from this sector were not prepared to give us information about their employees, mainly for tax reason. They probably feared that if they did so, the government would come to know their actual income and the number of employees in the organization. However, we had 100 percent response rate from the private employees who were successfully contacted. The details of the employees response rate by sector are given in Table 7.4.

TABLE 7.4

Frequencies and percentages of response rate of employees questionnaire by sector.

| Sector. | Questionnaires distributed. | Questionnaires returned. | Response rate(percent) |
|---|---|---|---|
| Government. | 321 | 296 | 92.21 |
| Semi-government. | 160 | 144 | 90.00 |
| Private. | 79 | 79 | 100.00 |
| Total. | 550 | 519 | 94.36 |

2. As discussed earlier, we contacted proportionally a similar number of establishments from all the sectors, however, the total number of employees in the private sector were lower compared with other sectors. The details of the total number of employees in the establishments participating in our study are given in Table 7.5.

## TABLE 7.5

Comparison by  percentage of the employee sample against the population of the target area by sector.

| Sector. | Total number of employees. | Percent of the total employees. | In sample (percent) |
|---------|---------------------------|--------------------------------|---------------------|
| Government. | 20065 | 46.63 | 56.6 |
| Semi-government. | 17865 | 41.49 | 27.7 |
| Private. | 5109 | 11.87 | 15.2 |
| Total. | 43030 | 99.99 | 99.9 |

We attempted to include female respondents from all sectors of the economy.  The details are given in the Table 7.6.

TABLE 7.6

Table on distribution of employees in different sectors by gender. (percentages).

| Sex | Government | Semi-government | Private |
|-----|-----------|-----------------|---------|
| Males | 59 | 26 | 15 |
| Females | 43 | 40 | 18 |

The Table 7.6 reveals that a relatively higher percentage (ie. 40 percent) of females in the sample were employed in the semi-government sector of the economy, than males (only 26 percent). In other sectors the percentage of male and female employees was almost the same. Table 7.6 does not show much disparity between males and females regarding their jobs in different sector of the economy.

## 7.2.2.2 The industrial groups

This was the second category to be considered in stratifying the target population. For this purpose we observed the Pakistan Standard Industrial Classification of All Economic Activities (PSIC-1970), published by the Central Statistics Office, Government of Pakistan. These groups were also mentioned in each of the Five-Year Plans, Economic Surveys, and the Labour Surveys, published by the Govt. of Pakistan. The following industrial groups were included in the study:

i. Agriculture

ii. Mining and Quarrying.

iii. Manufacturing.

iv. Electricity, Gas, and Power.

v. Constructions.

vi. Wholesale/Trade, Business, Hotels and Restaurants.

vii. Transport and Communications.

viii. Financing, Insurance, Real Estate and Business Services.

ix. Community, Social and Personal Services.

x. Government Administration.


The details of these groups are presented in Table 7.7.

## TABLE 7.7

Frequencies and percentages of industrial groups included in the study.

| Value Label | Value | Frequency | Percent |
|---|---|---|---|
| agriculture | 1 | 7 | 8 |
| mining | 2 | 3 | 3 |
| manufacturing | 3 | 11 | 12 |
| construction | 4 | 7 | 8 |
| elec.& power. | 5 | 5 | 5 |
| trade | 6 | 4 | 4 |
| transport. | 7 | 2 | 2 |
| govt. admn. | 8 | 13 | 14 |
| community. | 9 | 33 | 36 |
| banking. | 10 | 4 | 4 |
| any other | 22 | 3 | 3 |
| Total | | 92 | 100 |

Hussain, T. et.al. (1987) carried out a study in this field. A comparison of the sample with that study and the Economic Survey 1993-94 is given in Table 7.8:

## TABLE 7.8

The comparison of the sectoral distribution of workers in the present study with Hussains' study and Economic Survey 1992-93. (in percentages)

| Industrial Group. | | Present Study | Hussains' Study | Economic Survey 1993-94 |
|---|---|---|---|---|
| agriculture | 1 | 7.6 | 4.0 | 48.27 |
| mining | 2 | 3.3 | 1.0 | 0.25 |
| manufacturing | 3 | 12.0 | 44.0 | 12.28 |
| construction | 4 | 7.6 | 4.0 | 6.33 |
| elec.& power. | 5 | 5.4 | 4.0 | 0.79 |
| trade and whole sale | 6 | 4.3 | 6.0 | 13.10 |
| transport. | 7 | 2.2 | 5.0 | 0.76 |
| govt. admn. | 8 | 14.1 | --- | --- |
| community. | 9 | 35.9 | 25.0 | 12.65 |
| banking. | 10 | 4.3 | 7.0 | 0.75 |
| any other | 22 | 3.3 | --- | 0.07 |
| Total | | 100.0 | 100.0 | 100.00 |

In Table 7.8 the present study appears biased towards the community services and government administration. The reason for this is:

In the target area, which includes the capital of the country, there was a higher proportion

of institutions of community services and government administration offices than elsewhere in the country. This may cause some bias in the results which we will discuss in Chapter 8.

Table 7.8 also shows the comparison of the sample with the labour force employed by industrial groups at the national level in 1993-94. The sample appears biased towards the non-agricultural sector. The main reasons for this are:

1. Within the target area 82 percent of the population is employed in the non-agricultural activities compared to an overall 50 percent at the national level. (Data Sheet 1992).

2. There exists a higher percentage (60 percent) of urban population within the target area compared to an overall 28.3 percent at the national level. (op. cit).

3. According to an official document, the ratio of employment in agriculture is declining. It is expected to decline from 48.8 percent in 1987-88 to 43.2 percent in the year 2003. (Perspective Plan 1988-2003, p. 25).

4. We are more concerned with groups in Pakistan for whom educational planning is done, and the majority of them are employed in non-agricultural sector in the target area.

### 7.2.2.3 The occupational groups

There are different occupational groups in various organizations in all the three government, semi-government, and the private sectors, but we included the following classification of occupational groups in the study:

i.    Administrators/Managers

ii. Professionals and their related skilled workers.

iii. Middle-level skilled workers (diploma holders)

iv. Semi-skilled workers ( holding a training certificate from any recognised institution)

v. Clerical and related workers

vi. Sales workers.

vii. Production workers.

viii. Others.

We made efforts to select an equal proportion of respondents from each of the strata of the target population. The details of the occupational groups included in the study are given in Table 7.9.

TABLE 7.9

The comparison of the present study with others by workers employed in major occupations. (in percentages)

| Occupation. | Present Study. (percent) | Cohen's Study. (percent) | Labour Force 1993-94. (percent) |
|---|---|---|---|
| Admn/Managers. | 14.8 | 0.74 | 1.06 |
| Professionals. | 51.3 | 2.86 | 4.72 |
| Clerical. | 27.7 | 2.76 | 4.21 |
| Sales Workers. | 3.1 | 11.55 | 11.88 |
| Production. | 2.5 | 2.57 | 25.80 |
| Service Workers. | --- | 4.69 | 4.79 |
| Agr. Workers. | --- | 51.74 | 47.53 |
| Others. | 0.4 | --- | --- |

Note: Cohen's study indicates the estimated figure for 1987-88.

In Table 7.9 the sample appears biased towards the professionals and their related skilled workers. The reasons for this bias are:

1. We observed the International Standard Classification of Occupations, "ISCO" and "A Study on Occupational and Educational Requirements and Supply of 6th Five-Year Plan, 1983-82". According to these documents, this group incudes personnel carrying out professional functions in scientific, engineering, medical, legal, teaching and other fields.

It also included the technicians who generally work under highly qualified professionals and perform allied functions. In addition this group covers occupations such as writer, journalist, jurist etc.

2. The easier access to the teaching personnel and their related professional workers and their willingness to cooperate has increased the number of professionals in the sample.

3. We had only a 15.2 percent private employees in the employee sample, a much lower number compared with other sectors. (see Table 7.3).

4. The sales and production workers of some large private establishments were working out of the target area and therefore made any contact difficult. For example, the workers of Flupetral International, Halliburton, Sui Northern Gas Pipelines, Schlumberger Sedca, Save the Children (US), Jaafer Brothers, were unavailable at their respective establishments and thereby unable to contribute to the sample.

A randomly selected sample of males and females was included in the employees' sample from the target areas. Table 7.10 shows the different categories of jobs by gender.

## TABLE 7.10

Table on different categories of jobs by gender. (percentages).

| Job Category | Males in the sample | Females in the sample |
|---|---|---|
| Administrator/Managers | 15.7 | 8.8 |
| Professionals | 49.4 | 64.7 |
| Clericals | 28.8 | 20.6 |
| Sales Workers | 2.9 | 4.4 |
| Production Workers | 2.7 | 1.5 |
| Any Other | 0.4 | 0.0 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 7.11049 | 5 | .21255 |

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The Table 7.10 indicates that relatively higher percentage (ie. 64.7 percent) of females were employed in the "professionals" group compared to males included in the sample. In this context, however Chi-square did not show any significant difference between male and female respondents.

It is important to note that there are female workers in all primary schools within the target areas (Rawalpindi and Islamabad), from which the employee sample was drawn. Teachers and their related jobs are included in "professionals". Inclusion of these in the employees' sample had made the sample slightly biased towards the "professionals". However, according to the Pearson chi-square no significant difference exists between the male and female respondents by job category.

We planned (see methodology section) to include 100 employers in our study, but we could only include 92 even though 120 employers were contacted. This gives an employers response rate of 76.6 percent. In the employee sample there were 519 valid questionnaires returned by employees out of the 550 contacted. It showed that the employees' response rate was very high, ie. 94.36 percent. Note that this is the response rate for those to whom we were permitted to deliver questionnaires. (see Table 7.4).

# CHAPTER EIGHT

# ANALYSIS AND INTERPRETATION

## 8.1 INTRODUCTION

The main task in this study was to explore the education-occupation relationship with special reference to manpower planning in Pakistan. The relationship can be examined by comparing the opinions, attitudes and experiences of employees and employers in Pakistan. The number of females in the employees' sample is not large (only 68 or 13 percent of the sample) but, nevertheless, the results will be analyzed by gender to see whether there are any significant differences between males and females. In this context, we conducted a survey in Islamabad and Rawalpindi, Pakistan, and collected data via questionnaires from the respondents involved in the study. As stated earlier in the Chapters 1 and 6, the study is based on the research questions and the issues related to the labour market experiences of employers and employees.

The following statistics and tests were applied in the analysis of data, because the data was in the form of frequency counts.

1. Mean (X). To determine the central tendency of a group of subjects.

2. Standard Deviation (S.D). To determine the variability of the scores from the mean.

3. Two x Two Pearson Chi-Square Test $X^2$. To determine whether the observed frequencies are significantly different from the expected frequencies, and assessing whether or not there is any significant difference between variables.

4. Pearson's r. To determine the nature of the relationship between the two variables (if needed).

Analysis of data and the summary of findings of the present study is presented in this chapter followed by the interpretation and implications of the results of the study. This is presented in two sections. The first section deals with the results from an employees' survey, and a discussion and interpretations of these results. The second section deals with results from an employers' survey with interpretations of the results. The data collected from respondents was analyzed in two stages. To answer the research question and subsequent sub-questions the results drawn from data analysis will be discussed and interpreted with special reference to manpower planning in Pakistan. In the end the limitations of the present study will be presented.

# SECTION ONE

## 8.2 RESULTS FROM EMPLOYEES SURVEY

We analyzed data collected from employees involved in the study to present their opinions, attitudes and experiences. As discussed earlier in Chapter 6, the data was collected through structured questionnaires. Frequencies and percentages were calculated for each of the categories of disaggregated data in order to present the facts regarding the labour market experiences of the employees. We applied the Pearson Chi-Square test at the critical value of $p = .05$, to determine statistical significance between variables. The analysis includes the followings:

### 8.2.1 Training Received by the Employees for Entering into Their Respective Jobs

In the survey, respondents were asked whether they received any training to get their job. We calculated that overall 61 percent (ie.316 out of 519) respondents received training from different training institutions to get their job in the labour market. However, a higher percentage of administrators and professionals (ie 70 and 60 percent respectively) received training compared with other categories of workers. It is also noted that about the same percentage (ie 50 percent) of clerical and sales workers were trained. The details of different types of workers who had received training are given in the Table 8.1.

## TABLE 8.1

Table on training received by the employees by Job Category

| Job Category. | Frequency | Percent receiving training |
|---|---|---|
| Administrators/Managers. | 46 | 60 |
| Professionals. | 184 | 70 |
| Clericals | 73 | 51 |
| Sales workers | 8 | 50 |
| Production workers. | 4 | 31 |
| Any other | 1 | 50 |
| Overall. | 316 | 61 |

| Chi-Square | Value | D.F. | Significance. |
|---|---|---|---|
| Pearson | 19.395 | 5 | .00162 |

========================================================

The Pearson Chi-square value, given above, 0.00162 shows that there is a significant relationship between job categories and the training received by employees. It implies that in addition to formal education, training is an important factor in the attainment and retention of a specific jobs in the labour market, particularly professional, administrative and managerial. On the basis of results it might be argued that employers prefer to

employ relatively trained workers rather than simply those who have graduated from the formal system. An alternative explanation is that if employees are untrained, employers may provide them with opportunities for training according to the needs of their jobs, because they think that it is relatively beneficial for them. The results are also consistent with Becker's Model on the costs of training, which suggests that:

> *the firm will invest the 'project' only if the discounted benefits accruing to the firm from (human) capital investment are sufficiently large to cover the costs and, of course, if training investment project is at least as profitable as alternative projects. (Ziderman, 1978: p. 14).*

The survey did not allow us to prove conclusively which of these explanations is correct, but the results do demonstrate that there is a relationship between formal education and training, particularly among professional employees.

We explored the relationship between the training received by the employees and their ages. The Table 8.2 presents the details of the percentages of the age groups of the employees and the training received by them.

**TABLE 8.2**

Table on training received by the employees by age. (percentages)

| Age Groups | Yes | No |
|---|---|---|
| 16 - 20 years | 14.3 | 85.7 |
| 21 - 25 years | 61.5 | 38.5 |
| 26 - 30 years | 60.5 | 39.5 |
| 31 - 35 years | 62.5 | 37.5 |
| 36 - 40 years | 60.6 | 39.4 |
| 41 - 45 years | 65.8 | 34.2 |
| 46 - 50 years | 58.3 | 41.7 |
| 51 - 55 years | 71.4 | 28.6 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 8.03990 | 7 | .32909 |

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The results in Table 8.2 revealed that significantly high percentage (from 58- 71 percent) of respondents from the age group of 21- 55 years had received training. It is noted that only 14 percent of the employees from the age group of 16 - 20 involved in this study were trained. This may reflect that older workers have had more opportunities for on-the-

job training than the youngest employees, who have only recently started work. These results will be compared with the results of employers' survey later in this chapter. The Pearson chi-square did not indicate any significant relationship between the training received by the employees and their ages.

### 8.2.1.1 Types of training

Employees were asked that what type of training they had received prior to entering into the labour market. Overall 39 percent (ie. 128) respondents received pre-service training, (general) 44.5 percent (ie. 147) received on the job training, (specific) 14 percent (ie. 46) in-service training and only 3 percent (ie. 9) received apprenticeship training. Apprenticeship is a training programme, whether in or out of school, providing opportunities for apprentice workers to experience as closely as possible real-life working situations in which they can gain both practical and theoretical knowledge in their chosen trade or profession. In-service training is a training provided to a trainee outside the job context by a specialized training agency. It raises the potential productivity of a trainee. On-job-training encompasses formal and informal training received in the job situation including learning by experience. It is a specific type of training which increases the productivity of a trainee in the firm providing it, but which does not raise his potential productivity in other firms. Generally employers are interested in providing this type of training to their employees. Pre-service training is defined in the next paragraph. The details of the types of training received by respondents is given in the Table 8.3.

TABLE 8.3

Table on  type of training received by employees category of job.  (percentages)

| Job category | Pre-service | On the job | Appren-ticeship | In-service | N |
|---|---|---|---|---|---|
| Admn/Managers | 18 | 58 | -- | 24 | 50 |
| Professionals | 44 | 39 | 3 | 13 | 189 |
| Clerical | 44 | 41 | 4 | 10 | 77 |
| Sales workers | -- | 75 | 12.5 | 12.5 | 8 |
| Prod. workers | 20 | 80 | -- | -- | 5 |
| Any other | -- | 100 | -- | -- | 1 |
| Overall | 39 | 44.5 | 3 | 14 | 330 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 28.566 | 15 | .01828 |

The total number of responses in Table 8.2 (ie. 330) exceeds the total in Table 8.1 (ie. 316). This is because some of the employees included in the sample had received more than one type of training. For example, some had received on the job training as well as pre-service training. Pre-service training is defined as all post-school technical and vocational training leading or intended to lead, to direct employment in a specific category

of job in the labour market. For example, in Pakistan, one year teaching training in a "college of education" is required for a teacher at secondary level. It is surprising that none of the sales workers included in the sample, received pre-service training. Mostly sales workers are employed in the private sector. Results from Table 8.11 show that substitution exists between different types of qualified manpower in the labour market. It is therefore concluded that employers in the private sector prefer to employ untrained workers because they can offer them low rate of wages. This is probably the main reason why there are no trained sales worker in the sample. In the case of the government sector, it is possible that they could not get the training because of a lack of financial resources or that they had no access to the training institution etc. Similarly none of the production workers received in-service training. (see the Table 8.2). Probably they were young and newly appointed to their respective jobs, and later on they would be provided with in-service training. (see the Figure 7.1 in Chapter seven).

The chi-square value indicates that there is a significant relationship between the job categories and the types of training, received by employees for this purpose. Results of the study revealed that 58.5 percent of employees have received in-service and on the job training. This implies that despite employees' general educational qualifications they need in-service and on-the-job training. That in-service and on the job training have a significant relationship with the job categories of employees were also uneducated. Results of the employees' survey conform to employers survey given in the Table 8.20. The results of the employees survey were similar to a previous study conducted by UNESCO (1987). These showed that in Pakistan, a loose relationship exists between education specialization and job category in more than 50 per cent of respondents.

Findings of the study revealed that a significant difference exists between the types of training received by the employees and their age groups. The details are presented in the Table 8.4

## TABLE 8.4

Table on types of training received by employees by age groups. (percentages).

| Age group | Pre-service | On- the- job | Apprenticeship | In-service |
|---|---|---|---|---|
| 16 - 20 years | --- | 100 | --- | --- |
| 21 - 25 years | 50 | 31 | 19 | --- |
| 26 - 30 years | 46 | 38 | 7 | 9 |
| 31 - 35 years | 47 | 39 | --- | 14 |
| 36 - 40 years | 30 | 59 | --- | 11 |
| 41 - 45 years | 29 | 53 | --- | 23 |
| 46 - 50 years | 33 | 40 | 3 | 23 |
| 51 - 55 years | 36 | 27 | --- | 36 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 48.68282 | 21 | .00055 |

The findings of Table 8.4 revealed that the respondents from the age group 21 - 55 years were most likely to have received "pre-service" or "on-the-job" training. Many respondents from the age group 26 - 55 years had received "in-service" training. Most workers who had received "apprenticeship" training were in the age group 21 - 30. It is notable that the respondents from the age group 16 - 20 had received only on-the-job

training. These youngest workers had not received any of the other types of training. One of the main reasons for this may be the cost of pre-service training. The youngest workers might have not enough resources for this purpose. Secondly, they were young and they may have thought that they would be provided with in-service or on-the-job training by their respective employers.

Overall the results of this study revealed the existence of a relationship between the ages of the respondents taken from the target areas, and the type of training they received. The Pearson chi-square value given above, .00055 also shows that there exists a significant relationship between the type of training received by employees and their ages.

## 8.2.1.2 Duration of training programmes

We also asked respondents how long their training programmes had lasted. We calculated the frequencies of training programmes by duration in each category of jobs. The training programmes were unevenly distributed by time period in each category of job. However, about 81 percent (ie 265) of the training programmes fall into the "three-six months" and "six-twelve months" categories. The details of the durations of training programmes by job category are given in Table 8.5

## TABLE 8.5

Table on length of training received by the employees. (percentages)

| Job category | 1-3 month | 3-6 month | 6-12 month | 1-3 year | 3-5 year | 5-8 year | N |
|---|---|---|---|---|---|---|---|
| Admn/managers | 14 | 50 | 30 | 4 | -- | 2 | 50 |
| Professionals | 6 | 29 | 52 | 11 | 1 | 1 | 189 |
| Clerical workers | 8 | 47 | 35 | 8 | 3 | -- | 77 |
| Sales workers | 25 | 12.5 | 50 | -- | 12.5 | -- | 8 |
| Production workers | -- | 50 | 25 | -- | 25 | -- | 4 |
| Any other | 100 | -- | -- | -- | -- | -- | 1 |
| Overall | 8 | 36 | 44 | 9 | 2 | 1 | 329 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 56.96 | 25 | .00027 |

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The Pearson Chi-square shows that there is a significant relationship between job

categories and the duration of training received by employees. We calculated the frequencies of training programmes by duration in each category of jobs. The training programmes were unevenly distributed by time period in each category of job. However, about 81 percent (ie 265) of the training programmes fall into the "three-six months" and "six-twelve months" categories. (see the Table 8.3). It is probably due to 200 vocational schools with an intake capacity of 20,000 under the administrative control of Provincial Education Department. They offer a variety of training courses ranging from 3-12 months for middle and secondary school graduates. (Eighth Five-Year Plan, p. 313). This result indicates that there no significant relationship exists between general education and occupation. Thus graduates produced by the formal educational system appear to need to have some sort of training to meet the requirements of jobs in the labour market. In Pakistan, however, the purposes of manpower estimates are narrowly conceived and projections aim only at estimates of requirements by formal education. No doubt, the formal system is a major source of skilled manpower. But it is open to question that education is the only determinant of job performance, because some skills and abilities helpful to performance are not taught directly in schools, such as, communication skills and the ability to understand complicated instructions and so on, though these skills may be fostered directly or indirectly by formal education.

### 8.2.2 Usefulness of Employees' Academic Qualifications in Performance of Their jobs

Respondents were asked to what extent were their academic qualifications useful in the performance of their job. The details of employees response selected in the sample are shown in Table 8.6.

TABLE 8.6

Job category by usefulness of academic qualifications in performance of the job. (percentages)

| Job category | Not useful | Some-what useful | Useful | Very useful | N |
|---|---|---|---|---|---|
| Admn/Managers | 3 | 5 | 35 | 57 | 77 |
| Professionals | 3 | 4 | 26 | 67 | 267 |
| Clerical | 6 | 8 | 44 | 42 | 144 |
| Sales workers | -- | 6 | 50 | 44 | 16 |
| Prod. workers | -- | 15 | 46 | 38 | 13 |
| Any other | -- | -- | 50 | 50 | 2 |
| Total | 4 | 6 | 33.5 | 57 | 519 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 30.709 | 15 | .00961 |

The pearson chi-square indicates the significance of the usefulness of employees' educational qualifications. Overall a very high percentage, (ie. 90.5) employees in the sample, considered academic qualifications either useful or very useful towards their job performances. Only 3.9 percent of employees, including 2 admn/managers, 9

professionals and 9 clerical workers responded that academic qualifications were not useful. None of the sales and production workers involved in the study, considered academic qualifications not to be useful to the needs of the job performance. (see Table 8.4).

### 8.2.2.1 Implications

In contrast to the findings of the studies by Tanguiane (1979) and by Hallak (1990), results of the employees survey showed that the academic qualifications are useful in the performance of their jobs in the labour market. These results however, are based on opinions of the respondents and their validity cannot be judged by any objective measure.

### 8.2.3 Factors Taken into Account by Employees When Entering into a Specific Job

During the survey respondents were asked how important they thought each of the following factors were in being appointed to their jobs. The factors were, academic record, aptitude tests, interview, past experience in a similar type of job, personal contacts with the employer, parental status and family background.

We drew separate crosstabulations of job category and each of the factors. We applied Pearson Chi-Square to assess whether or not each of the factors has a significant relationship with job categories. Results revealed that "academic record", and "interview" have significant relationships with job categories (see table 8.5 and 8.6). The "aptitude test", "past relevant experience", "contacts with the employer", and the "parental status and

family background" do not have any significant relationship with job categories of employees. It is important to note that employees considered the "past relevant experience not very important in the selection of their respective jobs. It confirms the idea that employers prefer to select untrained people at low rate of salary. Later employers provide them training especially the 'specific' training, because it suits the employers. This will be further discussed later in this chapter. The details of each of the factors are given in Tables 8.7 - 8.12.

## TABLE 8.7

Job category by employees' perception of importance of academic record in their selection. (percentages)

| Job category | Not imp. | Important | Very imp. | N |
|---|---|---|---|---|
| Admn/Managers | 8 | 23 | 69 | 77 |
| Professionals | 10 | 20 | 70 | 260 |
| Clerical | 11 | 27 | 87 | 143 |
| Sales workers | 12 | 50 | 38 | 16 |
| Prod. workers | 30 | 30 | 40 | 13 |
| Any other | -- | 50 | 50 | 2 |
| Total | 11 | 24 | 65 | 511 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 18.527 | 10 | .04669 |

Results indicated that respondents considered the "academic record" an important factor

in being appointed to their jobs. In drawing some conclusions we will compare this result

with the results of the employers' survey.

TABLE 8.8

Job category by employees' perception of aptitude test in their selection. (percentages)

| Job category | Not imp. | Important | Very imp. | N |
|---|---|---|---|---|
| Admn/Managers | 38 | 31 | 31 | 77 |
| Professionals | 44 | 29 | 27 | 260 |
| Clerical | 34 | 32 | 34 | 143 |
| Sales workers | 31 | 25 | 44 | 16 |
| Prod. workers | 38 | 23 | 38 | 13 |
| Any other | 100 | -- | -- | 2 |
| Overall | 40 | 29.5 | 30.5 | 511 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 9.605 | 10 | .47576 |

Overall 60 percent of employees considered the aptitude test an important factor in being appointed to their present job. This implies that not only were the educational qualifications an important factor but their aptitude also counted in their selection to their present job.

## TABLE 8.9

Job category by employees' perception of past experience in the same area, in their selection. (percentages)

| Job category | Not imp. | Important | Very imp. | N |
|---|---|---|---|---|
| Admn/Managers | 31 | 26 | 43 | 74 |
| Professionals | 46 | 25 | 29 | 252 |
| Clerical | 50 | 25 | 25 | 137 |
| Sales workers | 50 | 19 | 31 | 16 |
| Prod. workers | 30 | 30 | 40 | 13 |
| Any other | -- | -- | 100 | 1 |
| Overall | 44 | 25 | 31 | 493 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 13.149 | 10 | .21545 |

The pearson chi-square does not indicate that employees perceived as important their past experience in the same area. Overall 56 percent of employees considered the relevant experience in the same area an important factor in their selection. Results of employees survey, in this regard did not support the results of the employers survey. Table 8.18 revealed that a higher percentage of employers (ie. 93 percent) considered the experience

in the same area an important factor in the selection of workers for their concern.

## TABLE 8.10

Job category by employees' perception of interview in their selection.  (percentage)

| Job category | Not imp. | Important | Very imp. | N |
|---|---|---|---|---|
| Admn/Managers | 19 | 34 | 47 | 77 |
| Professionals | 21 | 27 | 52 | 256 |
| Clerical | 28 | 40 | 32 | 143 |
| Sales workers | 31 | 31 | 38 | 16 |
| Prod. workers | 46 | 15 | 39 | 13 |
| Any other | 50 | 50 | -- | 2 |
| Overall | 24 | 32 | 44 | 507 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 21.122 | 10 | .02026 |

Results indicated that respondents considered "interview" an important factor in being appointed to their jobs.  This is comparable to results of employers survey shown in the Table 8.18.

## TABLE 8.11

Job category by employees perception of parental status and family background in their selection. (percentages)

| Job category | Not imp. | Important | Very imp. | N |
|---|---|---|---|---|
| Admn/Managers | 86 | 8 | 6 | 74 |
| Professionals | 85 | 8 | 7 | 246 |
| Clerical | 90 | 9 | 1 | 135 |
| Sales workers | 75 | 25 | -- | 16 |
| Prod. workers | 90 | -- | 8 | 13 |
| Any other | 100 | -- | -- | 2 |
| Total | 86 | 9 | 5 | 486 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 13.242 | 10 | .21042 |

================================================================

Results showed that 14 percent of employees think that parental status and family background was an important factor in being appointed to their jobs. Overall results of the employees survey revealed that there exists an influence of the parental status and family background of employees in their selection to their respective jobs. It implies that there is an evidence that employers do consider the parental status and family background

of the employees at the time of selection of employees for their concern. It indicates the flexibility in the selection criteria set out by employers. We will compare these findings with the findings from the employers survey later on in this chapter. Findings of the study, however, are based on employees responses and cannot be measured by any objective measure. The details of the employees perception regarding the parental status and family background in their selection are given in the Table 8.12.

## TABLE 8.12

Job category by contact with the employer. (percentages)

| Job category | Not imp. | Important | Very imp. | N |
|---|---|---|---|---|
| Admn/Managers | 86 | 7 | 7 | 74 |
| Professionals | 88 | 8 | 4 | 252 |
| Clerical | 85 | 10 | 5 | 138 |
| Sales workers | 75 | 12.5 | 12.5 | 16 |
| Prod. workers | 77 | 15 | 8 | 13 |
| Any other | 50 | 50 | -- | 2 |
| Overall | 86 | 9 | 5 | 495 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 8.085 | 10 | .62051 |

Results reveal that only 14 percent of employees admitted that the personal contacts with employers did count in being appointed to their jobs. The results however, are based on the employees responses and their validity cannot be measured by any objective measure. Pearson Chi-square does not indicate the significance of contact with the employer. This figure may be higher as some employees would not readily disclose this blatant act of favouritism. However, on the basis of the findings of the study, it is therefore, concluded that other factors were taken into account such as academic record, interview, and written test (in some cases).

The Table 8.9 showed that overall 44 percent employees, considered the "past relevant experience" not to be important in being appointed to their jobs. Results of the employees survey revealed that there is no significant relationship between job categories and past experience. It was probably due to the fact that about 50 percent of employees included in the sample, were from the 16-35 age group (see Table 7.2 in Chapter 7). They were probably newly appointed to their respective jobs and considered their formal education the reason for their appointment.

The other factors important for their appointment in the present job were "academic record", "interview", "aptitude test", "contacts with employers", and "parental status and family background". Results of the employees' survey revealed that "academic record", and "interview" have significant relationships with job categories (see Table 8.7 and 8.8). The "aptitude test", "contacts with the employer", and the "parental status and family background" do not have any significant relationship with job categories of employees. (see the Tables 8.9 - 8.12). These findings will be compared with the findings of

employers survey. It will enable us to know to what extent the experiences of employees and employers are consistent.

## 8.2.3.1 Implications

Overall results of employees surveys revealed that respondents considered "academic record" and "interview" were important factors in the selection of employees in all sectors of the economy. In the present study "aptitude test", "parental status and family background" and "contact with the employer" were considered not important by respondents. We found a significant difference between employers and employees concerning the "past relevant experience". (see the Table 8.7 and 8.18). As discussed in Chapter 4, only the academic record is taken into account whereas the rest of the factors are neglected in the manpower planning at national level in Pakistan. In practice, in addition to academic record, aptitude test, interview, the relevant experience in the same field is taken into account by employers. This suggests that relevant experience is an important factor that cannot be neglected in Pakistani manpower planning. But it cannot be generalized for all types of occupations due to complications in the relationship between training courses and the nature of occupations in the country. For example, diploma courses for technicians are described by 22 subject areas. These are subsumed into general occupational titles of "professional, technicians and related workers" (the classification currently in practice in Pakistan) or under the heading of "technicians" at the minor occupational level. It is not until the further subdivision to unit (3 digit) level is made, that direct comparisons with education and training output can become meaningful. The results of the employees survey have indicated that estimates made on

the basis of academic qualifications only are open to question. Other factors (training, past experience, aptitude tests etc) should also be taken into account, but this makes the planning a more complex activity.

## 8.2.4 The Prevailing Level of Substitution Between Different Types of Manpower

In this context the survey attempted to ascertain the degree of substitution existing between the different types of employees involved in the study, by level and type of educational

qualifications.

### 8.2.4.1 Highest academic qualifications within occupations

In the questionnaire we asked respondents what the highest academic qualification was that they hold. The result revealed that workers in the same category of job have different levels of academic qualifications. For example, the level of academic qualifications in the "admn/managers" and "professionals" varies from Matric ( 10 years of schooling) to post graduates including M. Phil. and Ph. D. Results showed that 67 percent (ie. 97) clerical workers were either graduates or post-graduates. The implication is that they were over qualified (generally matriculation or intermediate level of education is required) for their jobs. The detailed figures are given in Table 8.13.

TABLE 8.13

Highest qualifications of employees by job category. (percentages)

| Job Category | Matric | Inter/Equ-ivalent | Graduate | Post-graduate |
|---|---|---|---|---|
| Admn/Managers | 1 | 11 | 34 | 54 |
| Professionals | 3 | 10 | 20 | 67 |
| Clerical | 12 | 21 | 45 | 22 |
| Sales workers | 6 | 19 | 56 | 19 |
| Prod. workers | 8 | 23 | 31 | 38 |
| Any other | 50 | -- | -- | 50 |
| Overall | 6 | 13 | 30 | 51 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 99.525 | 15 | .00000 |

==================================================================

The results revealed that workers in the same category of job have different levels of academic qualifications. For example, the level of academic qualifications in the "admn/managers" and "professionals" varies from Matric ( 10 years of schooling) to post-graduates including M. Phil. and Ph. D. It is noted that 67 percent (ie. 97) of clerical workers were either graduates or post-graduates, suggesting that they were over qualified

for the requirements of their jobs. (see the Table 8.13). Their qualifications may include only formal education or training or both. The Pearson Chi-square value .0000, (given in Table 8.13) shows that there is a significant level of substitution between job category and the highest academic qualifications of employees. Findings of this study are similar to findings reported by Mace and Taylor (1975), James (1993), and the OECD study (1993), that no precise relationship between education and occupation exists and a significant level of substitution between educated manpower by level of education is found in different categories of occupations.

In Pakistan, International Standard Classification of Occupations (ISCO) is in practice but only at the first digit level. Only the major occupational groups, like administrators and related workers are used. The occupational groups represent a broader field of work rather than a specific type of work to be performed. Minor groups are created only where relatively large number of employees are involved. The job requirements of a broad field of work cannot be precisely converted into educational requirements. This is an important result of this study, directly related to the education and occupation relationship. In contrast to the assumption of manpower planning, the results of this study supported the idea of substitution between the qualified manpower by level of highest qualifications and job categories.

We explored whether there is any disparity between males and females in getting the highest educational qualifications. Table 14 reveals the details on the highest educational qualifications of the respondents by gender.

TABLE 8.14

Table on the highest educational qualifications of the respondents by gender. (percentages).

| Sex | Matric | Intermediate | Graduate | Post-graduate |
|---|---|---|---|---|
| Males | 5.5 | 13.1 | 29.7 | 51.7 |
| Females | 5.9 | 16.2 | 33.8 | 44.1 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 1.42580 | 3 | .69950 |

=================================================================

Overall the results in Table 8.14 showed that there was not a significant difference between the male and female respondents concerning their level of educational qualifications, except that in the case of post-graduates where the percentage (ie. 51.7 percent) of males is higher than females. It indicated that males may be provided with more chances of getting higher education than females in the country. However, the results of the chi-square test did not show any significant difference between males and females regarding their highest educational qualifications.

### 8.2.4.2 Job category and field of study

There are different numbers of graduates, by faculty, in each job category. There were

45 percent (ie.187) graduates in social sciences followed by 27 percent (ie.112) graduates in arts and 14.5 percent (ie.61) in natural sciences employed in different categories of jobs. Similarly graduates in a specific field of study were employed in different categories of jobs in Pakistan. Table 8.15 shows the details of the graduates by faculty in each of the job categories.

TABLE 8.15

Job category by employees' faculty of education. (percentages)

| Job Category | Arts | S.Sce | N.Sce | Law | Eng. | Med. | Agr. |
|---|---|---|---|---|---|---|---|
| Admn/Managers | 25 | 44 | 13 | 6 | 7 | -- | 4 |
| Professionals | 22 | 44 | 18 | 3 | 6 | 2 | 5 |
| Clerical workers | 40 | 47 | 8 | 4 | -- | -- | -- |
| Sales workers | 17 | 58 | -- | -- | 25 | -- | -- |
| Production workers | 33 | 22 | 33 | -- | 11 | -- | -- |
| Overall | 27 | 44.5 | 14.5 | 4 | 6 | 1 | 3 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 48.58 | 35 | .06313 |

==================================================================

The results revealed that there are different numbers of graduates, by faculty, in each job category. If we have a look at the columns in Table 8.15, it shows that graduates of the same field of study are employed in different categories of jobs. For example, graduates in social sciences included in the sample were employed in each of the category of the

jobs. Moreover, the graduates in a specialized field were also employed in different categories of job. For example, the agricultural graduates included in the sample, were about equally employed in the "admn/manager" and the "professional" groups. It is noticeable, that a higher percentage of the law graduates were employed in "admn/manager" and the "clerical" groups compared with the "professionals" group. It is therefore concluded that there is a significant level of substitution between job category and the field of study. Results of this study shows that this factor should not be neglected in forecasting manpower requirements in the labour market. But in all methods of manpower requirements approach, it is assumed that "the elasticity of substitution between different types of educated manpower is equal or near zero". Many comments have been made on this assumption by different authors, that support the results of this study. For instance, Dougherty, (1972) asserted that" a number of econometric studies have more or less confirmed the fact that the value of this parameter is well above unity". (quoted in Youdi and Hinchliffe, 1985: p. 20). Youdi and Hinchliffe (1985) also quotes that:

> At the same time, however, the economic estimation of substitution has been criticised because of the usual aggregate production-function problems. An indirect, non-econometric way of assessing the degree of rigidity of the production structure is to compare with a country or across countries the changing distribution of manpower. The more extensive is the change in the distribution, the more de facto substitution possibilities must exist. The census material collected in different countries is unique in deriving indirect substitution "estimate" of this type. (ibid. p. 20).

Similar to the results of the present study, Mace and Taylor (1975), conducted a study on the demand for engineers in the UK and found that, "engineering jobs are filled by persons with a range of qualifications, both in terms of level of qualification and subject of qualification". (Mace and Taylor, (1975: p. 189).

The Table 8.12 shows that a significant level of substitution exists between qualified manpower, by faculty, and occupations in the labour market. This implies that the scope for substitution with different qualifications including the specialized fields, is much greater than manpower forecasters would have as believe. As mentioned above, results of previous studies also support the findings of the present study. On the basis of the evidence provided in this study, it is therefore concluded that the assumption of manpower planning that "the substitution elasticity of supply between different types of manpower is equal or near zero" is invalid and cannot be justified practically in the Pakistani labour market.

We also tried to explore the difference between male and female respondents regarding their fields of education. Table 8.16 shows details of faculty of education by gender.

## TABLE 8.16

Table on faculty of education by gender. (percentages).

| Sex | Arts | S.Sce. | N. Sce. | Law | Eng. | Med. | Agr. |
|---|---|---|---|---|---|---|---|
| Males | 26.4 | 44.3 | 13.9 | 3.8 | 6.5 | 1.1 | 3.8 |
| Females | 30.2 | 47.2 | 18.9 | 1.9 | 0.0 | 1.9 | 0.0 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 7.48582 | 7 | .38010 |

Results in Table 8.16 revealed that none of the females included in the sample had graduated in Agriculture and Engineering. Though these are a very small percentage of the sample. This may indicate that, in Pakistan, females do not join these fields of education, probably because they think these fields are not suitable for them. It is possible they prefer to join those fields of education in which no field work is involved. But it may also be because there are more job opportunities for females in education than in agriculture or engineering. The study provides us with evidence that, in Pakistan, due to cultural customs women are discouraged to join these fields of education. However, results of the Pearson chi-square did not show any significant difference between the males and females concerning the field of study. The reason for this non-significance result may be the low number of females included in the sample.

## 8.2.4.3 Implications

As discussed earlier, the estimates of educational requirements can be made for different categories of occupation is an important assumption of forecasting manpower requirements. But it is evident from results of the study, that the conversion of occupational requirements into educational requirements is highly suspect and one of the complex problems in manpower planning. The estimates of educational requirements cannot be made mechanically because in most of the occupations, as results of this study indicates, there is no precise relationship between education and occupation. The results showed that a significant number of workers with different levels of education and specialization were employed in the same category of job. These results supported findings of the study conducted by James (1993), that "in India, in 1986, over 50 percent of workers in the public sector in occupations requiring technical knowledge or skills did not possess the relevant education or training and 94 percent of workers in occupations requiring general education did not possess the formal education". One cannot be sure whether an administrator of a certain department should have a university education (general or specialized), because satisfactory performance is attributable to a function of native ability, psycho-motor skill, work experience, on the job training, and formal education. These skills are not taught directly in educational institutions, though to some extent these skills may be fostered by formal education. The same is true for the rest of the jobs. This fact has also been recognized in previous studies. For example, Bowles and Gintis, argue that "the effective performance in most of the jobs, depends very little on directly usable cognitive skills and much more on certain non cognitive personality traits". (quoted in Blaug, 1992: p. 212).

Overall the results of employees survey revealed that there is a degree of substitution between qualified manpower either by level of education or by field of study, and the job categories in the labour market in Pakistan. Regarding substitution, results of the employer questionnaire are addressed in the section two of this chapter.

## 8.2.5 Inter-Occupational Mobility

Change of a job may be either change in the nature of the work or it may be a transfer from the parent department to another for various reasons. Overall 14 percent (ie.69) respondents had changed their job. It is noted that 33 percent "sales workers" and 25 percent "admn/managers" had changed their jobs. The details of respondents who have changed their jobs by job category are given in Table 8.17

Table 8.17

Frequency and percentages of employees' change of job by Job category.

| Job Category | Frequency | Percent |
|---|---|---|
| Admn/Managers | 15 | 20 |
| Professionals | 35 | 13 |
| Clerical workers | 12 | 9 |
| Sales workers | 4 | 25 |
| Production workers | 2 | 15 |
| Any other | 1 | 50 |
| Overall | 69 | 14 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 9.557 | 5 | .08878 |

==================================================================

We have explored the change of job by gender to find out whether any significant difference exists between males and females regarding the change of their respective jobs. The details are given in Table 8.18.

TABLE 8.18

Change of job by gender. (percentages).

| Sex | Yes | No |
|---|---|---|
| Male | 13.9 | 86.1 |
| Female | 11.9 | 88.1 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | .18863 | 1 | .66406 |

===========================================================================

Findings of Table 8.18 revealed that about the same percentage of male and female respondents had changed their jobs. The Pearson Chi-square test did not show a significant difference between the males and females regarding the change of their respective jobs in the labour market. In other words this study provides us with evidence that females in our sample have an equal possibility of changing their jobs in the labour market, especially in the areas from which the employees sample was drawn. Overall results of both the female and males respondents have supported the idea of occupational mobility of workers. This mobility could be within the organization or between organizations. In other words results of the Table 8.17 revealed that the occupational mobility of the workers should not be neglected in making estimates of the supply and demand for educated manpower in the labour market.

### 8.2.5.1 Reasons for change of job

We also asked respondents to give reason(s) for changing their job. They were given the following options:

a. Better working conditions of the job.

b. Better use of training you got.

c. Better prospects for promotion.

d. Lost previous job for some reasons.

e. Higher salary in the present job.

f. Higher status of the job.

g. Dissatisfied with the previous job.

h. Upset of leisure-time activities in the previous job.

i. Any other.

The results revealed that the "better working conditions in the job" is the main reason for changing the job followed by "better prospects of promotion" and the "better use of training". It is surprising that none of the respondents considered the "higher salary in the present job" a reason for change of their job. Perhaps respondents included the higher salary in "better working conditions". A very high percentage of professionals (ie. 80 percent) has given "upset of leisure-time" the main reason for change of their job. The details of the reasons for change of job, given by respondents are shown in Table 8.19.

TABLE 8.19

Reasons given by employees for the change of job by Job category. (percentages)

| Reasons for the change of job | Admn | Prof | Cler-ical | Sales | Prod | Other | N |
|---|---|---|---|---|---|---|---|
| Better working conditions | 19 | 43 | 14 | 14 | 5 | 5 | 21 |
| Better use of training | 18 | 64 | 9 | 9 | -- | -- | 11 |
| Better prospects of promotion | 25 | 50 | 19 | -- | 6 | -- | 16 |
| Lost previous job | -- | 100 | -- | -- | -- | -- | 2 |
| Higher salary in the present job | -- | -- | -- | -- | -- | -- | 0 |
| Higher status of the job | 50 | 25 | 25 | -- | -- | -- | 4 |
| Dissatisfied with the previous job | 14 | 43 | 43 | -- | -- | -- | 7 |
| Upset of leisure time activities | -- | 80 | 20 | -- | -- | -- | 5 |
| Any other | 67 | 33 | -- | -- | -- | -- | 3 |
| Overall | 22 | 51 | 17 | 6 | 3 | 1 | 69 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 22.62 | 35 | .94732 |

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Overall 14 percent (ie.69) of respondents had changed their job. Results of the present study showed that 33 percent "sales workers" and 25 percent "admn/managers" had changed their jobs. ( see the Table 8.17).

The chi-square value of $X^2$ with 5 degrees of freedom .08878, (given in Table 8.17) shows that statistically there is no significant relationship between the change of jobs and job categories in the labour market. Similarly the chi-square value of $X^2$ with 35 degree of freedom .94732 (given in Table 8.14) does not show a significant relationship between the job category and the reasons given by them for the change of their respective jobs. Probably the word "recently" was not clear to all respondents. They felt that they were asked to indicate the change, made from their own choice in the recent past only. Due to this flaw in the wording of the questionnaire, some of the respondents did not respond to this question, although they had changed their jobs in the past. This flaw is recognized under the heading of "limitations" of the study.

We have tried to investigate the difference between the male and female respondents regarding the reasons given by them for changing their jobs in the labour market. The details are given in Table 8.20.

## TABLE 8.20

Reasons given by male and female employees for the change of jobs.  (percentages).

| Reasons for the change of job | Males | Females |
| --- | --- | --- |
| Better working conditions | 31.1 | 25.0 |
| Better use of training | 14.8 | 25.0 |
| Better prospects of promotion | 23.0 | 25.0 |
| Lost previous job | 3.3 | --- |
| Higher salary in the present job | 6.6 | --- |
| Higher status of the job | 11.5 | --- |
| Dissatisfied with the previous job | 6.6 | 12.5 |
| Upset of leisure time activities | 3.3 | 12.5 |

| Chi-Square | Value | D.F. | Significance |
| --- | --- | --- | --- |
| Pearson | 3.99914 | 7 | .77988 |

The findings of Table 8 20 are somewhat surprising in that none of the female respondents had given either "Higher salary in the present job" or "Higher status of the job" for their change of job.  It indicates that females included in the sample did not consider these factors very important in the change of their respective jobs.  It is

important to note that a significantly high percentage (75 percent) of females had given

the first three reasons, given in the Table 8.20 for this change. It is possible that they

included the higher salary and status in "better working conditions". Despite the apparent

discrepancies between males and females the Pearson chi-square did not show any

significant difference between the reasons given by the male and female respondents

regarding the change of their respective jobs.

## 8.2.5.2 Implications

In Pakistan, the process of forecasting the availability of manpower is derived from

correcting the base year manpower stock for losses through mortality, retirement, and by

adding the expected manpower coming from the educational system, but the effects of

mobility of manpower in the work force are ignored. (see Chapters 2 and 4). This

assumption is open to question. The results of this study showed that the inter-

occupational mobility of workers could have a significant effect on the accuracy of

estimates of requirements and supply of manpower in the labour market. But it is very

difficult to develop any pattern of occupational mobility with sufficient precision, which

permits estimates of separation from and accession to certain occupations. During the

survey, we could not collect data on inter-occupational mobility of workers from

employers involved in the study because they did not keep any records on it. We

therefore, collected the data from employees involved in the study. The results of the

employees survey showed that an occupational mobility exists within different groups

of workers in the labour market. This occupational mobility suggests the substitutability

between different types of qualified manpower against the assumption of manpower

planning concerning the substitution of workers.

## 8.2.6 Shifts in the Field of Study

The survey asked respondents whether or not they have changed the field of studies during their education. In Pakistan, higher-secondary level (ie. 12 year of study) is the stage at which a decision is made about the field of study to follow at higher level. After this stage the change of study may occur for other reasons. The most important of these are given in Table 8.16. Overall 28 percent (ie. 146 out of 518) of respondents had changed their field of study during their education. The "production workers" were in the majority at 62.5 per cent. The details of changes in field of study by job category are given in Table 8.21.

**TABLE 8.21**

Change in the field of study by job category.

| Job category | Number | Percent of sample |
|---|---|---|
| Admn/managers. | 18 | 23 |
| Professionals. | 83 | 31 |
| Clerical workers. | 35 | 24 |
| Sales workers | 4 | 25 |
| Production workers. | 5 | 38 |
| Any other. | 1 | 50 |
| Overall. | 146 | 28 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 4.19057 | 5 | .52232 |

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We have tried also to explore the change in the field of education by gender. The details are given in Table 8.22

TABLE 8.22

Table on change in field of study by gender. (percentages)

| Sex | Yes | No |
|-----|-----|-----|
| Male | 28.4 | 71.6 |
| Female | 26.5 | 73.5 |

| Chi-Square | Value | D.F. | Significance |
|------------|-------|------|--------------|
| Pearson | .10671 | 1 | .74392 |

Findings in Table 8.22 showed that the percentage of female and male respondents who had changed their field of study during their education is very similar. The Pearson chi-square value, given above (.74392) shows that no significant difference exists between the males and females in respect of change in the field of study. In other words the mobility for both females and males included in this study is very similar. The mobility factor is ignored in making the estimates of the supply of educated manpower in the country (see chapter 5) and it seems, if the evidence from the present study is valid for the rest of the country, that the same considerations about its effect on MRA will be similar for both males and females.

### 8.2.6.1 Reasons for change in the field of study

We also asked respondents to give reason(s) for the change in the field of study. They were given the following options:

a. I did not have sufficient amount of money. (to continue)

b. My parents wanted me to do something else.

c. To improve my chances of getting a job.

d. My family has migrated here for some reasons.

e. My grades were not better.

f. Career prospects were better in this academic area.

g. Any other reason.

The results revealed that only about 1 percent of the respondents had changed their field of study for the reason "my family has migrated here for some reason". Twenty six percent had changed their field of study for the reason "to improve my chances of getting a job" followed by 25 percent for the reason "career opportunities were better in this academic area". There were 5 percent responses given in the option "any other reason". These were:

a. To get knowledge about other fields of studies.

b. These were the only subjects available near home.

The details of the reasons are given in Table 8.23

TABLE 8.23

Number and percentages of different reasons for change in the field of study.

| Reasons for change in field of study. | Number | Percent of sample |
|---|---|---|
| I did not have sufficient amount of money. | 20 | 14 |
| My parents wanted me to do something else. | 11 | 8 |
| To improve my chances of getting a job. | 38 | 26 |
| My family has migrated here for some reasons. | 1 | 1 |
| My grades were not good enough. | 32 | 22 |
| Career prospects were better in this academic area. | 36 | 25 |
| Any other reason. | 7 | 5 |
| Total. | 146 | 100 |

Note: We have not given the Pearson chi-square test for Table 8.23 because the statistics cannot be computed when the number of non-empty rows or column is one.

Overall 28 percent (ie. 146 out of 518) of respondents had changed the field of study during their education. Whilst 62.5 percent of "production workers" were at the top. The three top reasons given by employees for the change in the field of study were:

i. to improve my chances of getting a job,

ii. career prospects were better in this academic area, and

iii. my grades were not good enough. (For details see Table 8.23)

We also explore the reasons for change in the field of study by gender. The details are given in the Table 8.24

TABLE 8.24

Reasons for change in the field of study by gender. (percentages).

| Reasons for change in field of education | Females | Males |
|---|---|---|
| I did not have sufficient amount of money | --- | 15.7 |
| My parents wanted me to do something else | 5.6 | 7.9 |
| To improve my chances of getting a job | 16.7 | 27.6 |
| My family has migrated here for some reasons | --- | 0.8 |
| My grades were not good enough | 22.2 | 22.0 |
| Career prospects were better in this academic area | 33.3 | 23.6 |
| Any other reason | 22.2 | 2.4 |

| Chi-Square | Value | D.F. | Significance |
|---|---|---|---|
| Pearson | 17.28154 | 6 | .00830 |

=================================================================

The Pearson chi-square value, given above, .00830 shows that there is a significant difference between the reasons for change in the field of study given by the male and female respondents. A significant percentage (22.2 percent) of female respondents have given the option "any other reason" for this change. This option includes mainly "this academic area was of my interest" and "I wanted to learn something different". It is noticeable that none of the females has given the options "I did not have sufficient amount of money" and "My family has migrated here for some reasons" for the change in their

field of education. It is probably because their parents or spouses were bearing the costs of their education. This highlights the cultural customs in Pakistan, that parents/spouses are responsible for meeting all expenses of their respective families.

### 8.2.6.3 Implications

Results of the study showed that 28 percent of the sample had changed their field of study at graduate or post-graduate level during their education. This figure counts in making estimates of supply of educated manpower in the labour market. As discussed in Chapter 4, in Pakistan, the process of forecasting the availability of educated manpower is derived from the base year students stock in the educational institutions in different fields of studies. The expected number of graduates from the educational system are added to the total number of educated manpower available, neglecting the effects of students' shifts in the field of studies. It is noticeable that reasons for change differ between sexes.

The findings of the study supported the previous studies conducted in this field the world over. In these studies it was concluded that students' mobility within the educational system, cannot be neglected in planning education for employment purposes. For example, according to a UNESCO study of 1987, a significant rate of students' mobility, ranging from 10 to 61 percent, exists in the educational systems of the Philippines, Indonesia, Egypt, Botswana, and Sudan. (Sanyal, 1987: pp. 98-101). Similarly, findings of the present study supported a OECD study (1993). According to that study, in the Netherlands, in 1990, 36 percent of those who dropout of university training take up other studies, while in Denmark, Spain and Germany, in 1987, these figures were 51.3, 55.8,

and 29.3 percent respectively. (OECD, 1993: p. 58). We therefore, concluded that

changes in the field of study has a significant effect on the accuracy of the estimates of

the supply of educated manpower in the labour market. Our results also show that there

may be gender difference, a factor ignored in most other studies, and that planners should

also take this influences into account in planning. Despite, constraints in the availability

of reliable data, the factors considered above should not be neglected in the manpower

planning in Pakistan.

# SECTION TWO

## 8.3 RESULTS OF EMPLOYERS' SURVEY

We analyzed data collected using structured questionnaires, from employers involved in the study. Averages and standard deviation were calculated for each of the categories of disaggregated data in order to get the central tendency and deviation from the means. As discussed earlier the Pearson Chi-Square test was applied to determine the significance between variables. The analysis included the followings:

### 8.3.1 Employers' Recruitment Methods

We asked respondents what methods they use to recruit different workers for their concern. They were given the following options:

a. Education institutions authorities.

b. Employment exchange offices.

c. Personal contacts.

d. Newspaper advertisement.

e. Bonding students by scholarship.

f. Public service commission

g. Any other.

Results indicated that "newspaper advertisement" is the main employer's recruitment method across all sectors. The "bonding the students with scholarships" and "employment

exchange office" were not used at all in the "semi-government" and these options were also hardly used by other sectors. There were 32 responses for recruiting graduates and 4 responses for undergraduates in the government sector through the "Public service commission". The results showed that this method is used only in the government sector. Overall there were 18 responses given by respondents in the option "any other method". These were:

a. Banking Service Commission. (The commission that selects bank employees in officer cadres).

b. Recruit workers on a contractual basis.

c. Recruit workers on highest market rates.

d. Recruit from "Talent Pool". (Specially trained persons after matriculation)


The details of the methods of recruitment by sectors is presented in Table 8.25.

TABLE 8.25

Percentages of employers using different methods of recruitment by sectors of the economy.

| Recruitment Methods. | Govt. | | | Semi-govt. | | | Private. | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | A | B | C | A | B | C |
| Advertisement. | 97 | 92 | 92 | 96 | 83 | 78 | 91 | 53 | 44 |
| Bonding. | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 0 |
| Contacts. | 0 | 3 | 3 | 4 | 3 | 3 | 47 | 44 | 37 |
| Employment exchange offices. | 5 | 3 | 5 | 0 | 0 | 0 | 0 | 3 | 0 |
| Edu. institutions. | 8 | 3 | 3 | 22 | 9 | 9 | 16 | 3 | 0 |
| Public service commission. | 86 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Any other. | 14 | 8 | 5 | 13 | 13 | 9 | 0 | 0 | 0 |

N = 92   (Govt. = 37, Semi-govt. = 23, and Private = 32)

Note: A Stands for graduates and post graduates and B stands for Intermediate/equivalent, and C stands for Matriculates.

We have not provided the Pearson Chi-square test for Table 8.25 because a separate Chi-square would be required for every row and column making the table extremely complicated to readily understand. We have also not provided the Chi-square tests for

subsequent tables where the same problem applies.

Results indicated that "newspaper advertisement" is the main employer's recruitment method across all sectors. The "bonding the students with scholarships" and "employment exchange office" were not used at all in the "semi-government" and these options were also hardly used by other sectors. There were 32 responses for recruiting graduates and 4 responses for undergraduates in the government sector through the "Public service commission". The results divulged that this method is used only in the government sector. There were 18 responses given by respondents in the option "any other method". (see the Table 8.25).

Overall results revealed that employers from the government and semi-government sectors follow the government rules and regulations. Employers, however, from the private sector have their own methods of recruitment according to the needs of their organizations. Results of the present study showed that employers employ graduates or post-graduates for a job, though for a satisfactory job performance no more than secondary education may be required. Findings of the employer survey supports the findings of the employees survey. For example, as discussed earlier, according to employees survey, 67 percent of clerical workers, involved in the study were either graduate or post-graduates. This action of employers from both the public and private sectors supports the idea of substitution between different types of qualified manpower either by level or by type of education in the labour market. It implies that downward substitution of qualified manpower exists in the labour market in Pakistan. Results of this study indicate that employers prefer to employ workers with high educational qualification at a lower level and reduced wage

rates. This situation should be a matter of concern for manpower planners in Pakistan. But manpower forecasters do not take this factor into account in forecasting manpower requirements in the labour market and assume that it will remain fixed during the planning period. It is important to note that we have not given the Chi-square tests for Table 8.25.

## 8.3.2 Factors Taken into Account by Employers in the Selection of Employees for Their Organizations

In this context employers were asked what factors they take into account in the selection of employees for their concern.

The mean value of all options vary from 2-3, except for "status". It implies that employers considered these factors important and took them into account when they employed workers for their concern. The results revealed that all employers did not think "status" an important criterion in the selection of employees for their concern. Overall the means indicated, however, that the option "academic record" was placed first followed by "interview" and "past relevant experience". The details of each of the criteria are shown in Table 8.26.

TABLE 8.26

Importance of various factors taken into account by employers in selecting workers for their concern.

| Criteria | Not.imp | Imp. | V. imp. | Mean value |
|---|---|---|---|---|
| Academic record. | 1 | 24 | 75 | 2.73 |
| Aptitude test | 32 | 32 | 36 | 2.05 |
| Relevant Experience. | 7 | 51 | 42 | 2.35 |
| Interview | 5 | 34 | 61 | 2.55 |
| Status | 100 | -- | -- | 1.00 |
| Training | 27 | 41 | 32 | 2.04 |

Note: The mean value was calculated from the following codes. Not important = 1, Important = 2, and very important = 3

Results revealed that employers considered the "past relevant experience" an important factor in the acquisition of a job in their organizations. Probably, it can be regarded as relevant both in terms of acquired skills and in terms of employees' behaviour and attitudes developed from experience and considered desirable by employers. The results of the employers survey also revealed that all employers did not think the "status" an important criterion in the selection of employees for their concern. Similar to the results

of the employees' survey in the results of the employers' survey, the option "academic record" was placed first followed by "interview" and "past relevant experience".

## 8.3.2.1 Implications

Overall results of both the employees and employers surveys revealed that "academic record" and "interview" were evenly recognized as important factors in the selection of employees in all sectors of the economy. In the present study "aptitude test" was of some importance. However, "parental status and family background" and "contact with the employer" were considered not to be important by both employees and employers. We found a significant difference between employers and employees concerning the "past relevant experience". (see Table 8.7 and 8.18). It is worth noting that this criteria cannot be measured by any objective test of likely performance in the job but can only stand as proxies for such tests. As discussed in Chapter 4, only the academic record is taken into account whereas the rest of the factors are neglected in the manpower planning at national level in Pakistan. As discussed earlier, in Chapter 2 in the paragraphs 7.1 and 7.4, and also in the present chapter, that there is no precise relationship between education and occupation. Results of the study have revealed that not only the academic record of employees is taken into account but also the other factors are taken into account at the time of selection of the workers. This is a matter of concern for manpower planners in Pakistan. It implies that a forecast based only on the education-occupation relationship is practically invalid.

### 8.3.3 Training and Its Types Provided to the Workers by the Employers

The survey asked the employers if they provide in-service training to workers in their organization and if so, what types of training are they providing.

### 8.3.3.1 Training provided by employers

Employers were asked whether they provide in-service training to the workers of the organization ? Overall 87 percent (ie. 80) of respondents from all sectors provided training for their employees. Results shows that 96 percent of employers from the semi-government sector provided training to their employees. The details of training provided by respondents by sector are given in Table 8.27.

TABLE 8.27

Frequencies and percentages of training provided by employers by sectors.

| Sector | Frequency | Percent. |
|---|---|---|
| Government | 32 | 86 |
| Semi-government | 22 | 96 |
| Private | 26 | 81 |
| Total | 80 | 87 |

Total number of respondents (N) = 92.

The results of the employers survey are comparable with the results of the employees survey given in Table 8.2. As mentioned earlier in paragraph 3.1, a majority of the employers (87 percent) provide training for their employees. It means that they prefer to employ untrained educated persons at lower wage rates and provide them training to meet the requirements of their jobs. Probably for this reason a reasonably higher number of respondents received on the job training. In line with the findings of Ziderman (1978), it was probably due to the following factors:

i. The training provided on the job may be of higher quality, because employers are able to provide up-to-date equipment and instructions for its use in the training which is likely to be available in their training institutions.

ii. The training skills can be mastered more effectively if simultaneously related to a real-world work situation which may be simulated only imperfectly in training institutions.

iii. Motivation of the trainees on the job may be higher as they see more directly the relevance of the training to their jobs.

iv. Finally, on the job training it is likely to be more productive both for employer and employee, and moreover firms fully or partially finance the training costs.

## 8.3.3.2 Types of training

Employers were asked what types of training they provide to their employees. Overall 242 "skilled workers", 131 "semi-skilled workers" and 75 "unskilled workers" were provided different types of training by their respective employers. It implies that skilled workers were provided with more chances of different types of training compared with other job categories. The results showed that only 5 percent (ie. 4) unskilled workers

were provided training abroad compared with 23 percent skilled workers. It implies that employers provided longer and more expensive training to only skilled and more educated workers. (ie. training abroad and training in specialized institutions). However, on the job and within organization training is provided for more unskilled workers compared to skilled workers. The details of types of training provided by employers by job category are given in Table 8.28.

TABLE 8.28

Types of training provided by employers by job category. (percentages)

| Type of training | Skilled workers | Semi-skilled | un-skilled |
|---|---|---|---|
| Training within organization. | 18 | 24 | 28 |
| Training in other organization. | 15 | 16 | 13 |
| Training abroad. | 23 | 8 | 5 |
| On the job training. | 18 | 28 | 33 |
| Training in a specialized institution. | 19 | 14 | 11 |
| Importing expatriates. | 7 | 10 | 9 |

N = 448 (Skilled = 242, Semi-skilled = 131, and Un-skilled = 75)

It is important to note that we have not given the Chi-square tests for Table 8.28. A

separate Chi-square test is required for every single row and column of the table. Giving

so many Chi-square tests for only one table makes the table complicated. This is the

main reason that we have not given the Chi-square test for Table 8.28, nor for subsequent

tables where the same problem applies. (Tables 8.29 to 8.34).

## 8.3.3.3 Implications

Overall, the results of the study showed that provision of training is significantly different

job categories in the labour market, and must be taken into account in making manpower

plans. Practically, it is a very difficult job for manpower planners in Pakistan, because

it is extremely difficult to formulate training strategies to meet the requirements of

employers because of lack of definitions in describing employment needs. On the other

hand, the common classification of occupations in use in Pakistan cannot be related to the

classification of a number of training courses, both in terms of contents and level.

Furthermore, the analysis of skills needed for the performance of a specific job is a

difficult job for manpower planners. According to a study conducted by the Institute for

Employment studies (1994), "employers are faced with deciding how to analyze the skills

of their workforce against the new criteria/standards in order that they can make decisions

about training provisions". Results however, revealed that locally employers provide in-

service training (specific) to their employees to meet the requirements of their

organizations, but for skilled workers they provide training in a specialized institution or

training abroad. For example, educational planners, managers, administrators and heads

of the educational institutions are provided with training in planning and management,

at the Academy of Educational Planning and Management, Islamabad (AEPAM). They

are also sent abroad for this purpose. In this context, the cost effectiveness of the training where employers want and need to know how much the implementation of the training will cost them and what benefits they are likely to reap. These factors are a matter of concern for the manpower planners but inclusion of these in the process of forecasting manpower requirements will make the planners task more complicated.

## 8.3.4 Employers Preparing Manpower Plans and the Factors Taken into Account by Them in This Process

The survey asked employers, if they plan, and what factors they take into account when they prepare manpower plans. Overall 88 percent (ie. 81) respondents from each of the sectors prepared manpower plans. It is noted that all employers from the semi-government sector prepared manpower plans. The details of this sample are given in Table 8.29.

TABLE 8.29

Frequencies and percentages of respondents preparing manpower plans by sectors of the economy.

| Sector | Frequency | Percent of the sector |
|---|---|---|
| Government. | 28 | 76 |
| Semi-government. | 23 | 100 |
| Private. | 30 | 94 |
| total. | 81 | 88 |

N = 92.

## 8.3.4.1 Factors taken into account in preparing manpower plans

The results showed that 25 percent of respondents from the private sector took the "action of competition" into account, however, none from the semi-government sector, had taken this into account while preparing manpower plans. Similarly, only 19 percent of respondents from the government, and 13 percent of respondents from the semi-government had taken the "current wage rates of the workers" into account compared with 31 percent of respondents from the private sector. There were 5 percent responses in the option "any other". These were:

a. Take expected work load of employees into account.

b. Since Islamabad is in the phase of expansion, the development projects are made in the light of this expansion.

The details of the factors taken into account by employers from all sectors are given in Table 8.30.

TABLE 8.30

Factors taken into account by employers while preparing manpower plans by sectors. (percentages)

| Factors taken into account | Govt. | Semi-govt. | Private. | Overall |
|---|---|---|---|---|
| Action of competition | 8 | -- | 25 | 12 |
| Change in demand for product/services | 51 | 39 | 50 | 48 |
| Change in technology | 59 | 43 | 63 | 57 |
| Financial implications of manpower plans | 41 | 48 | 38 | 41 |
| GNP and its composition | 14 | 13 | 13 | 13 |
| Mobility of workers | 22 | 26 | 22 | 23 |
| Output per year of the organization | 68 | 70 | 88 | 75 |
| Substitution of workers by education & occupation | 38 | 22 | 41 | 35 |
| Current wage rates | 19 | 13 | 31 | 22 |
| Workers currently present | 30 | 26 | 22 | 26 |
| Any other | 5 | 9 | 3 | 5 |

N = 92  (Govt. 37, Semi-govt. = 23, and Private = 32)

Note: For details see question number 11.(a) of employer questionnaire in **Appendix B.**

It is important to note that we have not given the Chi-square tests for Table 8.30. A separate Chi-square test is required for every single row and a column of the table. Giving so many Chi-square tests for only one table makes the table complicated. This is the main reason that we have not given the Chi-square test for Table 8.30.

### 8.3.4.1.1 Change in technology and its likely effects on productivity

Employers were asked what factors they take into account when they prepare a manpower plan for their organizations. They were given different options including the "expected increase of output per year of the organization" and the "change in technology and its likely effects". Results revealed that 75 percent respondents took "expected increase of output per year of the organization" into account and 56.5 percent took "change in technology and its likely effects" into account in making manpower plans for their organizations. (see the Table 8.30). This implies that according to employers included in the sample, these factors are correlated with the anticipated changes overtime. Similar findings were reported in an OECD study (1993), that in Germany and Norway, the production of graduates in the public sector increased due to the spread of new technology and changes in the organization of work. Similarly, findings of a study conducted by Bosworth and Dutton (1990), revealed that "the linkage between technology and skills spread in two directions. First, shortage of appropriately skilled labour limits the rate of introduction of new technologies. Second, the introduction of new technologies impacts on the skill structure needed in the production process, causing shortages and surpluses

to raise as diffusion takes place".


## 8.3.4.1.2  Implications


Findings of the study showed that expected changes in productivity, especially because of changed/improved technology, although difficult, cannot be neglected in making estimates of manpower requirements in the labour market. But in Pakistan, in making forecasts expected changes in labour productivity are not taken into account by manpower planners, especially concerning changes and improvements in technology. It is assumed that the technology and the labour product during the time period will be stable or change in a simple regular pattern. Practically it is very difficult to predict with any degree of precision, the expected productivity change over time due to rapid changes in technology. As a consequence, forecasts of future changes are likely to be highly inaccurate. Not only productivity, but even more importantly, the "mix" of manpower skill changes with new technology including the need for brand new skills. For example, in the production sector, the introduction of "power looms" at home or in the lower scale has not only increased the output per worker, but also the functional composition of the work force has changed. Loom fixer, engineer, and personnel administrator are examples of new occupations that would probably not exist in the simpler organization of the sector.


## 8.3.4.2  GNP and estimates of manpower requirements


In this context, only 13 percent of respondents took "projected/actual GNP and its composition" into account in making manpower plans for their organizations. (see Table

8.22). In other words a very high percentage (ie. 87 percent) of the employers did not take "GNP and its composition" into account in preparing manpower plans for their respective organizations.

## 8.3.4.2.1 Implications

Manpower forecasters usually start with an exogenously determined GNP growth rate and then work out its implications for the occupational and educational structure of the labour force. But the problem is that the economists are so far, unable to predict GNP growth rate ahead of more than one year successfully at best. The basic idea underlying the manpower planning is to generate educated manpower to achieve a given GNP targets. Huge discrepancies exist between the actual and assumed rate of economic growth in Pakistan. For example, in Pakistan, the assumed GNP growth rate for the year 1992-93 was 6.5 percent, but the actual achievement was only 3.5 percent. (Budget speech of Finance Minister, May 1993). Consequently, manpower planning based on GNP would be highly suspect. The findings of the present study supported the previous study conducted by Jolly and Colclough (1972), claiming that "the actual growth rates in many African countries were significantly different from the assumed growth rates of GNP". This is probably the reason, why a very high percentage of respondents (ie, 87) did not take this factor into account in preparing manpower plans.

It is therefore concluded that a forecast based on the achievement of GNP cannot be falsified because it is misleading, and at the best, is subject to guesswork. In addition, it points out only single goal-rate of growth, and this in turn tends to overshadow the

other stipulated targets. There may be adverse results of tremendous increase in GNP, or an exceptionally high rate of unemployment and so forth. If GNP target is achieved, it does not confirm that the technique used was satisfactory. The correctness of the forecast may be due to other factors which was ignored by the technique. For example, the correct figures may have been obtained because of adjustment of wages, which were not taken into consideration in the whole process. It implies that the predictions based on the achievements of GNP targets are highly suspect, and no one can make accurate estimates of manpower requirements only on the basis of the achievements of GNP targets.

### 8.3.4.3 Duration of plans

Employers were also asked what time period they plan over. Results of the study divulged that 62 percent employers plan over "Six-twelve months", 30 percent "one-three years" and 22 percent "three-five years". Only 4 percent plan over "ten-twenty years". The details are given in Table 8.31.

## TABLE 8.31

Frequencies and percentages of duration of plans prepared by employers.

| Duration of plan | Frequency | Percent |
|---|---|---|
| Six-twelve months. | 50 | 62 |
| One-three years. | 24 | 30 |
| Three-five years. | 18 | 22 |
| Five-ten years. | 6 | 7 |
| Ten-twenty years. | 3 | 4 |

Note: Statistics cannot be computed when the number of non-empty rows or columns is one as in Table 8.31.

The results of the study show that 88 percent (ie. 81) employers from each of the sectors prepared manpower plans. It is noted that all employers from the semi-government sector prepared manpower plans. (see the Table 8.29). However, results of the Table 8.31 indicate that in Pakistan, employers prepared flexible manpower plans according to the demands of their organizations.

Overall results showed that 85 percent (ie. 69 out of 81) respondents take "Expected increase of output per year of the organization" into account when they prepare manpower plan for their organizations. The figures for the "change in technology and its likely

effects" and the "anticipated change in demand for product/services" are 64 percent and 54 percent respectively. It is, therefore, concluded that these factors cannot be neglected in making the estimate of manpower requirements in the labour market.

Results also showed that 62 percent employers plan over "Six-twelve months", 30 percent "one-three year" and 22 percent "three-five years". Only 4 percent plan over "ten-twenty years". (see Table 8.31).

### 8.3.4.3.1 Implications

Though overall 88 percent of the employers planned, the total number of responses in Tables 8.22 and 8.23 exceeds this number. This is because employers prepare more than one type of plan. For example, employers from the government sector prepare both one year and 3-5 year plans for their organizations. They take various factors into account when they plan. This is especially so since there is almost regular government instability in the country making it more difficult to prepare long term plans. It is probably the main reason the findings of the present study did not support the manpower planning done for more than 5 years. On the other hand employers prefer to prepare short term (6-12 month), and mid term plans (1-3 years). This implies that they do not believe in long term manpower planning. There may be many reasons for this. One of the major reasons could be the upheaval of political situation in the country.

## 8.3.5 Options Used by Employers to Fill a Vacant Position in Their Organizations

Respondents were asked which of the following options they take into account to fill a vacant position in their organization. The options given were as under:

a. Hiring untrained manpower at low salary.

b. Hiring highly skilled workers at high rate of salary.

c. Hiring skilled craftsmen instead of institutionally trained workers.

d. Upgrading the job.

e. Rotating the workers on different types of jobs.

f.  Adjusting the working hours of the present workers.

g. Introducing new technology.

h. Any other.

Results revealed that "hiring untrained manpower at low salary" is commonly used criterion to fill vacant positions of semi-skilled and un-skilled workers both in semi-government and private sectors. "Hiring highly skilled workers at high rate of salary" was applied to fill vacant positions of "admn/managers" and "skilled workers" in all sectors of the economy. "Rotating the workers on different types of job" was equally used for all categories of jobs in all sectors. The results indicated that the employers fill vacant positions in their organizations taking different options into account, depending on conditions and use the option most suitable to them. Table 8.25 however, shows that responses in the option "any other" were the highest compared with other options. These responses were:

a.  Vacant positions in different job categories are filled by the Public Service

Commission (a recruiting agency in the government sector) through open competition.

b. Employers observe the government rules and regulations to fill vacant positions in the organization. The rules are set out by the Establishment Division, Government of Pakistan.

c. They hire qualified manpower from other directorates, especially from schools and colleges.

d. They hire untrained workers and provide for them suitable training.

e. Fifty percent of the workers are promoted to vacant positions and the remaining are filled through new recruitment. It is noteworthy that none of the employers has given any comment on leaving posts unfilled in their organizations. The details are shown in Table 8.32.

TABLE 8.32

Percentages of options used by employers to fill a vacant position in organizations by sectors.

| Options. | Govt. | | | Semi-govt. | | | Private. | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | A | B | C | A | B | C |
| Hiring untrained at low salary. | 3 | 3 | 3 | 9 | 9 | 32 | 6 | 13 | 63 |
| Hiring skilled at high salary. | 24 | 9 | 9 | 31 | 30 | 9 | 63 | 31 | 16 |
| Hiring skilled craftsmen. | 3 | 6 | 6 | 4 | 17 | 9 | 16 | 41 | 34 |
| Upgrading post. | 6 | 6 | 6 | 4 | 17 | 4 | 9 | 22 | 16 |
| Rotating workers | 12 | 9 | 19 | 26 | 13 | 26 | 16 | 16 | 48 |
| Adjusting hours of workers. | -- | 3 | 12 | 13 | -- | 13 | 16 | 9 | 28 |
| Introducing new technology. | 9 | 6 | 6 | 13 | 22 | 9 | 13 | 13 | 13 |
| Any other. | 92 | 92 | 89 | 31 | 31 | 62 | 6 | 6 | 13 |

N = 92  (Govt. 37, Semi-govt. 23, and Private 32)

Note:   A represents "admn/managers", B "skilled workers" and C "semi-skilled and

unskilled workers".

It is important to note that we have not given the Chi-square tests for Table 8.32. A separate Chi-square test is required for every single row and a column of the table. Giving so many Chi-square tests for only one table makes the table complicated. This is the main reason that we have not given the Chi-square test for Table 8.32.

Results revealed that "hiring untrained manpower at low salary" is commonly used to fill vacant positions of semi-skilled and un-skilled workers both in semi-government and private sectors. "Hiring highly skilled workers at high rate of salary" was applied to fill vacant positions of "admn/managers" and "skilled workers" in all sectors of the economy. "Rotating the workers on different types of job" was equally used for all categories of jobs in all sectors. (see Table 8.32).

Results showed that the employers from the private sector use various options, depending on conditions, to fill vacant position in their organizations. Employers from the semi-government sector are also free to some extent to use different options, depending on their demands, to fill vacant positions in their organizations. Employers from the government sector observe the rules and regulations set out by the Establishment Division, Government of Pakistan to fill the vacant positions in their organizations, however, they can make temporary arrangements within their organizations. (given in the Table under "Any other"). It implies that the government rules allow them to change the working positions of their workers within their organizations. On the other hand employers from the private sector can fill vacant positions in their organizations using a variety of

qualified workers to meet their needs.

It is evident from the results of Table 8.32, that 63 percent of employers from the private sector preferred to employ untrained workers at a low rate of salary. The phenomenon of filling vacant positions by employers from all sectors of the economy shows that there exists a significant level of substitution between different types of qualified manpower in all sectors of the economy in Pakistan.

### 8.3.5.1 Implications

As discussed earlier, that estimates of educational requirements can be made for different categories of occupations is an important assumption of forecasting manpower requirements. But it is evident from results of the study, that the conversion of occupational requirements into educational requirements is highly suspect and one of the complex problems for manpower planners. The estimates of educational requirements cannot be made mechanically because in some occupations, as results of this study have indicated, there is no precise relationship between education and occupation. Results have shown that a significant number of workers with different levels of education and specialization were employed in the same category of job.

The results of the study supported findings of the study conducted by James (1993), that "in India, in 1986, over 50 percent of workers in the public sector in occupations requiring technical knowledge or skills did not possess the relevant education or training and 94 percent of workers in occupations requiring general education did not possess the formal

education". The term "relevant" is not defined in the findings of the study. It may be the educational qualifications required to enter a specific job in the labour market. One cannot be sure whether an administrator of a certain department should have a university education, because satisfactory performance is attributable to a function of native ability, psycho-motor skill, work experience, on the job training, and formal education. These skills are not taught directly in educational institutions, though to some extent these skills may be fostered by formal education. The same is true for the rest of the jobs. This fact has also been recognized in previous studies. For example, Bowles and Gintis, argue that "the effective performance in most of the jobs, depends very little on directly usable cognitive skills and much more on certain non cognitive personality traits". (quoted in Blaug, 1992: p. 212). It implies that there is a degree of substitution between qualified manpower, either by level of education or by field of study, and the job categories in the labour market in Pakistan.

## 8.3.6 Factors Causing a Shortage of Trained Manpower

Respondents were asked if they thought that there is a shortage of trained manpower for their concern. If yes, they were asked to rank each of the factors in terms of priority. By definition "shortage" means the unavailability of workers over and above the quantity demanded at the going "free" market wage rates. The details of the factors causing the shortage of trained manpower are given in Table 8.33.

TABLE 8.33

The priority number in percentages, and the means of the factors causing the shortage of trained manpower.

Priority number

| Factors. | 1 | 2 | 3 | 4 | 5 | 6 | Mean |
|---|---|---|---|---|---|---|---|
| Lack of practical work in education. | 39 | 11 | 6 | 4 | 2 | -- | 1.69 |
| No relation between edu. & employer | 9 | 28 | 8 | 7 | 2 | 1 | 2.41 |
| Technical person on non tech. jobs. | -- | 4 | 3 | 8 | 7 | 2 | 4.00 |
| Unattractive terms of services. | 9 | 21 | 20 | 8 | 1 | -- | 2.50 |
| Lack of chances of promotion. | 2 | 10 | 18 | 14 | 4 | -- | 3.16 |
| Overseas migration of skilled workers. | 2 | 2 | 2 | 1 | 4 | 3 | 3.85 |
| Others. | 2 | 1 | 1 | 1 | -- | -- | 2.20 |

Note: 1 stands for the first priority, 2 for second, 3 for third, 4 for fourth, 5 for fifth and 6 for sixth and the least important.

Table 8.33 is based on the priority number of the factors causing the shortage of trained manpower in the country. We think the Chi-square test is not necessary for this table because it presents fully the importance of the factors.

Table 8.33 shows that, with the mean value 1.69 "Lack of practical training and field work facilities in the educational institutions", was placed first followed by the "no relationship between technical institutions and the employer's needs" and the "unattractive terms of services".

It implies that "Lack of practical training and field work facilities in the educational institutions" and "no relationship between technical institutions and the employer's needs" are the main reasons causing the shortage of trained manpower in the labour market.

## 8.3.6.1 Implications

Overall results of the study revealed that "lack of practical training in the educational institutions", "no relationship between educational institutions and the employers needs" are the main reasons for the shortage of trained manpower. It implies that educational institutions, if they wish to provide their students with meaningful work experience or educate them with advancement potential, need to stay in contact with the latest technological advances and the fast-changing labour market. Moreover, they need to cultivate a network of individuals in employing organizations interested in their graduates. But the question that arises here is that there is always a danger that a vocational

educational programme and the equipments (used in the programme), will be outdated

before any student graduate. Findings of the study supported previous studies conducted

by UNESCO (1987), and Hawthorn Institute of Education (1989), low correspondence

between the technical education and vocational training supply and their demand in the

labour market. It was probably due to two problems. Firstly, the titles given to various

technical and vocational courses do not conform to International Standard Classification

of Occupations (ISCO) descriptions in practice. Secondly, there is a lack of detailed

occupational data (at least 3rd digit level) which is the level at which most of the training

courses are described. This is one of the main problems for manpower planners in

Pakistan. In this context, the lack of detail and consistency in the official statistics,

particularly those on manpower and employment is the biggest constraint to the planning

of education and training system. This combined with the lack of detailed planning by

line ministries has resulted in a severe imbalance between the supply of skilled workers

and their current demand.

## 8.3.7 Suggested Measures to Overcome the Problem of the Shortage of Trained Manpower

During the survey, respondents were asked to suggest measures to overcome the problem

of shortage of trained manpower. They were given the following options:

a. More emphasis on practical training.

b. Providing in service and on the job training.

c. Frequent changes in curricula in consultation with employers.

d. Provision of modern scientific laboratories.

e. Hiring foreign consultants to train the local workers.

f. Raising the salary and other monetary and non-monetary benefits for trained manpower.

g. Starting double shifts in technical institutions.

h. Integrating vocational subjects with the general education at secondary level.

i. Opening more technical institutions in the country.

j. Others.


They were asked to indicate the level of importance of each of the factors. In this context they were given three options, i) being not important, ii) important and iii) very important. We calculated mean values of suggested measures by the employers to overcome the problem of the shortage of trained manpower for their concern. With the mean of 2.76 the "more emphasis on practical training" was placed on the top, followed by "providing in service and on the job training" and "raising the salary and other monetary and non-monetary benefits". Three very important and three important responses were given in the option "others". These were:

a. Creating a department of manpower planning in any one of the premier educational institutions such as "Government College Lahore" or "Quaid-e- Azam University" Islamabad, to produce post graduate manpower planners. It was also proposed that the government should bear the all cost on the department.

b. Public policy recognising the significance of academics is required.


The details of the measures suggested by respondents are shown in Table 8.34.

TABLE 8.34

Percentages, and means of suggested measures by the employers to overcome the problem of shortage of trained manpower in the country.

| Measures. | V.imp | Imp | Not imp | Mean value |
|---|---|---|---|---|
| More emphasis on practical. | 61 | 11 | 3 | 2.76 |
| In service & on the job training. | 45 | 25 | 7 | 2.50 |
| Changes in curricula. | 14 | 18 | 42 | 1.62 |
| Provision of sci. laboratories. | 27 | 23 | 24 | 2.04 |
| Hiring foreign consultants. | 3 | 9 | 62 | 1.20 |
| Raising salary of workers. | 24 | 35 | 15 | 2.11 |
| Starting double shifts. | 4 | 21 | 49 | 1.39 |
| Integrating vocational subjects. | 15 | 36 | 23 | 1.89 |
| Opening technical institutions. | 26 | 26 | 22 | 2.05 |
| Others. | 3 | 3 | 66 | 1.13 |

N = 92

Note:   The mean value was calculated from the following codes.

Very important = 3, Important = 2, and Not Important =1.

We have calculated the mean value of the importance of the measures suggested by the employers involved in this study and it is these means we use in our analysis. It is for this reason no Chi-square test is presented.

As shown in the Table 8.34, overall averages of results revealed that, with the mean of 2.76 the "more emphasis on practical training" was placed on the top, followed by "providing in service and on the job training" and "raising the salary and other monetary and non-monetary benefits".

These results lead to the conclusion that more emphasis on practical training and providing in service and on the job training to the educated manpower are the major measures needed to overcome the problem of shortage of trained manpower in the labour market. The other important measures to overcome this problem were "Raising the salary and other monetary and non-monetary benefits" followed by "opening more technical institutions in the country" and "provision of modern scientific laboratories".

### 8.3.7.1 Implications

Overall results revealed that employers suggested more emphasis on practical training and the provision of in-service and on-the-job training. It indicates that probably employers were not satisfied with the current supply of trained manpower produced by the formal system, because they are unable to meet their requirements. As discussed earlier, it is mainly because of lack of definition in describing the employment needs, or in other

words classification of occupations cannot be related to the classification of educational qualifications, both in terms of content and level. They require manpower trained to a high level of skills which meet their future needs which are becoming increasingly reliant on technology at all levels of production. Employers anticipate that wages and other monetary benefits of workers will increase with the increase in the quality of skills. This probably may overcome the problem of shortage of skilled manpower in the labour market.

The other suggested measures were "opening of new schools" and "provision of modern scientific laboratories". Although these would involve high costs, these measures may be useful in improving the supply of trained manpower. All these measures seem to be of value to overcome the problem of shortage of trained manpower in the country. But a scarcity of financial resources is one of the most severe problems for manpower planners. However, within the resources available these measures can be taken into account to overcome the problem of shortage of trained manpower in the country. The range of measures available to overcome shortages appears substantial but in Pakistani planning with its emphasis on a fixed relationship between education and occupation these options, and their relative costs, are ignored.

## 8.8 LIMITATIONS OF THE STUDY

Results of the study showed that we have successfully collected data from respondents involved in the study. We however, had some limitations in conducting this study. Some of the important limitations were as follows:

1. We expected the respondents would be educated and that they would have no difficulty in understanding the printed word but in fact we found that their responses varied in the interpretation of the terminology/language used in the questionnaires. For example, as discussed earlier, the words "employer" and "recently" were not at all clear to the respondents. To some extent the confusion in understanding the meanings of these words has adversely effected results of the study.

2. As discussed in Chapter 7, the sample appears biased towards the professionals and their related skilled workers because of easy access to them and their cooperation in this regard. It was probably due to the fact that, compared to other groups, they had considered the study an important one and responded as well as they could.

3. Although we contacted proportionally a similar number of private organizations, 34.8 percent, (see table 7.1) however, we had only 15.2 percent private employees in the employee sample. It was due to the following reasons:

Firstly, many employers from this sector were not prepared to give us information about their employees, mainly for tax reasons. In doing so, they felt, that the government would

have access to their actual income and the number of employees in the organization. Secondly, as Table 7.5 shows that many of the private organizations were smaller in size than the public organizations. The total number of private employees, from which the sample was drawn, (ie. 5109) was lower compared with employees (ie. 37930) from other sectors. The details of the employees response rate by sector are given in Table 7.4.

4. Another problem we were faced with during the survey, was the availability of employers included in the sample. We had to contact some of them so many times at their offices and residences, that in doing so we could not spare enough time for other employers. For this reason employers' response rate (ie. 76.6 percent) was low compared with employees' response rate (ie. 94.36 percent).

5. We used the "English" language in our questionnaires in a view to avoid the difficulty in the interpretation of translation. The language of the questionnaires made this study biased towards educated respondents (ie. at least having 10 years of schooling). For this reason we could not involve illiterate or semi-literate employees in our study. A significantly very high percentage (ie. 88 percent) of the employees fall into this category in Pakistan. (Hussain, 1987: p. 46). It implies that a majority of the employed labour force are illiterate or under matriculates (less than 10 years of schooling) in the country. These categories are employed in each of the sub-sector of the economy. For example, "three quarters of the industrial work force is illiterate". (National Manpower Commission Report 1991: p. 84). It implies that because of language difficulties we could not involve the majority of the labour force in our study. Inclusion of these categories of workers may have affected the findings of the study. But not much for the sectors and

occupational groups in our sample which are also the principal ones in Pakistani planning.

6. Despite all efforts we could not include a sufficient number of self employed in the study. It was probably due to the fact that they were very busy in their work and could not spare time for us or they felt this study irrelevant to them. This category of workers is under represented in the sample. A significantly a large number of educated manpower is likely to be found in this category in Pakistan. Inclusion of this category in the sample may have affected the results of the study.

7. There is another limitation inherent to this study and is that we could not involve "agriculture" and "service" workers in the study. There were two reasons for this. Firstly, the study was conducted mainly in urban localities. Secondly, a majority of the workers employed in these categories were illiterate or under matriculate. It also points out that MRA usually takes only the educated manpower into account neglecting the others (uneducated and semiliterate etc). The inclusion of these categories in the sample may have affected the findings of the study. It is possible when irrespective of educational qualifications, all the labour force actively working in the country is taken into account in the process of MRA.

8. The length of the employers questionnaire was also problematic. Some of the respondents commented that the information required in the questionnaire was too detailed, time consuming and sometimes unavailable in employers' offices. In this context, they had to consult their colleagues and had taken a longer time to complete the questionnaire than was expected. For example, one respondent from the government

sector had taken two weeks to respond, because he had to consult other colleagues to collect the required information. It was probably due to this fact that some of the employers did not respond, and we could include only 92 employers in the study compared with 100, proposed in the methodology chapter.

9. During the analysis of data we noted that the number of responses in different items of a question addressed in the employees questionnaire varied. For example, total number of responses (N) in the tables 8.5 to 8.10 varies from 486 to 512. It was probably for the reason that some of the respondents considered these items relevant whereas others did not. To some extent the comparison of these tables may be difficult due to the different number of responses.

10. As mentioned in Chapter 6, different methods could be used for evaluation of manpower forecasts made in Pakistan. One such method is the 'accuracy test'. Practically it was not possible for us to fully apply this test, for the following reasons:

a. As it is pointed out earlier in Chapter 5 (see paragraph 2 of chapter 5), no reliable data on manpower in Pakistan exists. Most of the official documents and manpower exercises are based on the same sources of data. For example, the Report the National Manpower Commission (1989), and the Sixth, Seventh and Eighth Five-Years Plans all are based on the census undertaken in 1981.

b. Similarly the data on the output of the educational system is not compatible with the requirements of the jobs in the labour market, because there is no precise relationship

between the educational system and the labour market.

c. This research is with respect to a limited target area, thus the results available cannot be generalised for the entire populace. But it does show that for the area sampled the planning method is flawed and, prime facie, the same results would probably be found in other urban areas.

11. As discussed earlier in this chapter, Pakistan, since inception has been faced with the problems of inconsistent governments. The situation at the time of conducting the survey for collecting data for this study, was worse than ever. For example, since 1987 three civilian governments have been overthrown by the president of the country. In 1991, the "Muslim League" government had banned all types of new appointments in the public sector. In 1993, this government was overthrown by the president of Pakistan, and the interim government took charge. The interim government not only continued the ban on new appointments but issued orders to short list the number of employees in the public sector. Consequently some departments in the public sector were abolished. Employees of these organization were declared surplus and they have had to switch over to the other organizations. Due to the administrative and financial problems, they could not be fully absorbed by the other organizations. This situation has created problems for both the employers and employees in the public sector. For example, the "National Education Council" and the "Central Bureau of Education" in the ministry of education were abolished, and their employees were declared surplus. At the time of conducting the survey the situation was the same, though the Pakistan People Party government had taken office. Despite, the presence of the new civil government the situation in the country was

unchanged. All types of planning especially the manpower planning in the country was adversely effected by the existence of these orders. Though this problem was beyond the scope of this study, because of this problem 26 percent of the employers could not indicate the estimated number of employees ahead of the current year.

CHAPTER NINE

# SUMMARY OF THE CONCLUSIONS AND RECOMMENDATIONS

## 9.1 INTRODUCTION

The present study has addressed the theoretical, methodological and practical aspects of manpower planning, but the major task was to explore the relationship between education and occupation with special reference to manpower planning in Pakistan. Following the methodology described in Chapter 6, we conducted a survey in Islamabad and Rawalpindi, Pakistan, to collect data from employers and employees involved in the study. The "sample and responses" is presented in Chapter 7, and the "analysis and interpretation" is presented in Chapter 8. This chapter deals with the conclusions drawn and recommendations based on the findings of the study.

The questions raised in this study on the validity of the assumptions of manpower planning and the theoretical, methodological and structural recommendations will help improve the process of manpower planning in general and especially in Pakistan.

Ideally the manpower forecasts attempt to ensure the supply of the manpower available when the demand materializes in the labour market. Manpower planners use this approach as one of the tools for manpower planning. As described in the introductory paragraph of Chapter 4, according to Bowey (1974), manpower planning is divided into

three categories of activities. Firstly, the assessment of the future requirements for labour. This includes the estimation of gross additions from the mainly formal educational system, training and nature of the job, estimation of labour force participation rates for qualified manpower, adjustment for assumed changes in hours of work, and calculation of base-year unemployment and underemployment by skill or educational qualification. Secondly, the assessment of the firm's likelihood of training the labour it has at present, and calculation of optimum rates of replacements of the employees. Thirdly, the prediction of the firms likely ability to acquire or attract labour of different types of requisite skills. (Bowey, 1974:p. 4).

Some other authors have defined manpower planning differently. For example, Todaro defines manpower planning as, "the long-range planning of skilled and semi-skilled manpower requirements and the attempt to gear educational priorities and investments in accordance with these future human resource needs". (Todaro, 1989:p. 635).

According to Richter, "manpower planning is basically concerned with securing the right number of people with the right qualifications for the right jobs at the right time". (quoted in Abegaz 1994: pp.8 and 9).

In Pakistan, manpower forecasting is supposed to ensure that a supply of manpower is available when the demand materializes in the labour market. Manpower planners use this approach as one of the tools for manpower planning.

This study was mainly concerned with exploring the relationship between education and

occupation with special reference to manpower planning in Pakistan. The study attempted to assess, the extent to which the major assumptions of manpower planning concerning the education-occupation relationship are valid in Pakistan. The study attempted to test the validity of the following assumptions of the manpower forecasting approach used in manpower planning in Pakistan:

1. The assumption that the elasticity of substitution (supply and demand) between different types of educated manpower is zero or near zero.

2. The assumption of manpower planning that the estimates of educational requirements can be made for different categories of occupations.

3. The assumption that the pace of change in technology and labour productivity during the planning period is predictable.

4. The assumption of manpower planning that all relative prices, wages and salaries remain constant.

5. The assumption of a fixed or stable relationship between inputs of different types of manpower and output.

6. The assumption of a fixed and stable relationship between labour output and capital.

In this context we conducted a survey and used structured questionnaires to collect data

from the respondents involved in the study. The study attempted to take both factors

(supply and demand) into account. The analysis of data and their interpretation are given

in Chapter 8. On the basis of findings of the study the following conclusions regarding

the validity of the assumptions of manpower planning were drawn:

## 9.2 ELASTICITY OF SUBSTITUTION BETWEEN DIFFERENT TYPES OF MANPOWER

In the process of manpower planning it is assumed that the elasticity of demand for

different types of educated manpower is equal or near zero. The standard manpower

planning assumption is "near-zero elasticities of demand for different skills". (Blaug, M.

1970: p. 216). This is the major assumption of manpower forecasting and manpower

planning in Pakistan and the study was mainly concerned with testing the validity of this

assumption. The findings of the literature on manpower planning, discussed in Chapter

2, and the analysis of the empirical data collected for the study, provided adequate

evidence against the validity of zero elasticity of substitution between different types of

manpower in the labour market. We have focused on the following types of the

substitutions between different categories of workers in Pakistan:

a. Substitution between educated workers by level of education.

b. Substitution between educated workers by type or specialization of qualifications.

c. Substitution between labour and capital.

### 9.2.1 Substitution Between Educated Workers by Level of Education

Hinchliffe (1987), states that "a unique set of relationships exists between occupation and level and type of education". (quoted in Psacharopoulos, 1987: p. 321). It implies that estimates of educational requirements can be made for different categories of occupation. This is an important assumption of forecasting manpower requirements. Results of Table 8.11 revealed that in Pakistan, workers in the same category of job have different levels of academic qualifications. For example, the level of academic qualifications in the "admn/managers" and "professionals" varies from Matric (10 years of schooling) to post-graduates including M. Phil. and Ph. D. Similarly the workers with the same level of qualifications were employed in different categories of jobs. For example, from those that were sampled, 34 percent of the "admn/managers", 20 percent of the "professionals", 45 percent of the "clerical workers", 56 percent of the "sales workers", and 31 percent of the "production workers" were degree holders. The situation is the same for the remaining categories of workers. (see the Table 8.13 for details). These results enable us to conclude that a significant level of substitution between highly qualified and less qualified workers exists in Pakistan. It implies that in contrast to the assumption of MRA, the study has provided evidence that the existing level of elasticity of substitution between different types of educated manpower is significantly greater than zero in Pakistan.

Table 8.24 shows that employers, particularly from the private sector, employ workers with different levels of qualifications and skills for a specific job category. Table 8.30 shows that overall 35 percent of employers from the public and private sectors take the possibility of substitutions of workers by education and occupation into account when they

prepare manpower plans for their respective organizations.

Similar to the findings of this study, as stated in Chapter 2, are the many comments that have been given on this assumption of manpower forecasting approach. For example, Dougherty, (1972) asserted that, "a number of econometric studies have more or less confirmed the fact that the value of this parameter is well above unity". (quoted in Youdi and Hinchliffe, 1985: p. 20). Youdi and Hinchliffe (1985) quote that, "At the same time, however, the economic estimation of substitution has been criticised because of the usual aggregate production-function problems. For example, an indirect, non-econometric way of assessing the degree of rigidity of the production structure is to compare with a country or across countries the changing distribution of manpower. The more extensive is the change in the distribution, the more de facto substitution possibilities must exist. The census material collected in different countries is unique in deriving indirect substitution "estimate" of this type".

According to a recent OECD report (1993), "when the employment situation deteriorates, the employers raise their requirements. For example, in the UK, there is concern about the employment of engineers in technical jobs because of a shortage of technicians". (OECD, 1993: p. 65). In other words graduates are recruited at a lower level and lower pay than previously. The evidence available in the literature supported the idea of elasticity of substitution between different types of educated workers in the labour market the world over. From the findings of the present study a significant level of substitution between different types of manpower in Pakistan can be seen to exist and this supports the findings of previous studies conducted by researchers from all over the world.

On the basis of the evidence available in the present study we therefore concluded that the correspondence between education and occupation seems to be loose and substitution possibilities between qualified manpower of different levels does exist in Pakistan.

## 9.2.2 Substitution Between Educated Workers by Type or Specialization of Qualifications

The results in Table 8.14 revealed that graduates in different fields of studies including the specialized field of education, were employed in the same category of job. For example, graduates in Arts, Social Sciences, Natural Sciences, Law, Engineering, and Agriculture, were employed in the same category, eg. "admn/managers". The same was true for the other categories of workers included in the sample. On the other hand, graduates in the same field of study, including the specialized fields, were employed in different categories of jobs. For example, graduates in Engineering were employed in the "admn/managers", "professionals", "sales workers" and "production workers".

The results in Table 8.32 from the employer survey shows that there exists a substitution between the technical and non technical manpower in the labour market. Employers from all sectors especially from the private sector use different options to fill a vacant position in their respective organization. For example, a significant percentage of employers from all the sectors used the option "rotating the workers on different types of jobs" for filling the vacant positions in their organizations.

Similar to the findings of Table 8.14, in India, a study at the time of formulation of

National Policy on Education in 1986 had shown "that over 50 percent of workers in the public sector in occupations requiring technical knowledge or skills did not possess the relevant education or training and 94 percent of the workers in occupations requiring general education did not posses formal education". (James, 1993: p. 59).

The results of this study are also supported by other studies conducted by different authors, in this area. For example, a survey of Sudanese graduates of higher education indicates that highly specialized programmes (such as law, engineering, and health care) tend to exhibit high correspondence with their respective professions but more general fields (arts and social sciences) tend to exhibit high flexibility in occupational choices". (Sanyal and Versluis (1976) quoted in Abegaz 1994: p. 125). But it does not mean that the correspondence between academic qualifications and occupation exists in other countries like Pakistan. Similarly, Bowles and Gintis, argue that "the effective performance in most of the jobs, depends very little on directly usable cognitive skills and much more on certain non cognitive personality traits". (quoted in Blaug, 1992: p. 212).

The results of this study provided us with adequate evidence to conclude that the existing level of elasticity of substitution between workers by specialization of qualifications is significantly more than zero in Pakistan.

## 9.2.3 Substitution Between Labour and Capital

The results of Table 8.32 revealed that a reasonably high percentage of employers from the private sector use the different options to fill a vacant position in their respective

organization. For example, a significantly high percentage (57 percent) of employers replace labour with new technology. (see Table 8.30). It implies that the results of the survey from both employees and employers showed that a substitution between different types of labour and between labour and capital exists in Pakistan. These results are supported by other studies conducted by different authors in this field. For example, Abegaz (1994) quotes the international studies conducted by Bowles (1970), Psacharopoulos and Hinchliffe (1972), and Dougherty (1972b) and deduces "that substitution among skills must be high" as it is evident in this study. According to him the overall elasticity of substitution between aggregate labour and aggregate capital has a mean value of 0.78 for a developed group, and 1.0 for the developing countries. He also quotes Griliches (1969) and Welch (1970), Fallon and Layard (1975), explicitly tested for complementarity between capital and high-level skills with data from 23 countries for the 1960s. They found that the substitution between more educated and less educated labour in the labour market is close to one. It was supported by OECD, (1970) and Tinbergen (1974), in comparison with the 8.0 reported in Bowles (1970). (Abegaz, 1994: p. 74).

Overall, findings from the study and evidence available in the literature on manpower planning raise the question of the relationship between the education and occupation assumed in manpower planning in Pakistan. It implies that the conversion of occupational requirements into educational requirements are highly suspect, and the assumptions of forecasting manpower in this context, in general, and specifically in Pakistan, are increasingly open to question. The evidence available in the study enabled us to conclude that the estimates of educational requirements cannot be made for different categories of

occupations with any degree of precision. Thus this assumption of manpower planning is likely to be invalid in actual working situations in Pakistan. We therefore, concluded that the assumption of manpower forecasting, "near-zero elasticities of demand for different skills" is likely to be invalid in real-working situations in Pakistan.

## 9.2.4 Inter-Occupational Mobility of Workers

Table 8.15, reveals that in 14 percent of the employees inter-occupational mobility was found. A similar finding is revealed in Table 8.30, that is that overall 23 percent of employers from each of the sectors take inter-occupational mobility of workers into account when they prepare manpower plans for their concern. The findings of these tables support the existence of substitution between different types of manpower by occupation.

On the basis of findings of the present study, it is suggested that inter-occupational mobility of workers is not negligible. It will have significant effects on estimates of the supply and demand for educated manpower in the labour market. Similar to findings of the study, Hough (1987), using the data of UK for 1971, found that "out of 239,000 graduate engineers only 39 percent were employed in the manufacturing industry, whereas 36 percent were employed in the "white collar" categories of different departments of the public sector". (Hough, 1987: p. 80).

Findings of this study suggest that inter-occupational mobility of workers is likely to affect the supply and demand for qualified manpower in the labour market. Thus this

factor cannot be neglected in the process of manpower planning. The findings of the study therefore, do not support the assumption concerning the supply of educated manpower that "the elasticity of substitution between different types of manpower is equal or near zero".

## 9.3 STUDENTS' MOBILITY DURING THEIR EDUCATION

In Pakistan, the planners make the estimates of supply of educated manpower, especially from the formal educational system, and they do not take students' mobility within the educational system into account. Practically, students' mobility within the educational system, cannot be neglected in planning education for employment purposes, because of its direct link with the supply of educated manpower. Table 8.23 shows that 28 percent of the respondents had changed their field of study during their education.

The results of this study revealed that only about 1 percent respondents had changed their field of study for the reason "my family has migrated here for some reason". As stated earlier in Chapter 8, 26 percent respondents had changed their field of study "to improve my chances of getting a job" followed by 25 percent who thought their "career opportunities were better in this academic area". There were 5 percent of responses given in the option "any other reason". (for details see Table 8.34). As stated in Chapter 2, similar to the results shown in Table 8.26 of this study, evidence is available in the literature on manpower planning. For example, according to a UNESCO study of 1987, a significant rate of students' mobility exists in the educational system among various countries. In the Philippines, for example, 18 percent of the students were studying in

different fields of study from the one they had originally chosen to study. Likewise, in Indonesia, Egypt, Botswana, and Sudan, these percentages are 10, 50, 20, and 61, respectively. (Sanyal, 1987: pp. 98-101). In the Netherlands, in 1990, 36 percent of those who dropout of university training take up other studies, while in Denmark, Spain and Germany, in 1987, these figures were 51.3, 55.8, and 29.3 percent respectively. (OECD, 1993: p. 58). This evidence indicates that students' mobility might have profound implications for the supply side of the labour market.

The results of this study enabled us to conclude that students' mobility within the educational system cannot be neglected in making estimates of the supply of educated manpower in the labour market. Overall, findings of the study provided evidence on the point that a significant percentage of students had changed their field of study during their education in Pakistan. This indicates that the percentage of students, who change their field of study during their education should not be neglected in the process of forecasting the supply of educated manpower in Pakistan. This factor is likely to effect the estimates of the supply of educated manpower in the labour market.

## 9.4 UNCERTAINTY OF LABOUR PRODUCTIVITY

In making forecasts expected changes in labour productivity are not taken into account by the planners, and the area most neglected are changes due to advancement in technology. It is assumed by the manpower planners, that the technology and the labour product during the time period will be the same or change in a regular way. Hinchliffe (1987), states that MRA assumes that "the present and the past occupational patterns are

solely a result of demand and the availability or unavailability of manpower supplies has no influence on occupational structures". (quoted in Psacharopoulos, 1987: p. 320). Results given in Table 8.30 showed that a reasonably high percentage of employers (ie. 57 percent) included in the sample take the factor "change in technology and its likely effects on "skill mix" and labour productivity" into account when they prepare manpower plans for their concern. Despite problems inherent in predicting the labour productivity with a degree of precision, overall 75 and 48 percent of the respondents involved in the study, take the "expected increase of output per year of the organization" and "anticipated change in demand and services" into account respectively when they prepare manpower plans for their organizations. (see Table 8.30).

These results support the idea that the change in the technology and its likely effects on "skill mix", and the labour productivity, are not negligible. In contrast to the assumption of manpower requirements approach this factor should be taken into account in the process of manpower planning.

As discussed earlier in Chapter 2, the findings of this study are supported by the previous studies conducted by different authors in different countries. For example, "both Hollister (1965) and Blaug (1967) point out that the studies of the labour productivity by Kendrick (1961) show that the changes have been quite irregular both over time and between economic sectors. As a consequence, they concluded that forecasts of future changes are likely to be highly inaccurate". (quoted in Psacharopoulos, 1987: p. 320).

Not only productivity, but even more important, the "mix" of manpower skills change

with new technology, including brand new skills. For example, in Germany, the proportion of graduates in the public sector increased from 21 percent to 26 percent between 1976-85, and similarly in Norway, they increased from 26 percent to 37 percent between 1975-1989. (OECD, 1993: p. 95). It is claimed in the report that this increase was due to the spread of new technologies, and changes in the organization of work. Similarly in the production sector, the introduction of "power looms" at home or in the lower scale has not only increased the output per worker, but also the functional composition of the work force has changed. Loom fixer, engineer, and personnel administrator are the examples of new occupations that would probably not exist in the simpler organization of the sector. "Jolly and Colclough (1972), examined 33 manpower studies from 20 African countries made between 1960-1970. In these studies, projections were most often made by a simple expansion of the existing number of posts making no allowance for changes in the occupational or educational structure". (Hinchliffe quoted in Psacharopoulos, 1987: p. 322).


We observed in the literature on manpower planning that the forecasts based only on the growth rate of labour productivity have resulted in inaccurate predictions of the demand for educated manpower. The evidence available in this study shows that an increase in manpower does not necessarily lead to a commensurate increase in output. If, there is an increase in output, there may be various factors responsible for it, for example, change of technology, or the addition of some new technology and their likely effects on skill 'mix'.

These findings evidently support the point that the technology and the labour productivity of an organization during the planning period will not remain the same or change in a

simple regular pattern. Moreover, the predictability of technology change and labour productivity over time is an arduous job and one of the complex tasks for manpower planners. It implies that the assumption of manpower planners concerning the "technology and the labour productivity" is likely to be invalid in Pakistan.

## 9.5 ELASTICITY OF SUPPLY AND DEMAND WITH RESPECT TO WAGE RATES

The results of Table 8.14 revealed that 50 percent of the employees employed in "admn/managers" 25 percent from each of the "professionals" and "clerical workers" changed their present job for a higher salary. Similarly employees from all categories of jobs included in the sample had given "better working conditions" and "better prospects for promotion" as the main reasons for their change of jobs. (for details see Table 8.19). This result indicates that employees take the financial and other related benefits related to a specific job into account in choosing or changing their jobs. There is an assumption of MRA that, "all relative prices, wages and salaries remain constant". (Ahamad and Blaug, 1973: p. 9). In other words according to Hinchliffe (1987), "wages have little or no effect on the demand for and supply of labour". (quoted in Psacharopoulos, 1987: p. 321).

The findings in Table 8.32 show that 63 percent of employers from the private sector tends to hire untrained workers at low salary rates. On the other hand they are ready to offer high salary rates to highly skilled workers if available in the labour market. Employers from the government and semi-government sectors, however, have to observe

recruitment rules and regulations set out by the government. (see the Annex F). However, they are free to the extent that they use the options like, "rotating the workers at different jobs", "hiring highly skilled workers at high salary rates" and "hiring untrained workers at low salary rates" (especially in the semi-government). Overall findings in Table 8.32 reveal that with the increase of educational qualifications the wage of employees increases. But practically with the increase of wage rates demand for employees fall, especially in the private sector as they substitute untrained workers at low salary rates.

These findings simply that the assumption of zero elasticity of the supply and demand for educated labour with respect to wage rates in the labour market cannot be justified. It seems to be misleading and not valid in the real-working situation. It is evident from the results of this study that the elasticity of demand for labour with respect to wages is not constant.

Similar to results of this study, adequate evidence is available in the literature on manpower planning. For example, Jolly (1968), acknowledges the presence of elasticity of demand for educated labour with respect to wages, and gives the example from Puerto Rico, that "there is an equal percentage fall in employment for every percent increase in wages". He quotes another example from Zambia, that a "10 percent increase in average earnings could decrease the employment by seven percent. (Jolly, 1968: p. 85). Bowles, (1969) using data from twelve countries, found that the elasticity of substitution between different categories of educated manpower was never less than eight. (Mace, 1986: p. 67). Jolly and Colclough (1972), assessed that "the reduction of 3 percent per annum in real

wages could increase future demand by 2 percent per year". (Jolly and Calclough, 1972: p. 230).

It is evident from the results of the present study supported by other studies on manpower planning, that with the increase of wages the demand for employees will fall. Employers will substitute these with other types of manpower or other factors of production, and the estimates of the supply and demand for educated manpower will go wrong. It is therefore concluded that the assumption of manpower forecasting that all relative prices, wages and salaries remain constant or "wages have little or no effect on the demand for and supply of labour is likely to be invalid in the labour market.

## 9.6 IGNORING THE COST CONSIDERATIONS

The results in Table 8.30 reveal that overall 22 percent of the employers involved in this study take the "current wage rates of workers" into account when they prepare manpower plans for their respective organizations. Results in table 8.30 also show that about 41 percent of employers from each of the sectors take financial implications into account when they prepare manpower plans for their organizations. It includes the opportunity cost, additional qualifications, training and the cost-effectiveness of trainees. It also includes the influences of relative prices of education/training in determining the choices between the alternative techniques and combination of inputs.

It would be expected that education is inversely related to the costs, that is higher school fees and other related costs, the lower would be the private demand for education, every

thing else being equal. According to Todaro, for poor people, direct primary school costs often present a major burden and real financial constraints. One example he quotes is that the average cost of sending a child to primary school (excluding opportunity cost) is typically in excess of 20 percent of per capita income. (Todaro, 1989: p. 339). The situation would be worse if the opportunity cost was taken into account. It implies that in Pakistan, in contrast to the assumptions of the manpower forecasting approach, results of the study reveal that financial implications are taken into account by employers in preparing manpower plans.

The findings in Table 8.19 reveal that the employees main reasons for changing their respective jobs were the "higher salary in the present job", "better prospects of promotion" and "better working conditions". (for details see Table 8.19 in Chapter 8). It means that in Pakistan, employees take wage rates and other benefits associated with a specific job into account when they embark on or change their job. The evidence available in this study enabled us to conclude that the financial implications are not negligible and should be taken into account in the process of manpower planning in Pakistan.

## 9.7 INPUT-OUTPUT RELATIONSHIP

In the process of MRA "inputs are assumed to be used in fixed proportion of outputs". (Ahamad and Blaug 1973: p. 11). Findings in Table 8.32 reveal that the same level of output can be achieved with an alternative combination of labour and capital, skilled and unskilled labour, by rotating workers on different jobs, and adjusting the working hours of employees. It indicates that no fixed relationship between input and outputs of

organizations exists in Pakistan.

The literature on manpower planning also provides some evidence on this point. For example, according to Psacharopoulos and Woodhall, (1985), "a high degree of substitutability has been observed between inputs and outputs and it is claimed that the same level of output can be achieved with an alternative combination of labour and capital, skilled and unskilled labour, and if employers can choose between hiring highly educated workers and providing on the job training for less educated workers, then it is both more difficult and less necessary to attempt long term forecasts. It is difficult because the pattern of employment depends on a wide variety of factors, such as relative prices, rather than a fixed relationship between input and output. It is less necessary for the reason that employers will be free to respond to a shortage or surplus of manpower by changing the combination of inputs, like changing the balance of education and training in their work force". (Psacharopoulos and Woodhall, 1985: pp. 75-76).

Findings of the study supported by the evidence available in the literature, suggest that substitution between inputs and outputs does exist in Pakistan as in other countries of the world. On the basis of the evidence we therefore concluded that the assumption of MRA "inputs are assumed to be used in fixed proportion of outputs" is invalid in Pakistan.

## 9.8 OVERALL CONCLUSION ABOUT THE VALIDITY OF THE ASSUMPTIONS CONCERNING THE EDUCATION-OCCUPATION RELATIONSHIP

The study highlighted how the validity of the assumptions concerning the education-occupation relationship with special reference to manpower planning in Pakistan, was assessed. Empirical evidence both from the literature on manpower planning and from real-working situation in Pakistan were collected. In this context, we extensively reviewed the literature on manpower planning, and collected data from respondents (employees and employers) from Rawalpindi-Islamabad, Pakistan. The main research question was

**Is the education-employment relationship assumed in Pakistani manpower**

**planning valid ?**

Overall, the findings of the study supported evidence from the literature on manpower planning, raised the question about the validity of the assumptions of manpower planning concerning the education-occupation relationship. In this context some of the key factors discussed earlier in this chapter were shown to be neglected by manpower planners. The evidence provided by the present study enabled us to conclude that the assumptions of manpower planners in this context, cannot be justified and therefore likely to be **invalid in Pakistan.**

As pointed out earlier in Chapter 8, that overall 26 percent of the employers were unable to give the estimated number of employees in their organizations by 1998/99. Moreover,

some could not give the estimated number of employees in their organizations beyond one year. Findings in Table 8.31 provide evidence that employers plan for a short period of time. (see Table 8.31 for details). It is evident from these findings that "employers' opinion method" does not provide adequate information for forecasting the supply and demand for manpower beyond one or at the best two years, in Pakistan.

In this study we were also able to analyze for the effect of gender and age. With respect to gender the findings of this study provided us with evidence that there are not wide disparities between male and females regarding their level and type of educational qualifications, except that fewer females had post-graduate education. According to this study there is a significant difference between males and females regarding the reasons for the change in the field of study but there were no other significant differences between males and females, except with regard to urban/rural domicile.

With respect to age the findings of this study provided us with evidence that there exists a significant relationship between the training received by employees, the type of training received and their age. A high percentage (58 - 71 percent) of the respondents from the age group 21- 55 were trained, compared with only 14 percent of the youngest employees. Furthermore, older workers were provided all types of training whereas the youngest age group had received only on-the- job training.

Finally, the evidence available in this study enabled us to conclude that the process of manpower requirements should be a continuous activity, in which forecasts are checked against the reality, and techniques and assumptions are constantly evaluated and updated.

It implies that good planning entails flexibility and continuity of revision in the light of unforeseen developments overtime. More importantly the evidence available in this study leads us to conclude that the costs and benefits of different types of skill mix should be incorporated in estimating the supply and demand for different types of manpower in the labour market for this is to be a more realistic and valid tool in both the educational planning and overall economic development.

## 9.9 RECOMMENDATIONS

Not only the present study, but the literature on manpower planning helped us to conclude that the assumptions of manpower planning concerning the education-occupation relationship are open to question and are likely to be invalid in Pakistan. It implies that the assumptions concerning the education-occupation relationship, adopted in manpower planning cannot be justified in the real-working situation in the country. The results of the present study reveal that this is the reason why the manpower forecasting approach is losing its popularity the world over. Despite adequate evidence available in this study on the invalidity of the assumptions of manpower forecasting, if any government similar to that of Pakistan was required due to socio-political or economical pressures, to prepare manpower plans, the recommendations described later on in this chapter should be taken into account.

As a result of the issues of manpower planning discussed earlier in Chapters 2, 5 and 8, specific recommendations (theoretical/methodological and structural), are made with regard to improvements for manpower planning with special reference to Pakistan. Before considering the detailed recommendations, we would wish to note that some of the problems currently facing manpower planning in Pakistan fall beyond the scope of the present study. For instance, the upheaval in the political situation of the country, the rapid growth rate of population, lack of financial resources and so on. These types of problems demand concerted approaches from the government as a whole. These problems cannot be resolved by any of the recommendations made in this study alone but should be taken into account if planning is to be successful. In this context some of the most

important factors are neglected in the process of manpower planning. It is recommended that the following factors should be given due consideration in the process of manpower planning with regard to its improvement.

### 9.9.1 Development of Manpower and Employment Database

As discussed in the preceding chapters, usually the data is available only in census years at ten year intervals and hence is usually outdated. In Pakistan, the latest data available, was collected in 1981. A sensus was to have been undertaken in 1991, but because of political upheaval this was not possible. Thus projections are generally based on the data collected in 1981. The other main source of data on employment and manpower and other human related issues is the Statistic Division, Government of Pakistan. The Statistics Division collects data through a questionnaire from households including all occupants who are 10 years and above. The Labour Force Survey provides information on the population and labour force by age, sex, status and literacy. It also includes the employment by major occupation and industrial groups, hours worked by the participants during the intercensal period.

The data collected by the Statistic Division is also flawed. Labour Force Surveys (LFS) are conducted quarterly but the results are published on an annual basis. Since 1984-85 the LFS has been published on a regular basis, but before this they were published only on three occasions. LFS are expressed in either percentage of the total population, as percentage of the total employed population or as a percentage of working age population (10-60 years). Furthermore, it only covers the establishments that employ 20 or more

persons. It omits about 70 percent of the employed labour force by neglecting those employed in small manufacturing units with under 20 employees, and those who are self-employed.

There are other published sources of data which are referred to in the process of forecasting manpower requirements. These are the Annual Census of Establishments, the Census of Manufacturing industries, and the Annual Economic Survey. These sources of data include demographic time series data and employment data, but they suffer from the same disadvantage inherent in the Labour Force Survey. For example, the Annual Economic Survey collects information from the Population Census and uses 3.1 percent per annum growth rate of population. (Hawthorn Institute of Education 1989: vol. II ch. 12, pp. 5-8). The government conducts an Economic Survey for reviewing the economic and social events that take place in the current financial year. It also incudes the detailed analysis of the economic development during the past years. Moreover, the Economic Survey is supposed to contain time series data on all aspects of economic and social development in the country.

The accuracy of the data available in the Population Census is open to question, because it is based on the census conducted in 1981. As stated in Chapter 5, it is recognised in the Seventh Five-Year Plan, that in Pakistan, the inadequate data base for manpower planning has seriously hindered manpower planning in the country. (see data constraints in the Chapter 5).

As discussed earlier in Chapter 8, and also in the present chapter, some of the respondents

could not provide information on the estimated number of workers they required beyond 5 years. In some cases they could not provide such information beyond one year. It was probably due to a lack of such data being available in their organizations. In this regard, it is recommended that action by the government be initiated to design a manpower and employment computerised data base comparable to the proposed Pakistan Standard Classification of occupations (PSCO) at least to a 4 digit unit level.

Secondly, redesign the formats of the Labour Force Survey (LFS), Establishment Survey (ES), and Census of manufacturing industries to incorporate the PSCO and that it could be justified on a regular basis. Furthermore, LFS to establish a data in absolute numbers in addition to percentages and ratios.

Thirdly, develop a national network of "key informants" (sources of data on manpower, employment, unemployment and skill shortages or surpluses etc) with the informal sectors and in rural areas at tehsil (sub-district) level to collect manpower and employment data in the PSCO format. The "key informants" can get collaboration from the concerned local institutions in the area, for example the "employment exchange", the "labour office", and educational institutions etc. This system is likely to be of value in providing reliable information at grass-root level, if the preparation of manpower plans, of both supply and demand are to realistically assist in the process of educational planning and overall economic development.

It is important to note that it is not only an improved database that can aid for manpower planning in Pakistan, but many other factors will also affect the accuracy of the estimates

of the supply and demand for manpower in the labour market. In this regard manpower planners should also take the following recommendations into account in the process of manpower planning.

## 9.9.2 The Elasticity of Substitution

Overall, the findings of the study provided evidence that some possibilities of substitution exists between different types of manpower in the labour market. In contrast to the assumption of manpower planning, it is significantly more than zero. In this context we therefore recommend that the elasticity of substitution between different types of manpower should be taken into account in the process of any manpower planning exercise. The immediate question arising here is how to measure the elasticity of substitution between different types of manpower in the labour market.

Some commentators are uncertain about the measurement of the elasticities of substitution. For example, Hinchliffe (1987), quotes Bowles (1969), Layard (1971), and Psacharapoulos and Hinchliffe (1972), that:

> *efforts to measure elasticities of substitution either directly estimating derivatives of production functions or through the use of international cross-section data have as yet proved inconclusive. (quoted in Psacharopoulos, 1987: p. 317).*

As discussed earlier in this chapter, the results of this study show that there is a reasonably high degree of students' mobility, and inter-occupational mobility of employees exist in the labour market. (see paragraphs 9.2 and 9.3). Both these factors affect the estimates of the supply of educated manpower in the labour market. We suggest that

these factors should be taken into account in estimating the future supply of educated manpower in Pakistan. We expect that by taking these factors into account manpower planners would be able to surmount the likely effects of these factors on the estimates of the supply and demand for educated manpower in the country. An immediate question arises as to how the mobility of students and that of workers can be calculated in measuring the elasticity of substitution in the labour market. In this context, we recommend the following:

## 9.9.2.1 Tracer studies

Results of the present study provide adequate evidence that graduate employees themselves are a good source for collecting information to measure the elasticities of substitution between different types of manpower. As discussed in Chapter 6, in this regard, we collected data from employees involved in the study. On the basis of findings of this study and literature on manpower planning, we recommend that tracer studies should be carried out by the government or individual researchers, dealing explicitly with education, training of individuals through the educational system and tracing their transition from studentship to adulthood. It should mainly focus upon the entrance to and the degree of correspondence between their educational qualifications and the performance of their jobs in the labour market. According to Schiefelbein and Farrell (1987), the tracer study refers to an investigation in which a sample of individuals are studied at a given time, and then located and studied again at one or more successive stages in their lives. (quoted in Psacharapoulos, G 1987: p. 384). We expect that results of tracer studies would be used in measuring the elasticities of substitution in different types of

educated workers in Pakistan and changes through time.

## 9.9.2.2 Description of occupations and educational requirements

As discussed in Chapter 8, one of the basic reasons for the loose relationship between the education and occupation in the labour market is due to the lack of descriptions used for occupations and educational qualifications. A comprehensive description of occupations at least to the 4 digit unit level including the details of educational requirements is suggested in the study. These levels are:

| | |
|---|---|
| Major Group | 1 Digit |
| Minor Group | 2 Digit |
| Unit Group | 3 Digit |
| Occupation | 4 Digit |

The major group represents a very broad field of work, rather than specific type of work to be performed. Minor groups are created only where a relatively large number of workers are involved, and as a consequence cover a broad range of occupations. The unit group is a cluster of occupations related to each other by the similarity of work to be performed. An "occupation" is the narrowest category which is specifically identified in the classification system. (Hawthorn Institute of Education 1989,vol.II ch. 12, p. 8).

At 4 digit level the classification of occupations will be comparable at least with the educational qualifications. At present in Pakistan, the case of tech/vocational qualifications, the classification of occupations can be used to 3 digit unit level, because

most of the technical/vocational courses are described to the 3 digit unit level in Pakistan. (ibid, p.9). As discussed earlier in this chapter, the results of the present study revealed that there is no precise relationship between education including specialized fields and occupation in Pakistan. The description of occupations to the 4 digit level may improve the relationship between education and occupation, especially in the specialized fields and occupation in the country. Similarly, efforts can be made to bridge the gap between the classification of occupations and general education, as suggested by the employers involved in this study, by integrating vocational subjects with the general education at secondary level and above (see Table 8.34).

It is important to note that the description of occupation to the 4 digit level cannot guarantee the validity of the assumption of MRA in manpower planning in Pakistan. It is expected that the description may help the students in choosing their field of study for they will have the better information about the labour market. It mat also help employers in selecting the right type of person for a specific job. The question arising here is whether or not students choose the right field of study. According to a study conducted by the "Society for Research into Higher Education" (1981), students do not regard themselves as good judges of all they receive due to a lack of experience. Mostly they depend on the parental and teachers advice. They believe that what they are advised/offered is excellent, and they hardly change their mind in the selection of a field of study for their concern. The difficulty with this situation is whether the 'advisors' are well enough equipped to make such recommendations especially when the requirements are changing so rapidly. (Lindley 1981: pp. 138-39). In this context, an "advisory service" for the students and their parents, if possible, needs to be established in the

educational institutions at least at post secondary level. The Allama Iqbal Open

University, Islamabad, has already initiated this service for the students registered. The

other educational institutions can benefit with the experience of Allama Iqbal Open

University, (AIOU) Islamabad.

### 9.9.3 Labour Productivity

Results in Table 8.22 showed that a significant percentage of employers included in the

sample take "output per year" into account when they prepare manpower plans for their

concern. But the accuracy of the estimates of labour productivity is questioned for the

reason that it is very difficult to predict with any degree of precision, the expected labour

productivity due to the pace of the introduction of technology or other unforeseen factors.

No one can claim an increase of production in any sector by simply adding the new

manpower. Many other factors can be contributing to this increase such as adjustments

in the wage rates, change in techniques and the addition of new technology etc.

Sometimes the factor actually responsible for the increase in productivity is neglected in

the process of manpower planning.

In this context, it is suggested that manpower planners should consider the analysis of the

consequences of alternative policies in terms of supply and demand for manpower, skill

mix, and their relative costs. It implies that planners would have to adjust the preliminary

estimates by taking into account demand-side adjustments to changes in output mix and

quality in order to calculate effective demand. Results in Table 8.30 indicates that a very

high percentage (66 to 88) of employers from all sectors take the "expected increase of

output per year of the organization" into account when they prepare manpower plans for their respective organizations. In this regard 25 percent of employer from the private sector and only 8 percent from the government sectors take the "competition in the labour market" into account. In the case of the semi-government none of the employers consider this factor when they prepares manpower plans for their concern. In the case of the public sector (govt. and semi-government) we recommend that an action be initiated by the government to assess the effectiveness of this factor in the public sector. To some extent it would be useful for manpower planners to keep the balance between the estimates of the supply and demand for manpower in the country.

### 9.9.4 Cost Considerations

As noted earlier in Chapter 2, the MRA assumes "the relationship between the labour output and capital is determined by technological requirements and not by market forces". (see paragraph 7.3.3 of Chapter 2). One of the main problems inherent in making forecasts is ignoring the costs of the education/training of workers, including opportunity cost, additional qualifications, training and their cost-effectiveness and so forth. In contrast to the assumption of manpower planning, the results in Table 8.30 showed that a significant percentage of employers involved in the study take the "financial implications" and wage rates" into account when they prepare manpower plans for their concern.

On the basis of the findings of the study it is recommended that the cost considerations and its likely impacts on the supply and demand for educated manpower in the labour

market are directly related to wage rates and should be incorporated in order to compute the effective supply of qualified manpower. It implies that the results of this study suggest adopting some elements of a "cost-benefit analysis" approach (CBA). CBA is itself not free of criticism. For example, it is a short term planning technique and seems to be less useful for strategic educational decision making. Moreover, it is fully applicable only in the "free market" economies unlike Pakistan. Results of Table 7.5, in Chapter 7, show that about 88 percent of the employees, from where the samples were drawn, belong to the public sector (government and semi-government). It implies that in Pakistan, the major employer of the educated manpower (secondary and above), is the public sector, especially the area (Islamabad and Rawalpindi) where the study was carried out. Wage levels in the public sector are set administratively by the "pay commissions/committees" sitting every 3-5 years and the criteria rarely allow supply factors too much influence. The result tends to be inflexible with respect to wage level differentials.

Results in Table 8.26 show that employers involved in the study placed emphasis on the formal qualifications in the selection of workers for their concern. This is because they think that the formally trained personnel are useful in meeting the requirements of their jobs. The wage levels in the public sector may be lower compared to the private sector, but offer long-life security of the job. Probably, job security is the main reason why the educated manpower prefer to enter a job in the public sector

In these circumstances the use of CBA by itself is unlikely to be a valid planning technique in Pakistan. In this context there may be a case for incorporating both aspects

of the MRA and CBA in manpower planning in Pakistan. Though the underlying assumptions of both approaches are different some elements of both can be combined, particularly if manpower planning is made a continuous activity. In doing so, the planners would be able to take the possibility of substitution into account by comparing the costs and possibilities of substitutions of different skills, and by considering the costs and benefits of adopting alternative manpower development strategies. The situation in Pakistan calls for an approach which is flexible in technique and adequately dissaggregated in application. This would be possible to achieve by using the quantitative signals derived from the MRA, and price signals expressed in the form of rate of return analysis. Moreover, a wide variety of labour market information, both quantitative and qualitative, may be employed. In doing so the policy decisions will be determined by economic, rather than social, political, or cultural, considerations. The optimal use of resources will be its guiding principle. In this context what some writers have called "Synthetic Educational Planning Model" is likely to be appropriate to use in manpower planning in Pakistan. This model "purports to offer a compromise between the polarised assumptions of manpower requirements approach and cost-benefit model". (Psacharopoulos 1987: p. 155). The application of this model would be a unique experience for planners in Pakistan, as it is not fully employed by many countries in the world. However, there may be problems in this "synthetic approach" as we have indicated in the text. Refer to "active" manpower planning that adopts an approach based on analysis of manpower demand and supply including assessment of the costs of different combinations of formal education and on-the-job training, and analysis of wage rates,rather than the mere technological "manpower requirement" approach.

Some authors argue that in the countries like Pakistan, where the public sector is the largest employer of educated manpower, the "job competition model" is more appropriate than the "wage competition model". For example, Hinchliffe (1987), states that "it is this dominant role of the public sector in the less developed countries has often been used in the argument that the job competition model is even more appropriate to use in these countries than the wage competition one". (quoted in Psacharopoulos, 1987: p. 144). According to the job competition model, the productivity is an attribute of jobs, not of people, and people are matched to jobs by criteria which may be associated with education.

As discussed earlier in this chapter, the results of the present study revealed that a significant level of substitution exists between educated workers by level and type of education in Pakistan. It implies that in Pakistan, formal education is not the sole determinant of productivity. Consequently wages are based on the characteristics of the jobs rather than the characteristics of the people in them. The job competition model is unlikely to be useful for manpower planning in Pakistan because this model is demand oriented and neglects the supply factors.

### 9.9.5 Reforms To The Educational System

It is evident from the findings of this study and also from the literature, that in countries like Pakistan, formal education is the main source of supply of qualified manpower in the labour market. In other words manpower planners have to depend on the outputs of the formal educational system for the supply of skilled 'mix' as no other agency can impart

the general capabilities that will have wide applications over a life-time. The education will be most relevant if the graduates produced by the formal educational system possess the skills necessary for potentially life long earnings. It is only possible when the education has a close relationship with occupations in the labour market.

The results of our study provide evidence that there is a significantly high level of substitution by level and type of education, between different types of educated manpower in the labour market. It implies that there is no precise relationship between education and occupation in Pakistan. (for details see Tables 8.11 and 8.12). The evidence available in this study, refers to the need for reforms to the educational system to develop a relationship between the education and occupation in the country. In other words there is a need to develop a system of education and training compatible to the needs of employers in the labour market. On the basis of evidence available in the present study we suggest that the following factors should be taken into account to establish a relationship between the education and occupation in the labour market.

## 9.9.5.1 Relationship between education and employers' needs

Results in Table 8.25 showed that there is a close relationship between educational institutions and employers with respect to recruitment in Pakistan. Interviews with employers suggested that many employers would welcome a closer relationship with the educational institutions. This is reflected in Table 8.33 which shows that employers give a high priority to the lack of relationship between employers and educational institutions as a factor explaining shortages. Unless educational institutions are fully aware of the

requirements of employers they cannot be expected produce the educated manpower needed by employers, nor design appropriate curricula.

In this regard, firstly, we recommend that in addition to manpower planners and educationists, the representatives of employers should also be involved in the process of curriculum development, at different levels of education including the technical/vocational education.

Secondly, occupational structures are likely to shift in favour of professional and related skilled workers (middle-level) due to the industrialization of the economy especially the rapid growth of small industries and the use of machinery in the agriculture sector. This trend demands that education is needed to be brought more closely into line with employers' needs.

This relationship has also been recognized in the developed countries. For example, in the UK "a close partnership between education and business is seen as an important element of government policy to improve the nation's competitiveness. The links vary in their intensity and purpose. At one extreme, an employer may attend the occasional careers evening or have an employee who is a school governor. At the other, some major employers have taken a strategic decision to involve themselves in many aspects of educational life. This had led some, such as Rover, Massey Ferguson and the Construction Industry Training Board, to develop and resource Partnership Centres which provide a work-based context for pupils to engage in curriculum-related activities. (Hillage, 1995: p. 1). The experience of these firms in the UK, are likely to be useful for

employers from all sectors of the economy, in the current socio-economic and political situation in Pakistan. Moreover, it is considered useful for the government policy to improve the nation's overall competitiveness.

## 9.9.6 Coordinating Infrastructure

Not only the assumptions of MRA underlying the manpower planning in Pakistan are invalid but as noted earlier in Chapter 5, there is lack of coordination between the federal and provincial levels on manpower needs necessary to meet changing circumstances in the country. Almost all manpower plans are prepared in isolation without consulting federal government and vice versa. Moreover, there is no coordination between different organizations at federal level. For example, the Ministry of Education formulate the education and training policies without consulting manpower plans prepared by the Planning Commission, and labour market requirements.

Despite these facts, if the government of Pakistan is required due to the socio- economical and political pressures, to continue manpower planning, it would be useful to take the following recommendations into account:

Firstly, it is recommended that both at the provincial and federal level a centralized "Ministry of Planning Human Resources" be established to assess the effect of federal and provincial economic plans on the labour market. Secondly, the "Ministry of Planning Human Resources" at federal level is to coordinate provincial manpower plans and incorporate the accumulative manpower demand in the country's Five-Year Economic

Plan. The ministry would also be responsible for dissemination of such information to the coordinating ministries, directorates, and other allied departments. Thirdly, "Manpower Sections" responsible for manpower planning at the institutional and sectoral level be established within the line ministries at both federal and provincial level.

## 9.9.7 Employment Exchange System

Results in Table 8.17 showed that the employment exchange offices were not used at all by the employers from the semi-government sector. Similarly 3 to 5 percent employers from the government and private sectors used employment exchanges to recruit employees for their respective organizations. As to improvements in this system it is recommended that a review be conducted into the effectiveness of the existing system to redefine the role of employment exchanges in the provision of information on employment. As a result the proposed "Ministry of Planning Human Resources" and provincial directorates of labour are to regularly compile a profile of unemployment by occupational category and skill.

We expect that this data will be of value to planners at the grass-root level in estimating the supply and demand for the skill 'mix' in the labour market. The employment exchanges will be useful for employers in selecting suitable workers for a specific job at current wage rates. Similarly a greater number of educated manpower would like to be registered with the employment exchange, if they believed it would be helpful in finding a job in their area of interest.

## 9.10 REPLICATION OF THE STUDY

The research was conducted within the limited target area (ie. Islamabad and Rawalpindi) and its results may not be the general view of the entire country. The study could be further extended by including other parts of the country in the target area. It is suggested that the replication needs to involve a greater number of "sales" and "production" workers in the study. Moreover, studies will be more productive if researchers ensure that a variety of workers are included in their studies. For example, by including "agricultural" and "service" workers in the studies, the findings would be more generalizable than the present study. It is noteworthy that, in Pakistan, 43 percent of workers are employed in the agriculture sector and 24 percent of the total employees are service workers. (Seventh Five-Year Plan, p. 315, and National Manpower Commission Report 1991, p. 47).

## 9.11 APPLICATION OF THE STUDY

Despite its limitations, this study should be useful for future planners, administrators, managers, both in the public and the private sectors. Not only will the study be of value to planners in Pakistan, the insights resulting from it will contribute to the evaluation of the concepts underlying the approach to educational planning used in Pakistan and thus should also contribute to, more generally, the manpower planning practices in other countries. Not only will this study contribute to the development and improvement of manpower planning techniques it will inter alia provide further insights into the conceptual basis of manpower requirements approach to educational planning.

More specifically, the study will be of value to the students registered with the M.A. (Educational Planning and Management) programme, at the Allama Iqbal Open University Islamabad. A majority of the entrants are either working as administrators/managers or planners in both the public and private sectors, or are likely to be promoted to these positions. It is expected that the study will provide them with deeper insights into the conceptual basis of manpower requirements approach (MRA)to educational planning in Pakistan.

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# Annex A

## The Employee Questionnaire

To be completed by employed post-secondary graduates in Pakistan. All answers are confidential.

Please indicate by a tick mark ( ✓ ) against the statement relevant to you.

1. What is your age at present? _____years.

2. Sex: Male ___ Female ___

3. Marital Status: Single ___ Married ___ Divorced ___ Widowed ___

Separated ___

4. Domicile: Rural ___ Urban ___

5. What is the highest academic qualification you hold?

   Secondary school certificate ___ Intermediate/Equivalent ___

   Graduate ___ Post Graduate ___ Any other (specify) ___

6. In what year did you obtain your highest academic qualification? 19 ___

7. If you are a university graduate, please mention the faculty, you have been a student of ?

   Arts ___ Social Sciences ___ Natural Sciences___ Law ___

   Engineering ___ Medicine ___ Agriculture ___

   Any Other (specify) _____

8. What is your present job ? _____

9. In what sector are you working now ?

   Govt._____ Semi Govt._____ Private____ Self Employed____

10. Did you receive any training to get this job ?                    Yes/No.

11. (a) If yes, from where did you receive this training ?


                                        Within the country___    Abroad____

     (b) What type of training did you receive ?

     Pre-service Training.                                              ____

     On-the-job Training in the employing establishment.               ____

     Apprenticeship Training.                                          ____

     Institutional in-service training in another special institution. ____

     Any other. (please specify)


     _____                                 ____

12. How long did the training programme last?

     One-three Months.                                                ____

     Three-Six Months.                                                ____

     Six months-One Year.                                             ____

     One-Three Years.                                                 ____

     Three-Five Years.                                                ____

     Five Years and above.                                            ____

13. When you completed your education/training did you want to  stay in the job:

                                                                  Yes/No.

14. To what extent were your academic qualifications useful to the needs of the job performance?

     Very useful___    Useful___    Somewhat useful___         Not useful___

15. What was the reason(s) for obtaining your specific qualifications ?

Desired study for its own sake                                              ____

The country needed specific type of educated manpower                       ____

For Better employment opportunities                                         ____

Could not get any suitable job                                              ____

In order to develop economic versatility and

adaptability                                                               ____

To meet the job requirements                                               ____

Any other reason (please Specify)

_____                          ____

16. (a) Did you change field of study during your education ?

Yes/No.

(b) If yes, indicate your single most important reason for the most recent change:

I did not have sufficient amount of money                                   ___

My parents wanted me to do something else                                   ___

To improve my chances of getting a job                                      ___

My family had migrated here for some reasons                                ___

My grades were not better                                                   ___

Career prospects were better in this academic area.                         ___

Any other reason(please specify)_____

17. How important do you think each of the following factors was in being appointed to your current job:

| | Very imp. | Imp. | Not Imp. |
|---|---|---|---|
| Academic record. | ____ | ____ | ____ |

Aptitude tests.                          ____    ____    ____

Interview.                               ____    ____    ____

Past experience in a                     ____    ____    ____

Similar type of job.

Personal contacts with

the employer.                            ____    ____    ____

Parents status and family

background.                              ____    ____    ____

Any other (please specify)

_____                ____    ____    ____

18. (a) Have you changed your job recently?                    YES/NO

    (b) If yes, when did you make this change?          _____19____

19. What was the reason(n) for this change ?

    Better working conditions of the job.                    ____

    Better use of training you got.                          ____

    Better prospects for promotion.                          ____

    Lost previous job for some reason.                       ____

    Higher salary in the present job.                        ____

    Higher status of the job                                 ____

    Dissatisfied with the previous job.                      ____

    Upset of leisure-time activities in the previous job.    ____

    Any other reason. (specify please)

    _____                      ____

20. If, you have not changed your job, what are the reasons for bing in this job ?

Satisfactory working conditions in the job. ____

Your qualifications are relevant to the

requirements of the job. ____

Good use of training you received. ____

Satisfactory salary in the job. ____

Satisfactory status of the job. ____

Good prospects of promotion in the job. ____

You could not get an opportunity to change the job. ____

Any other reason. (please specify)

_____ ____

Date. _____

**THANK YOU VERY MUCH FOR YOUR KIND COOPERATION.**

**Annex B**

# The Employer Questionnaire

To be completed by employer of post-secondary graduates in Pakistan. All answers are confidential.

1. Name of the organization: _____

2. Date of establishment: _____

3. Is your organization: Govt./Semi Govt/Private.

4. What is the industrial group of your organization ?

    Agriculture____     Mining____     Manufacturing____

    Construction____     Electricity and Power____     Trade____

    Transport and Communications____     Govt. Administration____

    Community and Social Services____

    Any other(please specify) _____

5. Give the number of workers that are currently employed or you like to employ within the following posts.

|  | Total Posts | Filled Posts | Vacant Posts |
|---|---|---|---|
| High-level skilled workers(Professionals). | _____ | _____ | _____ |
| Middle-level skilled (diploma holders). | _____ | _____ | _____ |
| Semi-skilled. | _____ | _____ | _____ |

Administrative and

managerial workers.   _____    _____         _____

Clerical staff.       _____    _____         _____

Sales workers.        _____    _____         _____

Production workers.   _____    _____         _____

Any other type of

workers.(please specify)

_____  _____  _____      _____

6. What methods do you use to recruit employees with the following levels of education? (tick the appropriate one in each column).

| | Graduates | Inter | Matric |
|---|---|---|---|
| Educational institutions authorities. | _____ | _____ | _____ |
| Employment exchange office. | _____ | _____ | _____ |
| Personal contacts. | _____ | _____ | _____ |
| Newspaper advertisement. | _____ | _____ | _____ |
| Bonding students by scholarship. | _____ | _____ | _____ |
| Public Service Commission | _____ | _____ | _____ |
| Any other method. (please specify) | | | |
| _____ | _____ | _____ | _____ |

7. How important do you consider each of the following criteria in the selection of employees for your concern?

|  | Very imp. | Imp. | Not imp. |
|---|---|---|---|
| Academic record. | _____ | _____ | _____ |
| Aptitude tests. | _____ | _____ | _____ |
| Interview. | _____ | _____ | _____ |
| Past relevant experience. | _____ | _____ | _____ |
| Training. | _____ | _____ | _____ |
| Marital status. | _____ | _____ | _____ |
| Others. ( please specify) |  |  |  |
| _____ | _____ | _____ | _____ |

8. Do you provide in-service training to the educated workers of the organization ?

YES/NO.

9.(a) Does training differ for different occupational categories?

Yes/No

9.(b) If yes, please specify the differences:

| | Occupational Groups | | |
|---|---|---|---|
| | Skilled | Semi-skilled | Non-skilled |
| Training within the organization. | _____ | _____ | _____ |
| Training in another organization. | _____ | _____ | _____ |
| Training Abroad. | _____ | _____ | _____ |

On the job training.    ____    ____    ____

Training in a specialized

institution.    ____    ____    ____

Importing expatriates to

train the local workers.    ____    ____    ____

Any other (please specify)

_____    ____    ____    ____

10.(a) Do you prepare manpower plans in this organization ?

Yes/No

10.(b) If yes, what time period do you plan over ?

Six-twelve months    ____

One-three years    ____

Three-five years    ____

Five-ten years    ____

Ten-twenty years    ____

11.(a)  Which of the following do you take into account when you prepare a manpower

plan ?

GNP and its composition.    ____

Expected increase of output per year

of the organization.    ____

Change in technology and its likely effects.

Anticipated change in demand for

product/services    ____

Number of workers currently present in

each occupational category.                                    ____

Inter-occupational mobility of workers.                        ____

Availability of manpower by

educational qualifications.                                    ____

Current wage rates of workers.                                 ____

Substitution of workers by

education and occupation.                                      ____

International migration or drain brain.                        ____

Financial implications of implementing

the manpower plan.                                            ____

What about action of competition?                             ____

Any other (please specify)

_____

_____

11.(b) Can I have a copy of recent manpower plan ?            Yes/No

12. How do you collect data in your planning ?

Use official survey reports published by the Govt.            ____

Do the survey and collect the information from the

related organizations.                                        ____

Any other (please specify).

_____                              ____

13. Please specify the estimated number of workers against each category you would like

to recruit at given current wage rates for the period given below:

| Field of specialization. | NO. of employees. | | |
|---|---|---|---|
| | 1993 | 1998 | 2003/4 |
| High-level skilled workers | ____ | ____ | ____ |
| Middle-level skilled workers | ____ | ____ | ____ |
| Semi-skilled workers | ____ | ____ | ____ |
| Unskilled educated workers | ____ | ____ | ____ |
| Managers/Administrators. | ____ | ____ | ____ |
| Others (please specify) | | | |
| | ____ | ____ | ____ |

14. Which of the following options do you take into account to fill a vacant position in

your organization?

A. (Administrators/Managers)  B.(Skilled)  C. (Semi-skilled)  D. (Un-skilled)

| | A | B | C | D |
|---|---|---|---|---|
| Hiring untrained manpower at low salary. | _ | _ | _ | _ |
| Hiring highly skilled workers at high rate of salary. | _ | _ | _ | _ |
| Hiring skilled craftsmen instead of institutionally | | | | |

trained workers.     —       —       —       —

Upgrading the job.     —       —       —       —

Rotating the workers on

different types of jobs.     —       —       —       —

Adjusting the working

hours of the present workers.

Introducing new technology  —       —       —       —

Any other (please specify).

_____  —       —       —       —

15. (a) Do you think that there is a shortage of trained manpower for your concern?

YES/NO/NO Opinion

(b) If yes, rank in terms of priority the following factors causing a shortage of trained

manpower in the country?

Lack of practical training and field work

facilities in the educational institutions.       _____

No relationship between technical institutions

and the employer's needs.       _____

Use of technical persons on non technical jobs.       _____

Unattractive terms of services.(low salary etc)       _____

Lack of chances of promotion on posts of

higher status.       _____

Overseas migration of skilled manpower.       _____

Others (please specify)

_____  —

16. How important do you think each of the following measures is to overcome the problem of shortage of trained manpower for your concern?

|  | V.Imp. | Imp. | Not Imp. |
| --- | --- | --- | --- |
| More emphasis on practical training. | ___ | ___ | ___ |
| Providing in service and on the job training. | ___ | ___ | ___ |
| Frequent changes in curricula in consultation with employers. | ___ | ___ | ___ |
| Provision of modern scientific laboratories. | ___ | ___ | ___ |
| Hiring foreign consultants to train the local workers. | ___ | ___ | ___ |
| Raising the salary and other monetary and non-monetary benefits. | ___ | ___ | ___ |
| Starting double shift in technical institutions. | ___ | ___ | ___ |
| Integrating vocational subjects with the general education at secondary level. | ___ | ___ | ___ |

Opening more technical

institutions in the

country.                          ____        ____        ____

Others. (please specify).

_____        ____        ____        ____

_____        ____        ____        ____


Date:_____


THANK YOU VERY MUCH FOR YOUR KIND COOPERATION.

Annex C

Dear Sir,                                                    July 28, 1994.


I would be very grateful if you would complete the enclosed questionnaire. The questionnaire concerns research I am undertaking into "MANPOWER PLANNING IN PAKISTAN: THE STUDY OF ITS ASSUMPTIONS CONCERNING THE EDUCATION-OCCUPATION RELATIONSHIP". This research is being carried out at the Institute of Education, University of London, by the undersigned.

All responses will be treated confidentially. No references will be made which enable respondents to be identified.

We appreciate your help in advance and will acknowledge your cooperation with profound thanks in the study.

With best regards.

Yours sincerely,


(HAMID KHAN NIAZI)

(Ph.D Scholar)

Institute of Education

University of London.

Distribution:

All concerned.

Annex D

# THE LIST OF THE ESTABLISHMENTS INCLUDED IN THE EMPLOYER SAMPLE

## The Establishments from the Government Sector

1. Manpower Division, Government of Pakistan, Manpower Planning Unit, Islamabad.

2. Federal Bureau of Statistics, Data Processing Centre, H-8 Markaz,Islamabad.

3. Planning and Development Division, Islamabad.

4. Federal Public Service Commission (FPSC), Saeed Plaza, Blue Area, Islamabad.

5. Ministry of Science and Technology, Shaheed-e-Millat Secretariat Blue Area, Islamabad.

6. Ministry of Commerce, A Block, Islamabad.

7. Federal Directorate of Education, G/9-4 Islamabad.

8. Ministry of Interior, Shaheed-e- Millat Secretariat Blue Area, Islamabad.

9. Manpower Section, Ministry of Education, Hajvary Plaza Blue Area, Islamabad.

10. Finance Division, Q Block, Islamabad.

11. Management Services Division, Shaheed-e-Millat Secretariat, Islamabad.

12. Education Section, Planning and Development Division, Islamabad.

13. Science Education Project, Islamabad.

14. Habib Bank limited, Islamabad-Rawalpindi Circle, Islamabad.

15. Ministry of Education, B Block, Islamabad.

16. Directorate General of Registration, Islamabad.

17. Federal Bureau of Statistics, Blue Area, Islamabad.

18. Pakistan Atomic Energy Commission, Nelore, Islamabad.

19. Directorate General of Civil Defence, Blue Area, Islamabad.

20. National Council of Research (NCR), Islamabad.

21. National Seed Registration Department, G-9/4 Islamabad.

22. Federal College of Commerce, H-8/4 Islamabad.

23. Capital Development Authority (CDA), Islamabad.

24. National Training Bureau, Manpower Division, Islamabad.

25. Directorate of Workers Education (Labour Division), Blue Area, Islamabad.

26. Model Child Welfare Centre, Rawalpindi.

27. Agricultural Engineering: Soil Conservation, Rawalpindi.

28. Soil Conservation Directorate, Rawalpindi.

29. Office of the Deputy Director Soil conservation, Rawalpindi.

30. Ministry of Women Development and Youth Affairs, Islamabad.

31. Institute of Fire Technology, Islamabad.

32. Federal Seed Certification Department, Ministry of Food and Agriculture, Islamabad.

33. Ministry of Sports, Culture and Tourism, Islamabad.

34. National Achieves, Islamabad.

35. National Council for Child Welfare and Development (NCCWD), Islamabad.

36. Federal Government Boys Secondary School No. 2 G-7/4 Islamabad.

37. Ministry of Housing and Works, Islamabad.

**The Establishments from Semi-Government/Autonomous Bodies**

1. Telecom Foundation, I-9 Islamabad.

2. Quaid-e-Azam University, Islamabad.

3. Academy of Educational Planning and Management, H-8 Islamabad.

4. Tissue Culture, National Agricultural Research Council, Islamabad.

5. Basic Functional Education Programme, Allama Iqbal Open University, Islamabad.

6. Allama Iqbal Open University (AIOU), Islamabad.

7. National Bank of Pakistan, Melody Centre Islamabad.

8. Pakistan Manpower Institute (PMI), Islamabad.

9. Federal Board of Intermediate and Secondary Education, Islamabad.

10. National Highway Authority, G-9 Islamabad.

11 .Water and Power Development Authority (WAPDA), Islamabad.

12. WAPDA Area Electricity Board, Islamabad.

13. Oil and Gas Training Institute, I-9 Islamabad.

14. Integration and Promotion of Science Education and Technology (IPSET), H-8 Islamabad.

15. Programming Evaluation Section, WAPDA, Islamabad.

16. Estate Management DIE, Islamabad.

17. Pakistan Agricultural Research Council, Islamabad.

18. Telephone Industries of Pakistan (TIP), I-9 Islamabad.

19. Bureau of University Extension and Special Education Project (BUESEP), A.I.O. U, Islamabad.

20. Pakistan Council of Scientific and Industrial Research (PCSIR), Islamabad.

21. Pakistan Science Foundation, Islamabad.

22. National Development Finance Corporation, Islamabad.

**The Establishments from the Private Sector**

1. International Beverages Private Limited, Industrial Area I-9 Islamabad.

2. Fazal Industries Private Limited, Industrial Area I-9 Islamabad.

3. Fazal Steels Private Limited (FSL), Industrial Area I-9 Islamabad.

4. Silver Oil Mills, Industrial Area I-9 Islamabad.

5. Abid Corporation Private (ACP), Industrial Area I-9 Islamabad.

6. Cadcom Consulting Private Limited, Industrial Area I-9 Islamabad.

7. Halliburton Limited, Industrial Area I-9 Islamabad.

8. Sihala Flour Mills, Industrial Area I-9 Islamabad.

9. Sui Northern Gas Pipelines Limited (Islamabad Region), Industrial Area, Islamabad.

10. Ahmed Sher and Company (Air Travel Agency), Blue Area, Islamabad.

11. Pakistan Quality Residential School, Rawalpindi.

12. Wilson Pharmaceutical Industries, Industrial Area Islamabad.

13. Sir Syed Public School, Islamabad.

14. Islamabad Computer Complex (ICC), Blue Area, Islamabad.

15. Universal Business Equipment Limited (UBEL), Blue Area, Islamabad.

16. M/S Rastgar Engineering Works, Industrial Area, I-9 Islamabad.

17. National Construction Company (NCC), Islamabad.

18. S.A. Brothers Private Limited, Industrial Area I-9 Islamabad.

19. Schlumberger Sedco Foren Sedco, Industrial Area, I-9 Islamabad.

20. Breezo Engineering and Cont. Industrial Area Islamabad.

21. Jaafar Brothers Private Limited, Blue Area, Islamabad.

22. Save Energy Save Environment, Islamabad.

23. Save the Children US, F-7, Islamabad.

24. Unity High School, Rawalpindi.

25. National Engineering Services Private Limited, Industrial Area, Islamabad.

26. Hakas Private Limited, Islamabad.

27. Siemens Pakistan Engineering Company Limited, Blue Area, Islamabad.

28. Haider Traders Agency, Islamabad.

29. International Chemical Industries (ICI), Blue Area, Islamabad.

30. Punjab College of Commerce, Satellite Town Rawalpindi.

31. Flupetral International S. A. Islamabad.

32. National Marble Factory, Industrial Area I-9 Islamabad.

Annex E

# PC-I FORM

## GOVERNMENT OF PAKISTAN  PLANNING COMMISSION

## PROFORMA FOR DEVELOPMENT PROJECTS

# PART A

## PROJECT DIGEST

1. Name of Project

2. Authorities Responsible

2.1.    Sponsoring

2.2.    Execution

2.3.    Operation and Maintenance

3.  Time required for completion of project: (in months).

4. Plan Provision:

4.1.    If the Project is included in

the current Five-Year Plan,

specify actual allocation.

4.2.    If not included in the current

Plan, how is it now proposed to

to be accommodated (inter sectoral

adjustments in allocation or other

resources may be indicated).

4.3.　If the Project is proposed to be

financed out of block provision

for a programme, indicate.

| Total Block Provision | Amount already committed | Amount proposed for this project | Balance available |
| --- | --- | --- | --- |
| | | | |

5.　Relationship of the Project with the

objectives of the sector. Indicate the

contribution of the Project (quantified if

possible) to the targets in the Five-Year

Plan and the names of the other projects

(whether sanctioned or under preparation)

which would form part of an integrated

programme within the sector.

6. Capital cost of the Project:

6.1.　Local Currency

6.2.   Foreign Exchange

6.3.   Total

7. Annual recurring expenditure after completion:

7.1.   Local Currency

7.2.   Foreign Exchange

7.3.   Total

8. Objectives of the Project preferably in quantitative terms:

Prepared by:

Checked by:

Approved by:

## PART B

## PROJECT DESCRIPTION, PLANNING AND FINANCING

9. Location of the Project (Attach map).

9.1    Give name of place and administrative district in which the service centre will be located.

9.2    Indicate total area which will be served.

10. Existing facilities:

Give information about the public and private sector institutions in the area, their staff and equipment, and actual enrolment etc.

11. Description of the Project:

Give brief history, proposed facilities and justification of the Project.

12. Give date when capital expenditure estimates were prepared:

If prepared more than one year ago, confirm if they are still valid.

13. Capital cost:

Give breakdown of capital cost year-wise covering the whole of the investment period, as indicated below:

| Item | Total | I Year | II Year |
|------|-------|--------|---------|
| Local currency. | | | |
| Foreign Exchange. | | | |
| Import duties. | | | |
| Total. | | | |

NB: Cost at official rate of exchange.

14. Basis of cost estimates: (give full details).

15. Estimates of annual recurring expenditure after completion of each of phase of the Project. Also indicate source of financing recurring expenditure:

15.1    Local Cost

15.2    Foreign Exchange

15.3    Total Cost

16. Unit cost of each category of service or output, for example, cost of the institution, and cost per person and how it compares with cost in other institutions.

17. In case of the project of service or output, give expected income statement (profit and loss accounts) for ten years or until normal capacity is reached. Rate of depreciation and salvage value of property should be given.

18. Annual phasing of physical work and financial requirements for the Project: Attach PERT or BAR DIAGRAMS, if prepared.

| Physical Work Item. | Financial Requirements | | Total |
|---|---|---|---|
| | Local currency | Foreign Exchange | |

Already completed:
Ist Year (19....)
2nd Year (19....)
3rd Year (19....)

19. Foreign Exchange Expenditure:

| Year | Material | Consultants | Others | Total |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

20.  a. Likely sources of amount of foreign exchange cost of the Project

b. Present position regarding availability, commitment or negotiations.

21. Indicate sources and amount of rupee component of Project:

| Sources | Amount of Capital Expenditure | Amount of Recurring Expenditure |
|---|---|---|

a. Government Sources:

    i. Grants

    ii. Loan

    iii. Investment

    iv. Direct Government expenditure

b. Sponsoring Agency's own fund

c. Private investment

d. Local body resources, if any

e. Non-Government borrowing

f. Other sources (or recoveries).

22. Results of the Project:     Number of person served

    i. Direct benefits

    ii. Indirect and other benefits

    (contribution toward specific

    targets/social objectives).

23. a. Approximate number of categories of job opportunities likely to be created indirectly as a result of:

i. Implementation

ii. Operation of the Project

b. Economic life of components of the Project (Building, equipment etc).

## PART C

## PROJECT REQUIREMENTS

| 24. | a. Manpower | For Execution | For Operation |
|-----|-------------|---------------|---------------|

1. Professional and Tech.

2. Admn/Executive and

   managerial

3. Clerical

4. Service

5. Skilled

6. Unskilled

7. Others

b. Likely shortage of manpower by occupation

c. Steps to be taken to assure availability of manpower

d. Approximate number of persons required to be trained per year (locally and abroad) and the kind of skills to be learnt.

e. Give total capital outlay, give the total capital cost of mobilizing one worker for one shift.

25. Physical and other facilities required for the Project:

| Item | Total | To be provided from the project itself | To be provided from the public utility |
|------|-------|----------------------------------------|----------------------------------------|
| a. Housing by type | | | |
| b. Power supply | | | |

c. Water and other utilities
d. Others

---

26. Material supplies and equipment required:

26.1  Minimum total requirements for execution to be completed only for major items

costing more than 10 percent of the total cost.

| Item | | Local Unit | |
| --- | --- | --- | --- |
| | Quantity | Unit | Cost |

1. Materials
      a.
      b.
      c.
      d.

2. Supplies and spares
      a.
      b.
      c.
      d.

3. Equipment and machinery
      a.
      b.
      c.
      d.

26.2    Materials, spares and supplies, and equipment for operation of the Project.

| Unit | Local | | | Foreign | | |
|---|---|---|---|---|---|---|
| | Quantity | Rate | Cost per unit | Quantity | Rate | Cost per unit |
| 1. Material | | | | | | |
|     a. | | | | | | |
|     b. | | | | | | |
|     c. | | | | | | |
| 2. Supplies and spares | | | | | | |
|     a. | | | | | | |
|     b. | | | | | | |

27. In the case of imported material and equipment for execution, indicate:

a. Justification for import

b. Proposed source/sources of supply

Annex F

# CIVIL SERVANTS (APPOINTMENT, PROMOTION AND TRANSFER) RULES, 1973

## PART I-GENERAL

1. These rule may be called the Civil Servants (Appointment, Promotion and Transfer) Rules, 1973.

2. In these rules, unless there is anything repugnant in the subject or context,

a. "appointing authority", in relation to post means the person authorised under rule 6 to make appointment to that post;

b. "Central Selection Board" means the Board constituted by the Federal Government for the purpose of selection for promotion or transfer to posts in (basic pay scales 19 to 21 and equivalent)

and consisting of such persons as may be appointed to it by Government from time to time;

c. "Commission" means the Federal Public Service Commission;

d. "Department Promotion Committee" means a committee constituted for the purpose of making selection for posts under a Ministry, Division, Department or Office of the Federal Government (basic pay scales 18 and below and equivalent);

e. "Department Selection Committee" means a committee constituted for the purpose of making selection for initial appointment to posts under a Ministry, Division, Department

or Office of the Federal Government (basic pay scale 15 and below and equivalent).

3. Appointments to posts shall be made by any of the following methods, namely:

a. by promotion or transfer in accordance with Part II of these rules, and

b. by initial appointment in accordance with Part III of these rules.

4. The method of appointment and qualifications and other conditions applicable to a post shall be laid down by the Ministry or Division concerned in consultation with the Establishment Division.

4.1    In each Ministry, Division, Department or Office of the Federal Government, there shall be one or more Departmental Promotion Committees, and Departmental Selection Committees, the composition of which shall be determined by the Ministry, Division concerned in consultation with the Establishment Division.

4.2    Each such committee shall consist of at least of three members one shall be appointed chairman.

5. Where an appointment authority for (posts in basic pay scale 15 and below and equivalent) does not accept the recommendation of a Departmental Selection or Departmental Selection Committee, it shall record reasons therefore and obtained orders of the next higher authority.

6. The authorities competent to make appointments to the various posts shall be as follows:

| Posts | Appointing Authority |
|---|---|
| 1. Posts in basic scales 20 and above or equivalent ie. posts carrying pay with the maximum of Rs. 5240 and above. | Prime Minister |
| 2. Posts in basic pay scales 17 to 19 or equivalent ie. posts carrying with the maximum between Rs. 3040 and 5239. | Establishment Secretary |
| 3. Posts in basic pay scales 3 to 16 or equivalent ie. posts carrying pay the Rs. 760 and 3039. | Secretary of the Ministry, Division, maximum between concerned or the head of the department provided he is an officer drawing pay in basic pay scale 20 or above and equivalent. |
| 4. Posts in pay scale 1 and 2 or equivalent ie. posts carrying pay with the maximum not exceeding Rs. 759. | Deputy Secretary or Head of the Department or Head of Office. |

# PART II- APPOINTMENTS BY PROMOTION OR TRANSFER

7. Promotion and transfers to posts in (basic pay scales 2 to 18 and equivalent) shall be made on the recommendation of the appropriate Departmental Promotion Committee and promotions and transfers to posts in (basic pay scales 19 to 21 and equivalent) shall be made on the recommendations of the Central Selection Board.

8. Only such persons as possess the qualifications and meet the conditions laid down for the purpose of promotion or transfer to a post shall be considered by the Departmental Promotion Committee or the Central Selection Board, as the case may be.

8-1. No promotion on basis shall be made (to posts in basic pay scales 18 to 21 and equivalent) unless the officer concerned has completed such minimum length of service as may be specified from time to time.

8-2 Where the appointing authority considers it to in the public interest to fill a post reserved under the rules for departmental promotion and the most senior civil servant belonging to the cadre or service concerned who is otherwise eligible for promotion does not possess the specific length of service the authority may appoint him to that post on acting charge basis.

9. So long as a civil servant holds the acting charge appointment, a civil servant junior to him shall not be considered for regular promotion but may be appointed on acting

charge basis to a higher post.

9.1    In the case of a post in (basic pay scale 17 to 22 and equivalent), reserved under the rules to be filled by initial appointment, where the appointing authority is satisfied that no suitable officer (drawing pay in basic pay scale) in which the post exists is available in that category to fill the post and it is expedient to fill the post, it may appoint to that post on acting charge basis the most senior officer otherwise eligible for promotion in the organisation, cadre or service, as the case may be, in excess of the promotion quota.

9.2    Acting charge appointment shall be made against posts which are likely to fall vacant for a period of six months or more. Against vacancies occurring for less than six months, current charge appointment may be made according to the orders issued from time to time.

9.3    Appointment on acting charge basis shall be made on the recommendations of the Departmental Promotion Committee or the Central Selection Board, as the case may be, save in the case of (post in basic pay scale 22 and equivalent).

9.4    Acting charge appointment shall not amount to appointment by promotion on regular basis for any purpose including seniority.

9.5    Acting charge appointment shall not confer any vested right for regular promotion to the post held on acting charge basis.

9.6    Appointment by transfer shall be made from amongst the persons holding

appointment on a regular basis in (posts in the same basic pay scale or equivalent or

identical with the posts to be filled).

## PART III- INITIAL APPOINTMENT

10. Initial appointment to the All-Pakistan Services, the Civil Services of the Federation and posts in connection with the affaire of the Federation in basic pay scales 16 to 22 and equivalent except those which under the Federal Public Service Commission (FPSC) Rules, 1978, do not fall within the purview of the commission, shall be made on the basis of tests and examinations to be conducted by the Commission.

11. Initial appointments to posts in (basic pay scales in 1 to 15 and equivalent) shall be made on the recommendations of the Departmental Selection Committee after the vacancies in (basic pay scales 3 to 15 and equivalent) have been advertised in newspapers.

12. A candidate for initial appointment to a post must possess the educational qualifications and experience and, except as provided in the rules framed for the purpose of relaxation of age limit, must be within the age limit as laid down for the posts.

13. A candidate for appointment shall be a citizen of Pakistan:

Provided that this requirement may be relaxed with the approval of the Establishment Division.

Provided further that, in the case of candidates to be appointed on temporary basis in the Pakistan Missions abroad, such relaxation shall not be accorded for a period exceeding one year at a time.

14. Vacancies in the undermentioned posts shall be filled on all-Pakistan basis in accordance with the merit and provincial or regional quotas prescribed by the Government by time to time:

i. All posts in (basic pay scale 16 and above or equivalent).

ii. Posts in (basic pay scales 3 to 15 and equivalent) in offices, which serve the whole Pakistan.

15. Vacancies in posts in (basic pay scales 3 to 15 and equivalent) in the offices which serve only a particular province or region shall be filled by appointment of persons domiciled in the province or region concerned.

16. Vacancies in posts in (basic pay scales 1 and 2 and equivalent) shall ordinarily be filled on local basis.

17. A candidate for appointment must be in good mental and bodily health and free from any physical defect likely to interfere with the discharge of his duties. A candidate who after such medical examination as Government may prescribed is found to not satisfy these requirements, shall not be appointed.

# PART IV- AD HOC AND TEMPORARY APPOINTMENTS

18. When under the FPSC (Functions) Rules, a post is required to be filled through the Commission, the appointing authority shall forward a requisition on the prescribed form to the Commission immediately it is decided to fill the post or, if that is not practicable and the post is filled on ad hoc basis in rule 19, within two months of the filling of the post.

19. When the appointing authority considers it to be in the public interest to fill a post falling within the purview of the Commission urgently pending nomination of a candidate by the Commission, it may proceed to fill on ad hoc for a period not exceeding six months. The post shall be advertised and the procedure is laid down for initial appointment in Part III shall be followed in making ad hoc appointments.

20. Short-term vacancies in the posts falling within the purview of the Commission and the vacancies occurring as a result of creation of temporary posts for a period not exceeding six months, may be filled by the appointing authority otherwise that through the Commission on a purely temporary basis after advertising the vacancy.

NB: All the rules have been copied from the Official Document, the Est Code from pp.53-58.