HUMAN RESOURCES IN PAKISTAN

1951-2006

BY

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DECLARATION

Except where otherwise indicated,
this thesis is my own work.

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ABSTRACT

This thesis looks at the effect of socio-economic development on the size, composition and the proportion of population in the labour force. This analysis is mainly based on the decennial Population Censuses 1951-81 and the Housing, Economic and Demographic Survey-1973.

It was found that the proportion of economically active population is gradually reducing as a result of advances in social and economic life in Pakistan. In the past many Pakistanis have sought employment in overseas countries which offers better opportunities. However, the international economic and political climate suggest limits to the absorption of Pakistani workers in the outside world.

Education, urbanization and structural changes in the economy are the major determinants of participation in economic activities. These factors are also responsible for occupational mobility (from traditional to modern occupations) for both the males and females.

Female participation in economic activities is believed to be understated in almost all the major censuses and surveys. There is a tendency for the female activity rates in Pakistan to shift from the late peak to the early peak pattern.

Demographic variables suggest that rapid population growth would put more strain on limited national resources. This will adversely affect the economic growth and employment expansion programmes. Effective fertility control and employment expansion policies are needed to provide productive employment to the growing labour force.

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CHAPTER ONE

INTRODUCTION

1.1 IMPORTANCE AND OBJECTIVES OF THE STUDY

Pakistan inherited a semi subsistence agrarian economy when she became independent in August, 1947. At that time, more than 85 percent of the total population lived in the rural areas [Godfrey, 1950:122]. According to the First Population Census 1951, nearly 66 percent of the labour force was engaged in agricultural activities, while 12 percent were serving the industrial sector [Bhatia, 1979:40; Census Commissioner, 1955:107]. In 1949-50 the share of the manufacturing sector in the Gross Domestic Product (GDP) was about 8 percent as compared to the 53 percent contribution of the agricultural sector [Finance Division, 1980a:9 Statistical Annexure]. The foundations of economic development in Pakistan were laid on the existing fragile economic structure with the establishment of the Development Board in 1948. The Board was responsible for the co-ordination, evaluation and submission of periodic reports to the Cabinet on the progress of development projects [Waterston, 1963:13]. Since then Pakistan has striven hard to attain a reasonable standard of living by utilizing its manpower and natural resources.

In spite of considerable economic growth in the country, the fate of the masses remained almost unchanged. The economy failed to absorb the expanding labour force because human resource development was one of the neglected areas of economic development in Pakistan [Haq, 1973:17-9]. In the recent past the planning strategy has been changed from merely growth oriented to concentrating on distributive justice [Chaudhry, 1981:1]. To achieve this objective manpower planning has been accorded high priority by the Government of Pakistan. But planning without a sound statistical base is seldom fruitful [Farooq, 1975:1]. This study hopes to bridge this gap in the process of economic planning in Pakistan. A quantative and qualitative evaluation of the present human resources of Pakistan as well as projections of the future labour force (1981-2006) may be useful for the planners, policy makers, demographers, economists and other data users.

The six chapters of the present study examine the impact of economic development on the human resources of Pakistan, with reference to structural changes in the economy. Chapter One deals with the importance, objectives of the study and sources of data. The second chapter briefly discusses the historical background of Pakistan, the geographical setting, economic development, structural changes in the economy, and demographic trends. Chapter Three explains and evaluates different ways of measuring the workforce as well as various issues related to the comparability of labour force data in Pakistan. Chapter Four describes the size, growth and composition of the labour force. It also covers the contribution of activity rates and age structure on the size, and age-sex composition of the labour force as well as the determinants, levels, patterns and

trends of male and female participation in economic activities including the occupational distribution of the working population by sex. Chapter five projects the future labour force and discusses some of its implications in the expanding market economy of Pakistan. Finally, chapter six gives a brief summary and conclusions of this research project.

1.2 SOURCES OF DATA

The decennial population censuses are the major sources of data on the size, growth and composition of the labour force, except for the 1972 Census, which did not collect data on the economic characteristics of the people of Pakistan. This gap was filled by the · Housing, Economic and Demographic Survey-1973 (HED), held during August-November 1973. The HED study is one of the pertinent surveys . on the human resources of Pakistan because it provides labour force estimates up to the provincial level since the separation of the Eastern Wing (now Bangladesh) in December 1971 [Siddiqi, 1979:12]. Other important surveys on the subject have been regularly conducted since 1963 by the Federal Bureau of Statistics which was known as the Central Statistical Office from 1950-72, and as the Statistics Division from October 1972 to November 1981 [Statistics Division, 1982:1-4]. The Labour Force Surveys of 1974-75 and 1978-79 need special mention because of their significance and importance in socio-economic planning after 1971. Moreover, the annual Pakistan Economic Surveys, the Statistical Year Books, the Five-Year Plans and the Agricultural Census reports also publish limited data on the

subject. Finally the most important current source of recent labour force statistics is the fourth decennial population census, which was held from 1-15 March, 1981 [Population Census Organization, 1983:3].

CHAPTER TWO

GENERAL BACKGROUND OF PAKISTAN

2.1 INTRODUCTION

The people of Pakistan have struggled continuously to accelerate socio-economic development of the country since its inception. These efforts are not only focused on achieving a better living standard but also on providing the necessary infrastructure for further development in all walks of life. Development planning simultaneously provides employment and gradually changes the socio-economic and demographic structure of the society. These changes usually occur through the interaction of social, cultural, economic and demographic forces. The theme of this study is to analyse the effect of these variables on the labour force during the process of economic development. Since geo-political and historical factors also influence the development process in any particular region [Falcon and Stern, 1971:1], this chapter will also briefly present the historical background and geographical setting of the country.

2.2 HISTORICAL BACKGROUND

The Muslims of the sub-continent demanded a separate Muslim state comprising the Muslim majority areas through a resolution adopted by the All Indian Muslim Leaguge at Lahore in 1940. They had to struggle hard to secure the status of a soverign nation because both the All Indian National Congress and the British ruler were against the idea of two nations i.e. Muslims and Hindus. Eventually, the British Government announced the Partition Plan of India on 3rd of June 1947, with the mutual agreement of the Indian National Congress and the Muslim League. Pakistan emerged as an independent state on the map of the world on 14th August 1947, under the dynamic leadership of the Quaid-I-Azam Mohammad Ali Jinnah.

Pakistan inherited two main territories, one in the west (West Pakistan) comprising the Punjab, Sind, the North West Frontier Province (NWFP) and Baluchistan, including a number of small princely states, and the other in the east (East Pakistan) consisting of East Bengal and the greater part of the distict of Sylhet. The two parts of the country were separated by more than 1,000 miles of alien territory [Davis, 1951:13; Kureshy, 1977:2-3]. However, Pakistan did not survive as one country beyond December 1971, when the former East Pakistan seceded, giving birth to Bangladesh with the help of Indian intervention [Johnson, 1979:11]. The present state of Pakistan comprises four provinces: the Punjab, Sind, the NWFP and Baluchistan including the Federal Capital and the Federally Administered Tribal Areas (FATA).

Map 2.1 Pakistan and Its Administrative Areas

ADMINISTRATIVE AREAS

* GILGIT AGENCY is administered centrally
★ ISLAMABAD, Capital Territory
— Provincial boundary

Tribal areas administered by Districts

N

USSR

CHINA

GILGIT AGENCY *

JAMMU &
KASHMIR
(DISPUTED TERRITORY)

Line of Control

†6 PESHAWAR

NW FRONTIER
PROVINCE

CENTRALLY
ADMINISTERED
TRIBAL AREAS
1 MOHMAND
2 KHYBER
3 KURRAM
4 N. WAZIRISTAN
5 S. WAZIRISTAN

1
2 †6
3
4
5

AFGHANISTAN

QUETTA

BALUCHISTAN

IRAN

KARACHI

SIND

PUNJAB

LAHORE

INDIA

0   100   200   300   400 km

USSR

IRAN

AFGHANISTAN

KASHMIR

CHINA

NEPAL

BHUTAN

INDIA

BURMA

BANGLA
DESH

Arabian
Sea

Bay
of Bengal

SRI LANKA

Sources: Johnson, (1979:10); Burki, (1973:4)

2.3 GEOGRAPHICAL SETTING

The Islamic Republic of Pakistan has a strategic position in the South Asian region and connects the oil rich Middle East with South East Asia. The total area of the country is 796,095 square kilometres, streching over 1,600 kilometres north to south and about 885 kilometres east to west. Pakistan is bordered by India to the east and south-east, Iran to the west, Afghanistan to the north and north-west and the Peoples' Republic of China to the north and north-east. It is bounded by the Arabian Sea to the south. The Himalayas and the Hindukush mountains lie in the north and north-west of the country. Pakistan was separated from the USSR by a narrow strip of Afghan territory before the USSR invasion of Afghanistan in December 1979 (Map 2.1). Jammu and Kashmir, a disputed territory between Pakistan and India is to the north-east of Pakistan [Economic Adviser, 1968:10; Finance Division, 1980b:1; Jones, 1982:1].

2.4 ECONOMIC DEVELOPMENT IN PAKISTAN

Conventionally, economic development is measured through the annual rate of growth of the Gross National Product (GNP), expansion in the agricultural and industrial sectors; the ratio of savings to gross product and increase in exports and imports. In addition to the above variables the modernization and diversification of the economy leads to structural changes in industrial production and exports [Baster, 1972:6-7]. In the recent past, it has been "generally recognised that traditional economic accounting variables cannot

legitimately be used for measuring improvement in social conditions, nor can they be considered satisfactory as objectives for development planning" [Drewnowski, 1972:77]. Therefore, development economists are continuously trying to evolve better measures of development, aiming at highlighting the improvement in social services and the fulfilment of basic human needs. The search for an alternative to Gross National Product (GNP) per capita as a measure of economic development has proved that "the rapid growth of output will still be important to the alleviation of poverty, and GNP per head remains an important figure" [Hicks and Streeten, 1979:567 and 577]. Therefore, the present study will follow the conventional approach in gauging economic development in Pakistan largely because of scarcity of data on social indicators.

Table 2.1 clearly shows improvement in the quality of life as measured by social indicators. The Indexed values for health services, education, urbanization and utilities and services all show significant advances. Moreover, Table 2.1A and Table 2.1B indicate a condiserable improvement in the literacy level for both males and females in Pakistan since 1970. However, the literacy ratios for males 10-14 years and females aged 55+ show a domnward trend during the period 1972-81. It is hard to give a satisfactory explanation for this except possibly poor quality data. The enrolment ratio statistics produced by the 1981 Census for "all levels" aged 10-14 years are significantly higher compared with the data given in the Sixth Five Year Plan. This is perhaps because a number of students aged 10-14 years may be still in the primary schools and excluded from the group secondary school students aged 10-14 years. The enrolment ratio for the male college students remained unchanged between

1970-81, perhaps partly due to emigration of young educated males from Pakistan to the other countries.

As mentioned in Chapter One, the creation of the Development Board in 1948, geared up the process of economic development in Pakistan. The first step towards the planned economy was the introduction of the Six Year Development Programme (1951-57). The programme did not survive beyond 1955 due to political instability and adverse repercussions from the Korean War. Negligible economic growth took place during this period [Finance Division, 1982:187-88; Stern and Falcon, 1970:2].

TABLE 2.1 GENERAL SURVEY OF DEVELOPMENT IN PAKISTAN, 1971-2 TO 1981

Category/Item	Base Values Year(a)	Amount	Current Values Year(b)	Amount	Indices Year(a)=100
Total Population	1973	66,844,000	1981	84,254,000	126
Proportion Urban	1973	27.7 %	1981	28.3 %	102
Proportion Rural	1973	72.3 %	1981	71.7 %	99
Proportion Economically Active	1973	32.7 %	1981	27.6 %	84
Proportion E Active in Agriculture	1973	58.6 %	1981	52.7 %	90
Population Growth Rate	1972	3.6 %	1981	3.1 %	86
Life Expectancy at Birth(Years) Males	1971	52.9	1983	55.0	104
Females	1971	51.8	1983	54.0	104
Registered Doctors	1972	14,862	1981	26,668	179
Doctor/Population R	1972	1:4394	1981	1:3159	139
No. of Hospitals	1972	496	1981	600	121
No.of Hospital Beds	1972	32,277	1981	46,195	143
Literacy Ratio	1972	21.7 %	1981	23.3 %	107
School Enrolment	1971-72	5,579,000	1980-81	8,637,000	155
College Students	1971-72	222,182	1980-81	330,662	149
University Students	1971-72	17,507	1980-81	49,098	280
No. of Telephones	1971-72	167,200	1980-81	358,815	215
No. of Radio Sets	1971-72	1,039,365	1980-81	1,528,827	147
No. of TV Sets	1971-72	129,023	1980-81	582,815	452
Electric Energy Production	1971-72	7,397 MillionKWH	1980-81	16,068 Million KWH	217
No. of Villages Electrified	1975	4,230	1982	13,043	308
GDP Current Factor Cost	1971-72	Rs. 49,169 Million	1980-81	Rs. 249,760 Million	508
Per Capita Income	1971-72	Rs. 778	1980-81	Rs. 3,298	424
GDP Manufacturing Sector	1971-72	Rs. 7,773 Million	1980-81	Rs. 42,061 Million	541
Exports Million Rs.	1971-72	3,371	1980-81	29,280	869
Imports Million Rs.	1971-72	3,495	1980-81	53,544	1,532

Sources: Federal Bureau of Statistics, (1982:5,14,62 and 151).

Finance Division, (1983:2,18-9,61,150,152 and 200-1).

Finance Division, (1976:74); Census Organization, (n.d:1,222-28).

Planning Commission, (1978:786 and 1983:322).

Population Census Organization, (Unpublished 1981 Census Data).

Notes: E=Economically.   GDP=Gross Domestic Products.

R=Ratio.   KWH=Kilo Watt Per Hour.

TABLE 2.1A   LITERACY RATIOS BY SEX AND AGE GROUPS, PAKISTAN, 1972-81.

| Age group | 1972 | | 1981 | |
	Males %	Females %	Males %	Females %
10+	30.2	11.6	31.8	13.7
10-14	31.4	16.4	26.8	16.7
15-19	42.0	20.3	42.5	24.4
20-24	40.3	15.7	43.0	20.2
25-34	33.6	10.7	37.3	13.6
35-44	26.7	7.9	31.9	9.0
45-54	21.9	5.6	24.3	5.8
55+	15.8	3.5	19.3	3.2

Sources: Federal Bureau of Statistics, 1982a (Table 2.8; pp 14).

Finance Division, 1983 (Table 1; pp 198).

Note: Figures for both males and females for the age groups
25-34, 35-44, 45-54 and 55+ for 1981 are averages of the age
groups (25-29+30-34), (35-39+40-44), (45-49+50-54) and
(55-59+60 years and above), respectively.

TABLE 2.1B   PRIMARY AND SECONDARY SCHOOL, COLLEGE AND UNIVERSITY
ENROLMENT RATIOS BY SEX, PAKISTAN, 1970-81.

| Educational Level | 1970 | | 1981 | |
	Males %	Females %	Males %	Females %
Primary (aged 5-9 yaers)	60	19	66	33
Secondary (aged 10-14 years)	26	7	30	11
All Levels(aged 10-14 years)	-	-	32(c)	17(c)
College	6	2	6	3
University	1	*	2	1

* Indicates a value of 0.3 percent. (c)= 1981 Census Data.

Sources: Adapted from: Finance Division, 1983 (Table 2; pp 201).

Planning Commission, 1983 (Table B 8.3; pp 481-2).

Population Census Organization, n.d.a (Table 4; pp 16).

Unpublished 1981 Population Census Data, (Table 4; 14).

Notes: 1 College students include students taking professional courses

2 Figures for college and university enrolment ratios under
1970 represent 1971-72.

3 Figures for primary and secondary school enrolment ratios for
1981 has been interpolated from the data produced by the
Planning Commission for the years 1978 and 1983.

4 Primary = Class 1-5   Secondary = Class 6-10

College = Class 11-14   University= Class 15-16

The foundation of systematic planning was laid with the implementation of the First Five Year Plan (1955-60), prepared by the newly constituted Planning Commission. The Planning Commission was unable to publish the plan until 1957 because of shortage of capable staff, lack of statistical information and poor co-ordination. In addition to the above constraints, the rise in non-development expenditure, a decrease in foreign exchange earnings, the short supply of foreign assistance and the absence of a strong adminstrative machinery also affected the development mechanism. The increase of 11 percent in the national income remained below the target of 15 percent. The growth of per capita income was only 1.6 percent compared with the anticipated growth of 7 percent. Although the plan could not achieve even its modest targets the development of infrastructure and managerial and entrepreneurial skills enabled the country to march forward with confidence in the field of economic development [Finance Division, 1981:252].

The Second Five Year Plan (1960-65) was launched in a conducive atmosphere created by the political stability and the progress from the previous development. Economic growth was tremendous during this period. Output was ahead of its planned targets. National income increased over 30 percent compared to the target of 24 percent. The total expenditure was as high as $(U.S.) 5,918 million compared with the plan target of $(U.S.) 4,830 million. Exports were 15 percent more than projected in the plan. The annual growth rate was about 6 percent per annum, and the level of investment rose to 19 percent in 1964-65 as compared to 9 percent in 1959-60. The growth of exports was 7 percent per annum. The mobilization of domestic resources and the increasing inflow of external resources helped the economy to

achieve this pace of modernization and dynamism. Although Pakistan was still one of the poorest developing countries, it was regarded as a successful example of a well-planned and flourishing economy [Finance Division, 1980a:245; Stern and Falcon, 1970:ix].

The Third Five Year Plan (1965-70) ran into difficulties in the early stages of its implementation, as a result of war with India in September 1965. Pakistan had to divert her development resources to meet the increased military expenditure because military assistance from the United States of America was terminated. The smaller inflow of foreign assistance placed a severe strain on the balance of payments and raw material imports were curtailed, resulting in a decline in the industrial growth. These problems were inflamed by the poor harvests of 1965-66 and 1966-67 which resulted in a decrease in real wages. This decline in the industrial growth and the real wages in turn caused major disturbances which not only affected savings and investments but also reduced future development opportunities. In these circumstances, the Plan could not produce the anticipated results [Stern and Falcon, 1970:78]. The GNP increased by 5.8 percent compared with the target of 6.5 percent per annum. Agricultural production increased by 4 percent as compared to the annual Plan target of 5 percent. Increase in export earnings were 3 percent less than the expected increase of 9.5 percent per year. The industrial sector claimed an annual growth rate of 8 percent compared with the target of 10 percent. The rate of savings declined from 20 percent of GNP to only 6 percent [Finance Division, 1981:254].

During the 1960s the economic planners adopted the policy of encouraging a handful of industrialists, big farmers and capitalists, to ensure increased savings and investments to achieve the goals of economic growth. These policies were inequitable in nature because a little importance was given to improving the social services. Therefore, not only did regional and personal wage disparities widen but also real wages of industrial workers declined by about one third between 1960-68. Ultimately, the urban population protested against the economic hardships of rising prices, lack of social services and increasing unemployment [Haq, 1973:18]. The public reaction forced the government to change the direction of economic planning towards the improvement of social services and distributive justice in the Forth Five Year Plan (1970-75). Unfortunately, the plan could not be implemented due to war with India in 1971 and the secession of the former East Pakistan [Finance Division, 1982:190].

Economic planning was regulated through the Annual Development Programmes and Annual Plans during 1971-78. The absence of medium term plans, inconsistent economic policies, massive industrial nationalization, industrial unrest and psychological barriers to private investment were some of the major causes of stagnation in the industrial sector between 1971-77. The economic setbacks of the loss of East Pakistan, the increase in defence expenditure and the disastrous consequences of the unstable international economic situation compounded the economic problems of the country. Under these conditions the country could not maintain the former rate of development and the level of savings fell to 4 percent in 1974-75 compared with 22 percent during the Second Plan period. The growth of the GNP was only 4.8 percent during 1971-77 compared to 5.8 percent

during the Third Plan period. The annual average growth rate of the agricultural sector declined to 2.3 percent between 1971-77 compared with 4 percent during the Third Plan period. At the same time the annual average growth of the industrial sector shrank to 3 percent as compared to 10 percent during 1960-65. However, the agricultural and the manufacturing sectors achieved a growth rate of 2.6 percent and 9.2 percent respectively during 1977-78 which may be attributed to the positive policy measures taken by the new regime [Bhatia, 1979:71-76; Finance Division, 1982:190].

As already discussed, industrial production was badly affected during the 1970s because of the unfavourable climate for investment in the private sector. This was due to nationalization and political disturbances. The present government realized that economic growth is not possible until and unless a conducive atmosphere is provided in the private sector. To achieve this objective a large number of measures were taken by the government including denationalization of agro-based industries, protection of investor's rights, tax holidays and demarcation of the spheres of the public and private sectors. Similarly, a few concessions were also given to boost agricultural production. They consisted of handsome procurement/support prices of major crops, credit on liberal terms, subsidies for tubewell installation, an adequate supply of fertilizers, a cheap electric supply for tubewells and impressive imports of tractors [Finance Division, 1983:21-23; Directorate of Films and Publications, n.d:3-4].

In spite of the above incentives the Fifth Five Year Plan (1978-83) could not fulfil the projected targets. The GDP increased by 6 percent compared with the target of 7 percent. The annual average growth of the agricultural and industrial sectors remained behind the targets at 4.4 percent and 9 percent compared with 6 percent and 12 percent respectively. The public sector fixed investment in 1982-83 was 8.5 percent of GNP compared to 11 percent in 1977-78. Comparatively slow progress during the Fifth Plan period may be attributed to the disruption in resource availability, continued recession, increased expenditure on defence and influxes of Afghan refugees [Finance Division, 1983:21]. Table 2.2 gives details of the GNP and per capita income in Pakistan since 1971-72 to 1981-82.

TABLE 2.2 GROSS NATIONAL PRODUCT AND PER CAPITA INCOME IN PAKISTAN,

1971-72 TO 1981-82.

YEAR	At Constant Factor Cost 1959-60				At Current Factor Cost			
	GNP	Growth	PCI	Growth	GNP	Growth	PCI	Growth
	M.Rs.	%	Rs.	%	M.Rs.	%	Rs.	%
1971-72	32,883	1.6	519	-1.3	49,268	8.0	778	4.9
1972-73	35,360	7.5	542	4.4	61,258	24.3	939	20.7
1973-74	38,085	7.7	567	4.3	81,058	32.3	1,206	28.4
1974-75	39,651	4.1	573	1.1	105,787	30.5	1,528	26.7
1975-76	41,410	4.4	581	1.4	124,415	17.6	1,745	14.2
1976-77	43,022	3.9	586	0.9	141,166	13.5	1,922	10.1
1977-78	47,480	10.4	628	7.2	169,310	19.9	2,239	16.5
1978-79	50,068	5.5	643	2.4	193,591	14.3	2,485	11.0
1979-80	53,575	6.5	668	3.9	230,867	19.3	2,878	15.8
1980-81	56,476	5.4	684	2.4	272,452	18.0	3,298	14.6
1981-82	59,525	5.4	700	2.4	317,476	16.5	3,735	13.3

Source: Derived from:

Finance Division, 1983 (Table 1 and 2; pp 14-15 and pp 18-19).

Notes: GNP = Gross National Product.

PCI = Per Capita Income.

M.Rs.= Million Rupees.

2.5 STRUCTURAL CHANGES IN THE ECONOMY

Industrialization has often been regarded as the key to solving chronic problems of poverty and economic dependence in the developing world. However, Pakistan succeeded in achieving a reasonable measure of inter-sectoral balance, which is evidenced "by the convergence of the growth rates in manufacturing and agricultural output" [Ahmad, 1980:1]. In spite of a higher agricultural growth rate compared to the increase in population since the advent of the sixties, the share of this sector in GDP has decreased from 53 percent in 1950-51 to 31 percent in 1980-81 (Table 2.3). Correspondingly, the contribution of the industrial sector has increased from 15 percent in 1950-51 to 32 percent in 1980-81. Similarly, within the industrial sector, the share of manufacturing has doubled from 8 percent to 16 percent during the same period. Large scale manufacturing contributed 12 percent of the GDP in 1980-81 compared with less than 3 percent during 1950-51. However, the share of small scale manufacturing decreased about 1 percent over a period of thirty years between 1950-51 and 1980-81 because of a major breakthrough in large scale manufacturing industries [Finance Division, 1983:12-15 Statistical Annexure]. Diversification in manufacturing from easy consumer goods to sophisticated heavy engineering will help to further boost this sector. The present manufacturing capacity of heavy industries include chemicals, chemical fertilizer, ship-building, assembly-cum-manufacturing of cars, tractors and trucks; rolling stock for railways and telephone and tele-communication equipment and components [Planning commission, 1983:4].

The combination of favourable price policies and technical innovations based on high yielding varieties, the introduction of chemical fertilizers, pesticides and mechanical cultivation coupled with the increased availability of irrigation water, improvements in credit facilities and expansion in education, research and extension services had brought a significant transformation of the agricultural sector. The Plough, the traditional cultivation implement is being replaced by the tractor and other mechanical devices [Ahmad, 1980:1; Planning Commission, 1983:5; Finance Division, 1983:109-111]. The number of tractors in Pakistan has increased from 21,534 in 1968-69 to 121,952 in 1979-80 [Food and Agriculture Division, 1981:152]. The production Index of all crops has improved from 90 in 1950-51 to 256 in 1981-82, assuming 1959-60 as a base year [Finance Division, 1983:28 Statistical Annexure]. Surplus wheat and sugar production has enabled Pakistan to export these commodities in addition to rice and cotton [Finance Division, 1983:99].

The services sector remained almost static during the period of the united Pakistan (1947-71). The contribution of this sector to GDP was 32 percent in 1950-51 and 33 percent in 1971-72 (Table 2.3). This may be due to the fact that a little attention was paid to this sector during that period. By 1980-81 output from the services sector had increased to 37 percent of GDP. This improvement was mainly due to the promising growth in public administration and defence services [Finance Division, 1983:14-15 Statistical Annexure]. The services sector has now emerged as the largest sector of the economy followed by industry and agriculture respectively. In the early fifties agriculture was leading with 53 percent of the GDP (Table 2.3).

TABLE 2.3   SECTORAL DISTRIBUTION OF GROSS DOMESTIC PRODUCT

AT CONSTANT FACTOR COST (1959-60),

1950-51   TO   1980-81

SECTOR	1950-51		1960-61		1971-72		1980-81	
	Million Rs.	%	Million Rs.	%	Million Rs.	%	Million Rs.	%
AGRICULTURE*	6,768	52.6	7,695	43.6	12,611	38.4	16,464	30.7
INDUSTRY**	1,949	15.1	4,129	23.4	9,257	28.2	17,174	32.0
MANUFACTURING	1,042	8.1	2,278	12.9	5,130	15.6	8,672	16.2
SERVICES***	4,164	32.3	5,825	33.0	10,944	33.4	20,023	37.3
TOTAL	12,881	100.0	17,649	100.0	32,812	100.0	53,661	100.0

Source: Derived from:

Finance Division, 1983 (Table 1; pp 12-15).

Note: *   Agriculture includes Livestock, Fishing and Forestry.

**   Industry includes Mining, Manufacturing, Construction,
Communication and Utilities.

***   Services includes Commerce, Finance, Ownership of Dwellings,
Defence; Public and Personal Services.

Structural changes in economic activity have had a direct impact
on the ability of different sectors of the economy to absorb the
labour force.   Transforming traditional agriculture into   modern
mechanized and commercial agriculture as well as the expansion of the
services and industrial sectors have changed the structure of the
labour force in Pakistan. The proportion of the labour force in the

agricultural sector has decreased from 65 percent in 1951 to 53 percent in 1981. Both the industrial and services sectors are gradually providing comparatively more employment opportunities. The proportion of the labour force in the industrial sector has been enlarged from 12 percent in 1951 to 19 percent in 1981. The services sector has also grown, employing 24 percent of the total labour force in 1981 compared to only 16 percent in 1951. Table 2.4 provides details of the labour force distribution by economic divisions since 1951.

TABLE 2.4   PERCENTAGE DISTRIBUTION OF PAKISTAN'S LABOUR FORCE
BY MAIN SECTORS OF ECONOMY, 1951-81.

SECTOR	1951 %	1961 %	1973 %	1981 %
Agriculture	65.3	60.8	58.6	52.7
Industry	11.6	18.7	17.8	18.5
Manufacturing	9.7	13.6	8.3	9.2
Services	15.6	20.5	22.7	23.9
Unclassified	7.5	-	0.9	4.9
Total	100.0	100.0	100.0	100.0

Source: Derived from:

For 1951: Central Statistical Office, 1956 (Table, 11; pp 14)

For 1961: Home Affairs Division, n.d. (Table, 7; pp 1380).

For 1973: Census Organization, n.d. (Table, 17; pp 228-231).

For 1981: Unpublished 1981 Population Census Data.

Diversification within and between economic sectors has also modified the pattern of exports and imports. Export statistics reveal that the share of manufactured goods has gradually increased from 10 percent for united Pakistan in 1957-58 to 52 percent for new Pakistan in 1981-82 [Stern and Falcon, 1970:26; Finance Division, 1983:160-61 Statistical Annexure]. The share of primary produce has been around one third of total exports since 1971-72. Exports of semi-manufactured goods have decreased from 24 percent in 1971-72 to 13 percent in 1981-82 [Finance Division, 1983:160-61 Statistical Annexure]. This may be due to the increasing share of manufactured goods compared with semi-manufactured goods. Similarly, the composition of imports has also changed partly due to the expansion of manufacturing capacity and partly due to the increase in production of food grains in the country. Imports of industrial raw materials have increased from 35 percent in 1971-72 to 57 percent in 1981-82. Over the same period import bill for capital goods and consumer goods has decreased from 42 percent and 23 percent to 29 percent and 14 respectively [Finance Division, 1983:166-67 Statiatical Annexure].

2.6 DEMOGRAPHIC TRENDS

Development planners no longer ignore human resources and employment issues. Today development economists have realized the importance of the relationship of demographic variables, socio-economic and cultural factors in integreted economic development [Farooq, 1981:336-338; International Labour Organization, 1963:301-302; United Nations, 1972:27]. The following paragraphs

will discuss demographic changes in the process of economic development in Pakistan, including population size, growth and composition, population distribution, urbanization and internal migration. Emigration of Pakistanis to the oil-rich states of Western Asia and other countries will be discussed in Chapter Four.

2.7 SIZE, GROWTH AND COMPOSITION OF THE POPULATION

The population of Pakistan has shown a continuously increasing intercensal growth rate. According to the First Population Census, 1951, the population was 33,740,000, and increased to 42,880,000 in 1961. This was an increase of 27 percent, with an annual average growth rate of 2.4 compared to 1.8 percent during 1941-1951. This growth may be attributed to natural increase as well as an immigration surplus from India as a result of partition of the subcontinent. [Afzal, 1974: 1-2]. The exceptional increase of 52 percent during 1961-72 may be attributed to continuing high fertility and declining mortality due to improved health facilities, disease control and better environmental conditions. The annual average growth rate appeared to be 3.6 percent between 1961-72, but this may be due to an estimated undercount of about 7 percent in the 1961 Census as well as a continuous high rate of natural increase [Afzal, 1974:2]. The population growth rate also remained high, 3.1 percent per annum, during 1972-81. The total population was 84,254,000 according to the 1981 Census, an increase of 29 percent over the 1972 Census (Table 2.5).

TABLE 2.5   POPULATION GROWTH IN PAKISTAN, 1951-81.

Census/ Survey Year	Population (In Thousands)	Growth Over Preceding Census/ Survey Year (In Thousands)	%	Growth Rate (Per Annum)
1951	33,740	-	-	-
1961	42,880	9,140	27.1	2.4
1972	65,309	22,429	52.3	3.6
1981*	84,254	18,945	29.0	3.1
1951-81	-	50,514	149.7	3.1

Source: Calculations based on:

   Finance Division, 1981 (Table 1.1; pp 2).

  * Unpublished 1981 Population Census Data.

  Note: Growth rate calculated using the method explained in

     Pollard et al, (1981:21).

    The demographic changes which have occurred in Pakistan since
independence are common to most developing countries. The level of
mortality has declined more than half while the decline in fertility
is comparatively very slight. The Crude Death Rate has decreased from
30 deaths per thousand population in 1950 to an estimated 12 in 1981.
On the other hand the Crude Birth Rate has declined from about 50 live
births per thousand people in 1961 but still remains high at an
estimated 41 in 1981 [Afzal, 1974:17; Population Division, 1981:29;
Planning Commission, 1983:354]. As a result, if the population growth
rate of about 3 percent is maintained in the future, the population of

Pakistan would double within less than 25 years.

Pakistan's economy is under severe strain because of population size and age distribution. The dependent population (aged under 15 and 65 and over) contribute less to the national or family income than they consume. The persons of working age (the 15-64 years age group) have to look after their needs, resulting in less savings which leads to lower investment. Ultimately this affects the development of the country. In Pakistan the dependent population increased from 48 percent in 1972 to 49 percent in 1981 as a result of declining death rates and higher birth rates after remaining constant at 47 percent from 1951 to 1961. People over 65 constituted nearly 4 percent of the population in both 1972 and 1981. Children under 15 years accounted for 45 percent in 1981 compared with 44 percent in 1972 [Afzal, 1974:41; Federal Bureau of Statistics, 1982a:10; Unpublished 1981 Population Census Data]. Hence the dependency rate (number of children 0-14 + persons of age 65 and over divided by persons in ages 15-64 X 100) is gradually increasing. The dependency rate in Pakistan was 90 in both 1951 and 1961, rose to 92 in 1972 and further increased to 96 in 1981. This rate is very high compared to 54 for developed nations, 75 for developing nations and 69 for other Asian Nations [Rukanuddin, 1981:13].

Obviously this expansion in the numbers and proportion of the young population not only strains the resources of individual families but also affects social and economic development. At the household level parents have to support their children until they complete their education and secure employment. Therefore, family expenditure increases, restricting savings and investment potential. On the other

hand the government has to divert development resources to meet the basic requirements, i.e. health care, nutrition, and elementary education of a young population. This adversly affects the economic development of the country. It is estimated that an annual additional expenditure of $(U.S.) 96 million is required to provide educational facilities to the increment of primary pupils alone in Pakistan [Burki, 1973:13]. The vital programmes of human resource development further strain the economy due to the relatively higher number of prospective labour force entrants. Therefore, appropriate policy measures are necessary to face the challenge of growing population and labour force.

2.8 POPULATION DISTRIBUTION

Pakistan's population is unevenly distributed within its provinces. The Punjab contained 61.2 percent of the total population in 1951, followed by Sind with 18.4 percent. The NWFP and Baluchistan had 17.4 percent and 3.0 percent respectively in 1951. This distribution has changed over time because of socio-economic developments in the country. The proportion of the population in the Punjab decreased from 61.2 to 56 percent by 1981 and that in the NWFP from 17.4 to 16 percent. Sind had 23 percent of the total population in 1981 compared with 18.4 percent in 1951. Similarly, Baluchistan increased from 3 percent to 5 percent by 1981 (Table 2.6).

TABLE 2.6   POPULATION DISTRIBUTION AND DENSITY BY PROVINCES IN PAKISTAN, 1951-81.

REGION	Area In Square Kilometres	Population (In Thousands)								Density Per Square Kilometre			
		1951	%	1961	%	1972	%	1981	%	1951	1961	1972	1981
NWFP*	101,740	5,888	17.4	7,578	17.7	10,879	16.7	13,260	15.7	58	74	107	130
PUNJAB**	206,251	20,637	61.2	25,582	59.6	37,845	57.9	47,633	56.5	100	124	183	231
SIND	140,914	6,204	18.4	8,559	20.0	14,156	21.7	19,029	22.6	44	61	100	135
BALUCHISTAN	347,190	1,011	3.0	1,161	2.7	2,429	3.7	4,332	5.2	3	3	7	12
PAKISTAN	796,095	33,740	100.0	42,880	100.0	65,309	100.0	84,254	100.0	42	54	82	106

Sources: Calculated from:

(1) Population Census Organization, 1983 (Table 1; pp 5).

(2) Census Commissioner, n.d, (Table 1; pp II-36 To II-41).

Notes: * Includes the Federally Administered Tribal Areas.

** Includes Islamabad District.

There has been a redistribution of refugees and displaced persons within the four provinces of Pakistan. The Punjab, the NWFP and Baluchistan lost 610,000 people during 1951-61 while the net migration gain in Sind was as many as 0.7 million including new migrants from India. As a result population density in Sind increased from 44 in 1951 to 61 in 1961. This is about 15 percent higher than the increase in density in the Punjab during the same period. This increase in population in Sind was mainly due to the attraction of the former capital city, Karachi, a fast growing commerical and industrial centre [Afzal, 1974:70; Burki, 1973:11]. The balance of population distribution again favoured Sind with an increase to 22 percent of the total population of Pakistan by 1972 compared with 20 percent in 1961. The Punjab and the NWFP combined lost about 1.6 million people to Sind and Baluchistan. This shift of population was due to the expansion of the cultivated area and canal irrigation water [Burki, 1973:11-12]. These population movements narrowed the gap between provincial population densities (Table 2.6).

By 1981 Sind and Baluchistan's proportion had increased to 23 percent and 5 percent of the National total while the Punjab and the NWFP had decreased to 56 and 16 percent. Rapid population growth in Sind is partly due to migration from Bangladesh (Shah and Karim, 1982:9) and partly due to the creation of many employment opportunities through massive industrial expansion in the public sector during 1972-77. The new government tried to remove regional imbalances in industrial investment but failed because it inevitably had to allocate more than 62 percent of the total public sector investment fund to Sind province to complete on-going projects [Planning Commission, 1978:105]. Recent population growth in

Baluchistan may be due to a combination of increasing trade and commerce and some settlement of Afghan refugees in the cities [Shah and Karim, 1982:9].

2.9 URBANIZATION AND INTERNAL MIGRATION

Pakistan is gradually becoming an urbanized society. The urban proportion of the population has increased to over 28 percent according to the 1981 Census compared with 18 percent in 1951 (Table 2.7).

TABLE 2.7 PERCENTAGE OF URBAN POPULATION BY PROVINCES IN PAKISTAN, 1951-81

REGION	1951	1961	1972	1981
NWFP	11.0	13.2	14.3	15.2
PUNJAB	17.3	21.4	24.4	27.5
SIND	29.2	37.9	40.4	43.4
BALUCHISTAN	12.3	16.9	16.4	15.6
PAKISTAN	17.8	22.5	25.4	28.3

Source: Shah and Karim, (1982:10).

Pakistan's biggest urban centre Karachi is located in Sind province and contains over 63 percent of that province's urban population, and nearly 22 percent of the total urban population of the country.

Lahore, the capital city of the Punjab contains about 23 percent of all the urban citizens of the province and more than 12 percent of the nationl urban population [Unpublished 1981 Population Census Data; Population Census Organization, 1983:7]. Table 2.7 suggests that Sind province is more urbanized than its counterparts, perhaps due to the industrial and commercial significance of Karachi. Urbanization in the Punjab is approaching the national level. Baluchistan and the NWFP show almost the same level of urbanization. Both provinces seem to be lagging behind in economic development if urbanization is used as the criterion.

The proportion of urban population has increased in all provinces except Baluchistan, where rural population growth was 80 percent compared with 69 percent in urban areas during the intercensal period 1972-81 [Population Census Organization, n.d.a:14; Unpublished 1981 Population Census Data]. This phenomenon highlights the improved enumeration of rural areas as a result of progress in the communication system of the province [Mallick, 1983:17].

The rapid urban growth rate of 4.4 percent compared with the average population growth rate of about 3 percent (PCO, 1983:4 and 6) strongly suggests migratory movements, if the natural increase due to fertility and mortality are assumed to be the same in rural and urban areas [Shah and Karim, 1982:2; Mallick, 1983:29]. The attraction of urban life is not only diversified job opportunities but also better living conditions. People from relatively less developed rural areas with few employment opportunities move to the urban centres in search of livelihood. This implies that both "pull" and "push" factors are contributing to the growth of urban centres in Pakistan. However,

during the decade 1970-80 the prospective emigrants waiting to go to work in other countries also added a little to the growth of urban population [Shah and Karim, 1982:10]. The high rate of urban growth has squeezed the limited urban resources (housing, education, water, sanitation, transport and communication facilities) in Pakistan. Katchi Abadis (squatter areas) are the only source of shelter for a large number of low paid workers in the major cities. Since squatter settlements are generally raised on unauthorised land they are usually deprived of urban amenities which further aggravates the life of the poor residents [Shah and Karim, 1982:10].

It is believed that rural-urban migration in Pakistan will continue at least at the present rate, unless regional and rural improvement is carried out for equitable distribution of economic opportunities. The present socio-economic, and demographic problems of the urban population will also continue if efforts are not made to bridge the development gap between rural and urban areas.

CHAPTER THREE

PROBLEMS OF MEASURING THE WORKFORCE

Social scientists face the problems of changing definitions and concepts, because the social behaviour of a society or nation affects the measurement of a particular activity [Moore, 1953:68]. Similarly the definitions relating to the workforce (labour force) have changed over time, because of the complexity of the analysis of labour force statistics in different regions of the world. This chapter discusses the concepts, measurement and comparability problems of data on workforce in general and particularly in Pakistan.

3.1 APPROACHES TO MEASURING THE WORKFORCE

Measurement of the labour force (workforce) in the United States started with an enquiry into the occupations of the citizens there regardless of time reference, in the 1820 Census [Durand, 1948:9]. The collection of workforce statistics began in 1801 in England and Wales and in 1841 in New South Wales, the state in which the first Australian Census was taken [Knibbs, 1917:14]. This method was mainly concerned with the usual gainful work of the individual and did not consider the current status of being employed or unemployed, known as the gainful worker approach [Hauser, 1949:339-340].

The Great Depression of the 1930's forced the world community to find ways of measuring the size of the unemployed population, which was not possible through the gainful worker approach. Eventually, the U.S. Bureau of Census developed a new technique to measure the employed and the unemployed population at a particular time. This technique of measuring the workforce is known as the labour force approach [Hauser, 1972:146; Jaffe and Stewart, 1951:6-10].

The standard labour force approach provides a measure of the employed and the unemployed population, but it does not provide adequate information for manpower planning in the developing countries, where underemployment is a major problem. The labour utilization approach devised by Philip Hauser may be an answer to the problems of developing nations. This approach attempts to measure the underutilization of labour by unemployment, low income, short working hours and mismatch of education and occupation [Corner, n.d:1-5; Hauser, 1977:1]. The three approaches will be discussed in detail in the following paragraphs.

3.2 THE GAINFUL WORKER APPROACH

"The gainful worker approach is based on the idea that each person has a more or less stable functional role as a bread-winner following a gainful occupation, and that this role is to some extent independent of his/her activity at any given time" [United Nations, 1951:5]. Accordingly, an aggregate of all persons who are usually engaged in gainful activities forms the workforce. This approach does not emphasise a clear-cut time reference and employment status at the

time of enumeration. Therefore, in some cases the respondants may report their present occupation and in other cases the reply may refer to the usual status [Durand, 1947:81; Hauser, 1949:339-340]. The main idea behind this approach is the study of occupations and the analysis of labour supply and employment are of secondary importance [Durand, 1947:80].

The gainful worker approach has two major advantages (1) it requires relatively simple and straight-forward census questions and instructions and (2) data collected through this approach may be useful for developing countries where the population census is the only source of comprehensive statistical information on the size and characteristics of the economically active population [United Nations, 1951:6]. However, this approach has its limitations. First, the results are not suitable for use as bench-mark in the absence of a specific reference period. Secondly, this approach is mainly concerned with the occupation of an individual and does not collect data on unemployment. Moreover, it does not count first time job seekers because they have no occupation. On the other hand the previously employed but not the unemployed are counted as gainful workers with reference to their previous occupation [Ambannavar, 1970:4]. The gainful worker approach may be misleading when applied to those who do not have a single definite occupationl role such as seasonal workers, part-time employees, unpaid family workers and pensioners [United Nations, 1951:6].

From the efforts to overcome the deficiences of the gainful worker approach, a new technique of measuring the workforce evolved. This concept is the labour force approach which was first applied in

the 1940 Census of the United States [Jaffe and Stewart, 1951:8-9].

Australia and England and Wales adopted the labour force approach in

1960 and 1961, respectively, [Keating , 1973:21; Department of

Employment and Productivity, 1971:12].

3.3 THE LABOUR FORCE APPROACH

"The principle of enumerating the economically active population

on th e basis of each individual's activities during a stated brief

time interv al is the basis of the labour force approach" [United

Nations, 1951:5]. Generally the total labour force comprises all

persons of either sex, above a specified age who wish to supply labour

for the production of economic goods and services, during a specific

reference period, generally one week. Thus, it covers, in addition to

persons who work for wages and salaries, employers, own account

workers and unpaid family helpers. Both the employed as well as

unemployed persons seeking paid jobs are considered members of the

labour force. Persons engaged in "non-productive" activities are not

in the labour force. Thus women exclusively looking after their homes

are not in the labour force, because goods and services produced by

them are not considered to have an income generating function [United

Nations, 1968:2-3 ; United Nations, 1973:293]. Therefore, the labour

force consists of the two major components of economic activity i.e.

the employed and the unemployed [Hauser, 1972:149].

The labour force approach has a number of advantages over the

gainful worker approach. This includes a definite and brief specific

time reference, resulting in clear-cut data on employed and unemployed

labour force as compared to the usual status approach. This approach provides useful bench-mark statistics which may be used more confidently for policy making. The labour force approach is also more suitable than the gainful worker approach for measuring changes over time in the composition of the work force in a dynamic and industrial society [Hauser, 1949:341-342].

In spite of the merits of the labour force approach, it still does not properly describe the definitional and classificational issues. Many analysts face difficulties in determining whether a particular action performed by an individual is economic or non-economic. This problem is more serious in developing countries than in the developed, because the distribution between household chores and economic activity depends to a large extent on subjective judgement in the absence of a definite distinction between productive and non-productive activities [United Nations, 1962:1-2].

A survey of various countries suggests that great variation in the female activity rate (the percentage of the total female population classified as economically active) ranging from 5 percent in Angola in 1960 to 59 percent in the Ivory Coast in 1970 [Blacker, 1978:49]. The female crude activity rate is influenced by their inclusion in, or exclusion from the economically active population and if they work in subsistence agriculture or small domestic enterprises on a periodic basis. Moreover, female participation rates are also subject to social and religious barriers. It is argued that minimal participation rates are reported in societies where husbands do not like to confess the working status of their wives [Ware, 1981:213].

Furthermore, although the labour force approach strictly considers the behaviour of an individual within a specific time period, the complex world economy does not allow its proper implementation. For example, the employed not only includes those who actually worked, but also those who had a job, but did not attend because of vacations, temporary illness or temporarily inability to perform out door work, due to bad weather. Similarly, the unemployed includes those seeking a job as well as those not actively seeking work due to temporary illness, and closure of premises [Hauser, 1972: 149-150].

Finally, data collected through the labour force approach could not fulfill the manpower planning requirements of the developing countries, where the underemployment problem is more serious than the unemployment [Hsieh, 1952:703]. Therefore, in November 1971 at Geneva, it was agreed that an alternative approach, capable of providing meaningful data for manpower planning in the developing countries should be sought [Hauser, 1974:4].

3.4 THE LABOUR UTILIZATION APPROACH

Hauser proposed the measurement of the underutilization of the workforce in conjuction with the prevailing standard labour force approach, by asking additional questions on income, hours of work and education/training during censuses and national sample surveys [Hauser, 1974:5]. The suggested methodology clearly defines four types of underutilization: the unemployed, inadequate working hours, low levels of income and mismatch of occupation and education [Moir,

1980:1].

The labour utilization framework developed by Hauser is capable of overcoming some of the weaknesses of the standard labour force approach and can directly measure the size and characteristics of both the unemployed and underemployed workforce [Khuda, 1978:15]. This approach provides data on different categories of underutilization, hence different policy measures may be adopted for achieving the goal of full employment [Corner, n.d:8].

The labour utilization framework has been widely criticised in terms of classifications, cutoff points and its applicability to censuses and national sample surveys in the developing countries. The measurement of underemployment by hours of work needs a definition of a "full time" working week which varies from country to country [Corner, n.d:6]. Moreover, even the standard "working week" seems to be inadequate in the urban informal sector as well as in the rural agrarian economies of most of the developing countries [Khuda, 1978:5]. It is also difficult to obtain reliable and useful data on income in the developing countries where the rural economy may not be easily translated into monetary terms [Corner, n.d:7]. Other difficulties in the collection of income data have been recognised by Caldwell and Hull. According to Caldwell "Money is a sensitive matter and people are used to giving wrong information about it; many expenditures and some sources of income they find difficult to recall or even embarassing to mention" [Caldwell, 1976:76]. Hull has pointd out that many people hesistate to answer questions on their income, fearing that it might affect their taxes [Hull, 1975:153]. Furthermore, although it seems easy to collect data on occupation and

education to study mismatch category of underutilization of workforce, this poses serious problems of definition and validity because the meaning of mismatch changes over time, as education increases. The usefulness of such a measurement is doubtful in the poorer developing countries where the question of mismatch of occupation and education does not arise due to predominantly agrarian economies [Khuda, 1978:17].

Moir (1980:63) argued that Hauser's frame work of policy priorities is purely economic and does not consider the social perspective. She suggests that employment policies may be useful if they cover both the problems of poverty and distribution of income whereas Hauser only emhpasises the utilizational aspect of the human resources and does not deal with the welfare of the society.

3.5 MEASUREMENT OF THE LABOUR FORCE AND COMPARABILITY PROBLEMS IN PAKISTAN

The above discussion highlights the continuing efforts made to refine labour force concepts and definitions to facilitate comparability of data at both the national and international level. However, a review of the literature shows that every improvement in the concepts, methodology and classification has led to changing definitions in various censuses and surveys which further aggravates intertemporal comparison [Irfan, 1981: 2-3; Moore, 1953:68].

Pakistan has been revising labour force concepts, definitions and measuring techniques in an attempt to improve the measurement of the labour force. Experience shows that all such efforts have not only increased comparability problems but also have shaken confidence in

TABLE 3.1   COMPARATIVE ASPECTS OF MAJOR CENSUSES AND SURVEYS DATA ON LABOUR FORCE IN PAKISTAN, 1951-81.

Census/Survey	Approach	Coverage	Lower age limit	Upper age limit	Reference period (LFA only)	Operation time	Status of enumerators
(a) 1951 Population Census	GWA/LFA	Complete enumeration	12 Years	None	None/ one month	February 1951	Borrowed from other departments
(a) 1961 Population Census	GWA/LFA	Complete enumeration	10 Years	None	None/ one month	12th - 31st January, 1961	Borrowed from other departments
(b) Labour Force Surveys 1963-64 to 1978-79	LFA	About 22,575 to 35,306 HHs*	10 Years	None	One week	Usually one Year	Professional regular employees
(c) Housing Economic And Demographic Survey-1973	LFA	255,000 Households	10 Years	None	One week	August - November 1973	Specially trained regular employees
(d) 1981 Population Census	GWA	Approximately 871,500 HHs*	10 Years	None	None	1-15 March 1981	Borrowed from other departments

Sources: (a) Census Commissioner, (n.d:v1 to v5).

(b) Statistics Division, (n.d.a:iv to xx); Federal Bureau of Statistics, (1982b:iii to xxiii).

(c) Census Organization, (n.d:iii).

(d) Statistics Division, (n.d.b:5-6); Population Census Organization, (1980:1 and n.d.b:25-28).

Notes: (1) LFA= Labour Force Approach.   (2) GWA = Gainful Worker Approach.   * HHs= Households.

the labour force statistical series based on different approaches. However, Table 3.1 suggests that Pakistan's labour force data may be classified into two major categories: one generated through the population censuses and the other produced by various labour force surveys including the Housing, Economic and Demographic Survey-1973. Examination of the concepts used in the censuses and surveys reveals that censuses adopted more or less the gainful worker approach except for the non-agricultural workers in 1951 and 1961, whereas all the surveys were carried out using the labour force approach. A combination of the gainful worker/labour force approach was exercised to ensure better coverage of the economically active population in the agricultural and non-agricultural sectors [Census Commissioner, n.d:v-1]. The labour utilization approach was partially tried in the 1974-75 and 1978-79 Labour Force Surveys by collecting data on hours of work and education while the HED was restricted to the question of education only [Statistics Division, n.d.a:viii-ix; Federal Bureau of Statistics, 1982b:ix-x; Census Organization, n.d:vii].

All the censuses under discussion were conducted during the first quarter of the year. The labour force surveys usually spread over a complete year, hopefully reflecting a better picture of the economic activities in the country. The HED is the only exception as it was held during the months of August-November, relatively busy months compared with the 1st quarter of the year [Johnson, 1979:24-25]. The reference period for all the surveys and the 1961 Census (non-agricultural workers only) was one week preceding the enumeration day. No reference period was fixed in the 1981 Census. Similarly, no reference period was attached to agricultural workers in the 1951 Census, but all other workers were enumerated with reference to their

economic activities one month preceding the enumeration date. There was no difference in the lower and upper age limit for all censuses and surveys excepting the 1951 Population Census which used at least 12 years of age as a cutoff point for enumerating the economically active population.

Borrowed employees worked as enumerators for all the censuses. The usual labour force surveys were carried out by professional enumerators. The HED used the services of the especially trained regular employees of the Census Organization. The first two censuses covered all the eligible respondants for interview whereas the 1981 Population Census and all other surveys enumerated only the sample households to estimate the labour force. However, the sample size for the 1981 Population Census and the HED was fairly big compared with other labour force surveys conducted by the Statistics Division between 1963-64 and 1978-79. Results derived from these surveys may be more affected by sampling biases because of the small sample sizes used for all the labour force surveys. However, according to Irfan (1981:10), the activity rates reported in the labour force surveys for the years 1963-64 to 1967-68 are on the high side. Therefore, these surveys will not be discussed further in this study. The above brief analysis indicates that more information is needed about the HED and the 1981 Population Census because of differences in enumeration techniques, variations in the period and the quality of the enumerators. Therefore, the following paragraphs will concentrate on these two sources.

The HED and the 1981 Population Census shows that the labour force grew at the rate of 1.8 percent per annum compared with the population growth of about 3 percent per annum during 1973-81. The estimated current labour force growth rate is almost equal to the population growth rate [Finance Division, 1981:3; 1983:171]. Yet, further analysis reveals that the male labour force growth rate was 2.6 percent compared with the female labour force growth rate of -9.5 percent per annum (Table 3.2).

TABLE 3.2   POPULATION AND LABOUR FORCE GROWTH RATE

IN PAKISTAN, 1951-81

Census/Survey Year	Annual average rate of growth (percentage)			
	Total Population	Labour Force		
		Both Sexes	Males	Females
1951	-	-	-	-
1961	2.4	2.7	2.1	13.6
1973	3.6	3.5	3.5	3.6
1981	3.1	1.8	2.6	-9.5

Source: Derived from:

Farooq, 1975 (Table,II-2; pp 10).

Census Organization, n.d. (Table, 16; pp 222-23).

Unpublished 1981 Population Census Data, (Table, 14).

The scrutiny of the data and the examination of the conceptual changes show that this decrease in the female labour is not genuine but supports the notion of under-enumeration as argued by Durand (1975:12). An earlier study conducted by Fukuoka and Seki (1971:95) also shows that the "actual status approach tends to count the more economically active population than the usual status, particularly for the female population". The above statement clearly suggests that the noticeable decrease in the female activity is mainly a product of

change in methodology from the labour force approach in 1973 (current activity) to the gainful worker approach in the 1981 (usual activity).

Pakistan being basically an agrarian society, perhaps could not properly capture the economic activities of the female labour force in 1981 because respondents (head of the household) tended to answer "housewife" in reply to a question "what does she usually do"? This answer reflects two views; first the cultural phenomenon of the belief in women's only role as housewife, particularly in the rural setting. Second, it relates to the social norms which consider female economic activity undesirable [Shah and Shah, 1980:102]. An increase in the mechanical cultivation as well as school enrolments also affected female participation in economic activities [Chaudhry, 1981:14 and 40]. The comparatively low growth rate of the male labour force during the period under review may be a combination of emigration to foreign countries and a rise in the proportion of students in the population and the discouraged unemployed [Chaudhry, 1981:14-15 and 51]. The 1981 Population Census (unpublished Table 14) suggests that 17 percent of the total male population 10 years and above is recorded in the "other" category excluding those who were, looking for work, attending school or house keeping at the time of interview. It further shows that more than two thirds of these belong to the age group 10-29 years, and 75 percent belong to the age group 10-39 years. This implies that the majority may be potentially available for work but did not offer their services believing that jobs are not available for them. Contrary to this, the category of "others" did not exist in the 1973 HED. However, an analysis of those males who are not in the labour force (including housekeeping, students and others) shows that the proportion increased from 22

percent in 1973 to 28 percent in 1981 [Census Organization, n.d:222; Unpublished 1981 Population Census Data]. This rise may be attributed to the category of "others" as well as the increase in the component of school going children.

Durand (1975:9-10) argues that variation in the time reference period affects the number of seasonal, casual workers, as well as new entrants and those leaving their place in the workforce. This phenomenon may have affected the size of the labour force particularly among females in 1973 and 1981 because the first was held during August-November while the second was conducted from 1-15 March. As mentioned earlier, the months of August- November are much busier than early March due to rice transplantation, harvesting and threshing of maize and picking of cotton and chillies. It is interesting to note that females not only help their households in rice transplantation and maize harvesting, but also the picking of cotton and chillies is their sole responsibility [Johnson, 1979:24-25].

Fukuoka and Seki (1971:95) established that the coverage of the economically active population is better in labour force surveys compared with population censuses. Bancroft (1958:25), also concluded that the labour force ststistics produced by sample surveys yield much higher figures than the decennial census results, largely because they use experienced survey enumerators instead of temporary census collectors. Therefore, the possibility of better coverage in the 1973 HED compared with the 1981 Population Census should not be ruled out. However, the comparatively smaller size of the labour force, 22.6 million according to the 1981 Population Census, compared with the estimated figure of 24.5 million in 1980-81 (Finance Division, 1981:3)

may be partly due to the quality and efficiency of the enumerators in 1981. As the annual increase of over 3 percent in the labour force estimate of the Finance Division, (1981:3) corresponds with the population growth rate of slightly more than 3 percent per annum since 1972, it may be argued that the labour force estimate referred to above is better than the 1981 Census results which lagged behind the population growth rate by 1.3 percent points per annum (Table 3.2).

Lastly, as many as 3 million Afghan refugees were not enumerated in the 1981 Population Census, considering their temporary status in Pakistan. At the time of this study, it is feared that they may not be able to return to Afghanistan in the near future. Therefore, demographers as well as other data users may face problems in gauging the size and characteristics of the labour force in the future.

The above discussion highlights the difficulties of comparing the observed labour force data collected through the population censuses and various sample surveys. Although the figures in Table 3.3 suggest that the proportion of the economically active population to the total population decreased between 1973 and 1981, whether measured in terms of the crude activity rate (percent of the total population classified as economically active) or in terms of the refined activity rate (percent of the population aged 10 years and over who are in the labour force), these figures may be misleading. This is because the exact amount of variation among the various components of the labour force could not be ascertained.

TABLE 3.3   CRUDE AND REFINED ACTIVITY RATES BY SEX AND PROVINCES,

PAKISTAN, 1973-81.

A: CRUDE ACTIVITY RATE.

REGION	MALES 1973	1981	FEMALES 1973	1981	BOTH SEXES 1973	1981
NWFP	53.3	48.8	5.9	1.8	30.0	26.3
PUNJAB	55.4	50.8	6.4	2.3	32.8	27.8
SIND	55.7	50.9	6.2	2.0	33.0	27.7
BALUCHISTAN	62.2	51.0	5.4	1.5	35.2	27.6
PAKISTAN	55.4	50.6*	6.2	2.1*	32.7	27.6*

B: REFINED ACTIVITY RATE.

REGION	MALES 1973	1981	FEMALES 1973	1981	BOTH SEXES 1973	1981
NWFP	74.4	71.9	8.7	2.7	43.7	39.2
PUNJAB	77.5	72.2	9.2	3.4	46.5	39.9
SIND	78.3	73.2	9.3	3.0	47.6	41.0
BALUCHISTAN	82.1	73.8	8.1	2.4	49.3	41.8
PAKISTAN	77.6	72.4	9.1	3.2	46.6	40.2

Sources: Calucations based on:

(1) Census Organization, n.d, (Tables 1; 16, PP, 1; 222-23)

(2) Unpublished 1981 Population Census Data, (Table, 14)

(3) * Population Census Organization, 1983 (Table, 6; pp 17)

Therefore, the present research has no alternative but to use the the labour force statistical series produced by various censuses and major labour force surveys since 1961, except the labour force data for the years 1963-64 to 1967-68 already discussed in this chapter. However, Bancroft's (1958:26) advice that the "manipulation of original data" for seeking "artificial comparability" should be avoided, favours the above decision.

CHAPTER FOUR

DEVELOPMENT AND LABOUR FORCE

4.1 GROWTH OF THE LABOUR FORCE

The size of the labour force, or manpower supply, is determined by demographic variables (fertility, mortality, migration) as well as the propensity to participate in economic activities [United Nations, 1973:295; Durand, 1975:19]. Since there is a strong relationship and significant interaction between demographic, socio-economic and cultural factors and labour supply, it is important to study the size, structure and composition of the economically active population to establish the level of economic activity and differentials in activity rates [United Nations, 1968:9; Anker and Farooq, 1978:148].

The total labour force of Pakistan grew from 9,812,000 in 1951 to 22,626,000 in 1981, an increase of 131 percent (Table 4.1). This indicates a net addition of 12,814,000 persons to the workforce during the 30 year period, an annual average growth rate of 2.8 percent compared with the overall average annual population growth rate of 3.1 percent. This slower labour force growth compared with population growth is in accord with the findings of Durand (1975:16) and Anker and Farooq (1978:147) who claimed that persisting high fertility and declining mortality make a population younger and reduce the proportion of working age population.

TABLE 4.1   GROWTH OF THE LABOUR FORCE AND CRUDE ACTIVITY RATES BY SEX IN PAKISTAN, 1951-81.

Census/ Survey Year	Labour Force (in thousands)			Growth Over Preceding Census/Survey (in thousands)						Annual Average Growth Rate			Crude Activity Rates		
	Total	Males	Females	Total	%	Males	%	Females	%	Total %	Males %	Females %	Total %	Males %	Females %
1951	9,812	9,495	317	-	-	-	-	-	-	-	-	-	30.7	55.1	2.1
1961	12,763	11,641	1,122	2,951	30.1	2,146	23	805	254	2.7	2.1	13.6	32.4	55.0	6.1
1973	19,762	18,016	1,746	6,999	54.8	6,375	55	624	56	3.5	3.5	3.6	32.7	55.4	6.2
1981	22,626	21,791	835	2,864	14.5	3,775	21	-911	-52	1.8	2.6	-9.5	27.6	50.6	2.1
1951-81	-	-	-	12,814	130.6	12,296	129	518	163	2.8	2.8	3.3	-	-	-

Sources: Derived from:

For 1951 and 1961: Farooq, 1975 (Table, II-2; pp 10).

For 1973: Census Organization, n.d. (Table, 16; pp 222-23).

For 1981: Unpublished 1981 Population Census Data (Table, 14).

For 1981: Population Census Organization, 1983 (Table, 6; pp 17).

Moreover, international migration from Pakistan is also an important variable which reduced the proportion of the labour force to the total population in Pakistan, particularly in the last decade. Recent literature on emigration from Pakistan to the rest of the world suggests that as many as 1.1 to 1.8 million Pakistani's are currently working and living abroad, largely in the oil rich states of Western Asia [Gilani et al, 1981:10; United Nations, 1982:52-3; Tsakok, 1982:319-25; Shah, 1983:411; Addleton, 1984:577]. These migrants comprise about 6-8 percent of the total labour force of Pakistan and are mostly males aged 25-40 years [Shah, 1983:413].

Further analysis reveals that the male workforce grew by 12,296,000 or more than 129 percent from 9,495,000 in 1951 to 21,791,000 in 1981 (Table 4.1). During the same period the female labour force grew from 317,000 in 1951 to 835,000 in 1981, an increase of 163 percent. Table 4.1 indicates that the growth of female labour force was .5 percent points greater than the increase of 2.8 percent in the male labour force. This was in spite of major fluctuations in the growth of the female workforce, particularly the loss of 911,000 persons during 1973-81. It has already been argued in Chapter Three that the depressed female labour supply in the 1981 Census was a combined effect of change in methodology, advances in female education, increasing mechanical cultivation and seasonal fluctuations as well as the quality of the enumerators.

The next section deals with the activity rates, and analysis is primarily focused on the 1961 Census; Housing, Economic and Demographic Survey-1973 and the 1981 Census. The results derived from the Labour Force Surveys conducted by the Statistics Division are also

used for comparison, despite a number of limitations of these data sets already discussed in Chapter Three.

4.2 CRUDE ACTIVITY RATES

The Crude Activity Rate (CAR), still serves as a basic indicator of the level of participation in economic activities, despite the limitations of age structure. It is, therefore, useful to analyse this aspect of labour force before measuring the impact of age composition on activity rates. Table 4.1 suggests that the total CAR dropped from 32 percent in 1961 to 28 percent in 1981 in Pakistan. The world wide CAR showed an average (arithmetic decline) of .28 percent points per annum between 1946-66 due to demographic forces as well as cultural change and economic development [Durand, 1973:397; 1975:15-6]. During 1961-81, Pakistan's labour force statistics revealed almost the same trend, with an average (arithmetic) decline of .24 percent points per year (Table 4.1) compared with an average decrease of .13 percent points per year in countries with less than 35 percent of the labour force engaged in agriculture, since World War II [United Nations, 1973:302].

In Pakistan an average decline in CAR for males and females was .22 and .20 percent points per annum, respectively, during 1961-81. In comparison the observed CAR average decline in the developed countries for males was .29 percent points per annum compared with a slight improvement (0.04 percent points per annum) in women's activity rates, since World War II [United Nations, 1973 :302]. The next section considers the collective as well as individual contribution of age structure and activity rates in determining the size and composition of the labour force supply in Pakistan.

4.3 THE INFLUENCE OF THE POPULATION AGE-STRUCTURE AND ACTIVITY RATES

Age-sex specific activity rates (the percentage of economically active males/females among the male/female population of a given age group) are indicators of the effects of socio-economic and cultural variables in relation to the production of economic goods and services and the availability of such opportunities [United Nations, 1968:40]. Durand (1973:400) argues that generally the decline in the crude activity rates is a product of decreasing male participation and the adverse effects of age structure. It is, therefore, interesting to study the contribution of activity rates as well as age structure on the size and age-sex composition of the Pakistani labour force.

Soemantri (1976:59-61); Durand (1975:20), and United Nations (1968:44) suggest that standardization is a useful technique for measuring the impact of changes in population composition upon the size of labour force and for showing separately the effects of age-specific activity rates. The values of the two factors i.e. population age structure and age-specific activity rates at two different dates constitute four combinations given as below:

Population age composition   Age-specific activity rates

	Earlier census/survey	Later census/survey
Earlier census/survey	A	C
Later census/survey	D	B

Combinations A and B provide the unstandardized refined activity rates of the earlier and the later census/survey, respectively. Combination

C represents an age-standardized activity rate as of the later census/survey date with the population age-structure weights of the earlier census/survey and combination D gives an age-standardized rate as of the earlier census/survey date with the population age composition weights of the later census/survey. The difference (C-A) or (B-D) measures the effect of change in specific activity rates, while (D-A) or (B-C) provides an estimate of the change in activity rate due to change in the population age structure. Therefore, the net change in the refined activity rate between the two dates may be factorized into two components as below:

$$(B-A) = (C-A)+(B-C) \quad \text{or} \quad (D-A)+(B-D)$$

Therefore, two different estimates of the effect of changes in age-specific activity rates and the effect of changes in population age composition are produced due to an interaction between changes in the two factors, regardless of any logical preference for either result [United Nations, 1968:44]. Hence, two different estimates for both the age-specific activity rates and age composition are given in columns 3 and 4 and 6 and 7 of Table 4.2 both for males and females for the period 1961-73, 1961-81 and 1973-81. Columns 5 and 8 give the averages of these values [United Nations, 1968:46]. Detailed calculations for male and female refined age-standardized activity rates are given in Appendix 1-6.

TABLE 4.2   INFLUENCE OF AGE-STRUCTURE AND ACTIVITY RATES ON

THE ECONOMICALLY ACTIVE POPULATION, PAKISTAN, 1961-81.

Period	Net Change (combined effect) %	Effect of changes in Age Specific Activity Rates %			Effect of changes in Population Age Composition %		
1	2	3	4	5	6	7	8
		MALES					
1961-73	-3.2	-0.4 or -0.5		-0.5	-2.8 or -2.7		-2.8
1961-81	-8.4	-5.5 or -5.5		-5.5	-2.9 or -2.9		-2.9
1973-81	-5.2	-4.9 or -5.0		-5.0	-0.3 or -0.2		-0.3
		FEMALES					
1961-73	-0.3	-0.3 or -0.1		-0.2	0.0 or -0.2		-0.1
1961-81	-6.1	-6.1 or -5.8		-6.0	0.0 or -0.3		-0.2
1973-81	-5.8	-5.8 or -5.9		-5.9	0.0 or 0.1		0.1

Source: Calculations based on Appendix 1-6.

Notes: Column 5= Average of column 3+4.

Column 8= Average of column 6+7.

Figures under columns 5 and 8 have been rounded.

Table 4.2 suggests that the refined activity rate for the male population in 1981 was 8.4 and 5.2 percent points less than in 1961 and 1973, respectively, while the decrease in the refined activity rate between 1961 and 1973 was 3.2 percent points. Similarly, the female rate had also decreased by 6.1 and 5.8 percent points in 1981 compared with 1961 and 1973. The decline between 1961 and 1973 was

only 0.3 percent points. It is clear from Table 4.2 that most of the depressing effect on the refined activity rates for females comes from changes in the age-specific activity rates, whereas both activity rates and age structure considerably influence the male refined activity rates. The male refined activity rates indicate that the age-specific activity rates as well as age structure shared in decreasing the overall activity rates between 1961-81 by 5.5 percent points and 2.9 percent points, respectively. The pattern was similar for the period 1973-81, while the effect of population age composition was greater than the effect of changes in age-specific activity rates between 1961-73.

The above discussion indicates that changes in the age-specific activity rates of both males and females have had a much more significant effect on the relative size of the economically active population than changes in age structure except for males between 1961-73. It is also evident that the effect of variation in male activity rates was most between 1961-81, while it was almost the same for females during 1961-81 and 1973-81. Further analysis shows that the effect of age composition is generally significant on the male activity rates, while a small effect of age composition is noticed on the female activity rates in this analysis.

4.4 DETERMINANT FACTORS, LEVELS, PATTERNS

AND TRENDS OF MALE ACTIVITY RATES.

The Standardized Refined Activity Rate (SRAR), which is not affected by differences in age structures can be used more confidently than the CARs to compare the economic participation rates between and within countries at different dates as well as to measure the dimensions of the labour force [United Nations, 1962:13; 1968:15; Farooq, 1975:8 and 21]. The analysis of labour force is not confined to its measurement, composition and growth but also extends to the various factors which determine these characteristics [United Nations, 1968:40]. Many scholars such as Anker and Farooq (1978:148); Farooq (1975:33); Wilson (1975:34); Nassef (1970:62-77) and Irfan (1981:14-20) have identified a number of demographic, socio-economic and cultural factors, that influence economic participation, including age, education, marital status, family responsibilities, financial status, place of residence and economic structure. The following paragraphs will assess the influence of the above mentioned variables on levels, patterns and trends in male activity rates in relation to economic development in Pakistan.

Durand (1973:401) argues that the levels of intercensal change suggest a declining trend in the SRARs of males in the process of economic development. He correlates the transition from relatively high participation levels to lower levels with the transitional theory of fertility and mortality. Earlier studies conducted by Nassef (1970:53) and United Nations (1962:14), also noted a consistent intercensal decline in the male SRARs. Table 4.3 suggests that

TABLE 4.3   CRUDE, REFINED, STANDARDIZED AND AGE-SPECIFIC ACTIVITY RATES BY SEX, PAKISTAN, 1961-81.

Age group	Males (Percentage)								
	1961	1968-69	1969-70	1970-71	1971-72	1973	1974-75	1978-79	1981
10-14	38.4	31.3	29.7	32.5	31.8	39.5	32.5	36.5	34.7
15-19	72.3	65.6	66.8	65.5	67.3	67.7	64.7	67.8	62.0
20-24	87.9	88.6	90.5	90.0	89.1	87.4	88.4	88.1	76.5
25-34	93.7	96.5	97.2	97.5	97.0	95.4	96.9	96.3	87.2
35-44	94.5	97.4	97.5	98.3	98.4	96.8	98.1	97.4	92.4
45-54	94.3	97.4	96.4	96.3	96.9	95.3	96.8	95.6	92.9
55-59	91.0	90.4	90.2	93.4	92.2	90.8	91.9	91.7	90.4
60+	80.2	72.7	74.6	74.3	69.8	73.7	70.6	67.4	75.7
CAR	55.0	52.4	53.3	53.1	51.9	55.4	52.1	52.3	50.6
RAR	80.8	79.0	79.3	80.0	78.6	77.6	76.7	77.3	72.4
SRAR	80.9	79.7	80.1	80.5	80.1	80.6	79.8	80.0	75.4

Age group	Females (Percentage)								
	1961	1968-69	1969-70	1970-71	1971-72	1973	1974-75	1978-79	1981
10-14	4.7	3.2	4.3	4.8	3.4	10.3	3.3	8.1	3.2
15-19	7.6	5.5	7.0	6.9	6.7	8.7	5.3	12.1	3.4
20-24	9.6	6.4	8.5	8.2	9.6	10.8	6.6	13.0	3.6
25-34	10.6	7.7	8.7	10.0	10.6	8.7	7.9	14.9	3.5
35-44	11.7	9.3	9.7	10.4	10.9	8.4	8.8	13.7	3.1
45-54	11.8	8.6	7.4	9.9	10.1	8.5	7.8	12.3	2.9
55-59	10.2	5.6	6.8	9.8	5.7	7.8	6.1	12.5	2.3
60+	7.9	4.7	4.7	4.7	4.6	8.2	5.5	6.1	2.3
CAR	6.1	4.4	4.9	5.4	5.4	6.2	4.3	7.9	2.1
RAR	9.3	6.6	7.3	8.1	8.0	9.0	6.3	11.8	3.2
SRAR	9.3	6.6	7.4	8.2	8.1	9.0	6.6	11.8	3.2

Sources: For 1961 to 1971-2 and 1974-5: Irfan, 1981 (Table 1, 2; pp 6, 9).

For 1973: Census Organization, n.d. (Table, 1, 16; pp 1, 222-23).

For 1978-79: Federal Bureau of Statistics, 1982 (Table 4; pp 51).

For 1981: Unpublished 1981 Population Census Data, (Table, 14).

For 1981: Population Census Organization, 1983 (Table 6; pp 17).

Notes: CAR = Crude Activity Rate   SRAR = Standardized Refined Activity Rate.

RAR = Refined Activity Rate (percent of population 10 years and over in labour force).

Durand's model age structure, 1975 (Table D.1; pp 224) has been used for standardization.

corresponding developments may be seen in the levels of Pakistan's male SRARs between 1961-81 which indicate a considerable decrease in participation rates from 81 percent in 1961 to 75 percent in 1981, while the 1973 level was almost the same as the 1961 level. However, the labour force surveys 1968-69 to 1971-72 and 1974-75 and 1978-79 indicate almost the same level, around 80 percent. SRARs between 70-80 percent were observed in two-third of the countries analysed by [Durand, 1975:20]. However, the average decline in Pakistan seems to be much higher, at .28 percent points per annum, than the world average of .17 percent points per annum [United Nations, 1962:14]. This may be attributed to the exceptionally low level of SRAR depicted in the 1981 Population Census. However, it is difficult to assess whether this is a real change or a statistical artifact.

The patterns of male age-specific activity rates shown in Figure 4.1 for the years 1961, 1973 and 1981 as well as for the labour force surveys 1968-69 to 1971-72 and 1974-75 and 1978-79 (Table 4.3) are similar, rising to levels above 90 percent and then declining sharply around age 60. However, the 1981 Pakistan pattern (Figure 4.1) does not coincide with the general pattern which suggests that male age-specific activity rates are above 90 percent in the age groups 25-54 years at all levels of industrialization [United Nations, 1973:299]. This deviation may be explained in the context of international migration of labour from Pakistan to other countries, because prospective emigrants registered themselves as "others" during the 1981 Population Census.

Figure 4.1 Males Age Specific Activity Rates, Pakistan, 1961 - 81
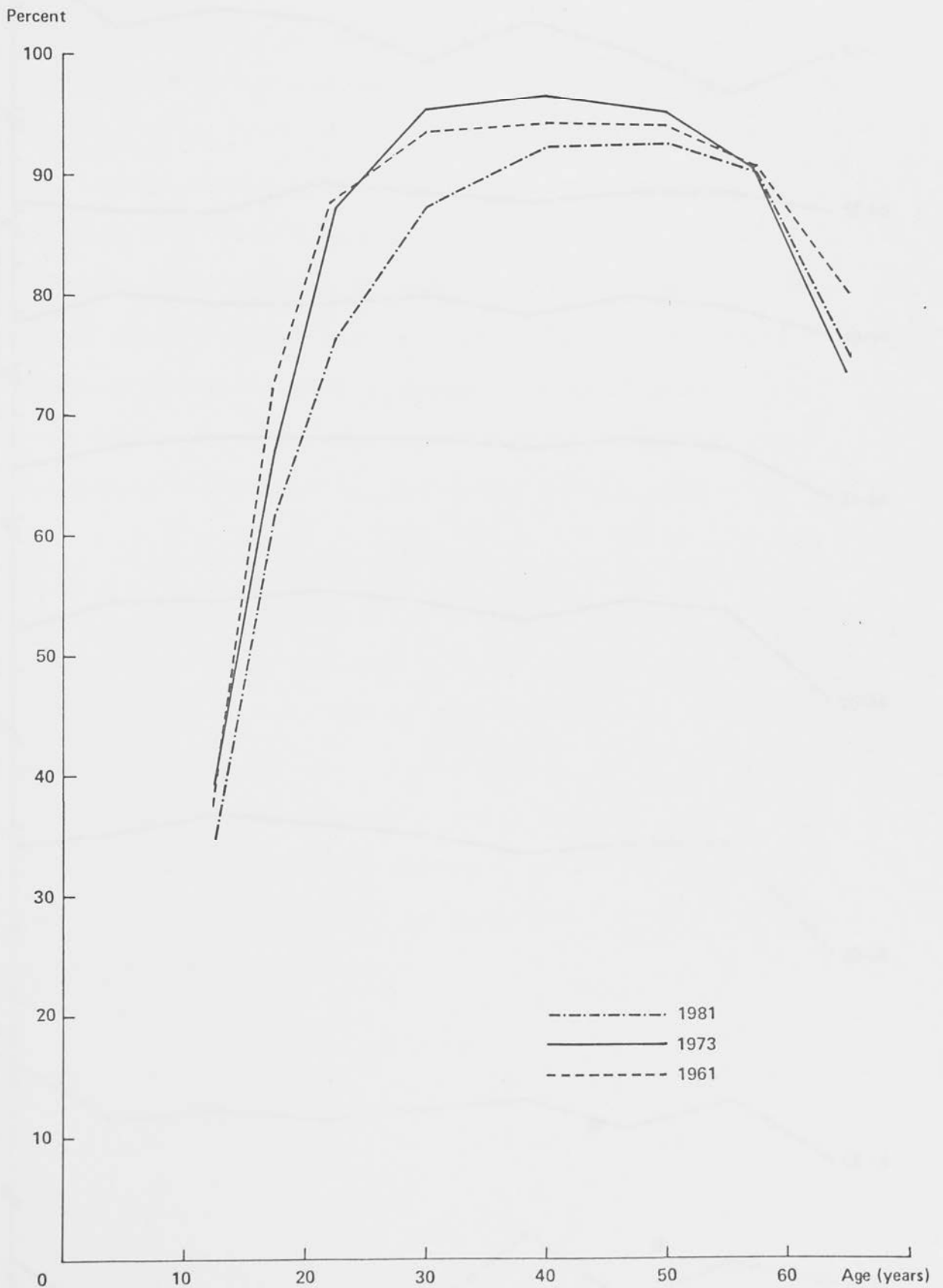
Source: Table 4.3

Figure 4.1A Trends in Age Specific Activity Rates for Males, Pakistan, 1961 - 81
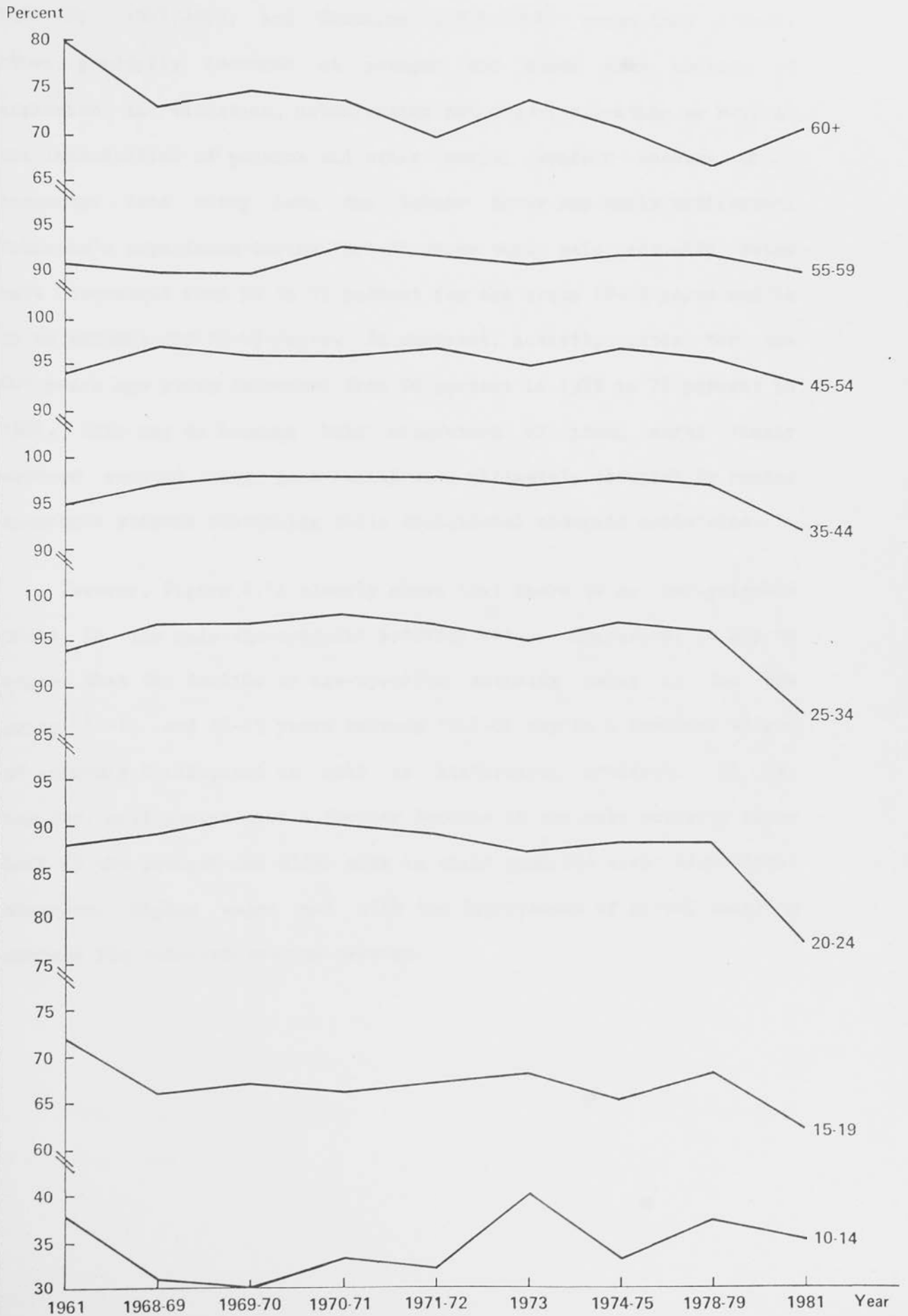
Source: Table 4.3

Jones (1982:15); Nassef (1970:54); United Nations (1962:17; 1968:18; 1973:299), and Standing (1978:10-1) argue that activity rates gradually decrease at younger and older ages because of expansion in education, urbanization and industralization as well as the introduction of pension and other social welfare schemes which encourage late entry into the labour force and early retirement. Pakistan's experience during 1961-81 shows that male activity rates have decreased from 38 to 35 percent for age group 10-14 years and 72 to 62 percent for 15-19 years. In contrast, activity rates for the 60+ years age group increased from 74 percent in 1973 to 76 percent in 1981. This may be because bulk emigration of young rural family workers vacated many jobs which were ultimately occupied by senior household members continuing their traditional economic activities.

However, Figure 4.1A clearly shows that there is no recognizable trend in the male age-specific activity rates. Therefore, it may be argued that the decline in age-specific activity rates in the age group 10-14 and 15-19 years between 1961-81 may be a combined effect of economic development as well as statistical artifact. It is, however, anticipated that a further decline in the male activity rates both at the younger and older ages is still possible with educational advances, higher wages and with the improvement of social security schemes for retiring/retired persons.

4.5 DETERMINANT FACTORS, LEVELS, PATTERNS
AND TRENDS OF FEMALE ACTIVITY RATES

The extreme variability of female activity rates, ranging between less than 1 percent in Kuwait to more than 57 percent in Niger (United Nations, 1973:303) indicates deep rooted problems associated with the measurement of female labour force. One of the major problems noted by Farooq, (1975:26); Shah and Shah, (1980:96-7); Nassef, (1970:73); United Nations, (1973:303), and Durand, (1975:11) is understatement of female economic activity which may be attributed partly to definitional weaknesses and partly to socio-cultural, religious and traditional factors. Lucas, (1977:31-6) and Ware, (1981:213) argued that religious effects are more pronounced in Muslim countries while Farooq, (1975:32); Nassef, (1970:739) and Standing, (1978:15) conclude that traditionalism is stronger than religion. Shah and Shah, (1980:101) similarly argued that female participation rates derived from population censuses and labour force surveys are much lower than the "true" activity rates for the Pakistani female workforce. The same conclusion was drawn by Nassef, (1970:479) for the Egyptian Labour Force. In addition to the above factors, the female labour force is regulated by the interplay of demographic forces, like number, age and spacing of children as well as family status, education, level of economic development, liberalization of attitudes towards female participation in economic activities, the spread and adoption of modern appliances and the availability of employment opportunities [Huq, 1978:171-2; Collver and Langlois, 1962:371; Nassef, 1970:73].

Wide variation, as well as very low female activity rates, recorded between and within developing countries in particular restrict the scope of any generalizations about female activity rates [Durand, 1975:142; Standing, 1978:12-3]. Nevertheless, Durand (1973:403) suggests that female labour force participation rates typically decrease during the early stages of economic development and increase during the later stages, following the "U" shaped pattern of standardized refined activity rates. He also concludes that an average decline of .10 percent points per annum in the average amount of SRARs is noticed during the intercensal periods recorded for fifty-eight countries [Durand, 1975:32]. Table 4.3 suggests that Pakistan's female SRARs decreased from 9.3 percent in 1961 to 3.2 percent in 1981, forming the first part of "U" shaped curve. However, these rates vary from 6.6 to 9.0 percent for the period 1968-69 to 1974-75 whereas it is 11.8 percent for 1978-79. These rates are far below the average SRARs of 32.0 percent estimated by Durand, (1975:30), based on the analysis of one hundred countries data. However, the average rate of decline among the Pakistani female workforce between 1961-81 is much faster than observed by Durand (1975:32). This striking change may be related to the findings in Chapter Three which suggest the loss of 911,000 female workers during 1973-81, largely because of underreporting due to shift from the labour force approach to the gainful worker approach. However, the effects of rapid economic development, urbanization and improvements in mechanical cultivation during the period under review may not be ruled out.

The relationship between age and female activity rates is not clear because female participation in economic activities is correlated with the life cycle events of marriage, number of children, timing and spacing of childbearing and other variables that may cause role incompatability [Collver and Langlois, 1962:371; Farooq, 1975:37; Weller, 1977:507]. Durand's study (1975:37-42) based on the data of developed, semi developed and developing countries identifies various age patterns of female participation in the labour force. His analysis is quite helpful to understand the pattern of female activity rates irrespective of their levels. Figure 4.2 shows two patterns for female participation in Pakistan, the late peak (at ages 45-54 years) in 1961 and the early peak in both 1973 and 1981 where maximum participation rate may be seen between ages 20-24 years. This implies that around 1960 early marriage and early motherhood prohibited high participation by young women in the economic activities and encouraged or forced older women and widows to work [Durand,1975:42].

The early peak pattern normally signifies that the female labour force largely consists of single and newly married young women, still preparing for childbearing [Durand, 1975:39]. This is supported by the available statistics for Pakistan with the mean age at first marriage for females 17 years in 1961 and 20 years in both 1973 and 1977 [Federal Bureau of Statistics, 1983:30]. However, Figure 4.2A shows that the labour force surveys 1968-69 to 1971-72 and 1974-75 follow the central peak pattern found in India and Thailand. The 1978-79 Labour Force Survey shows the double peak pattern found in Mexico indicating the earlier peak higher than the later peak [Durand, 1975:38].

Figure 4.2 Females Age Specific Activity Rates, Pakistan, 1961 - 81

Percent

- ---·---·--- 1981
- ———— 1973
- - - - - - 1961

Age (years)

Source: Table 4.3

Figure 4.2A Female Age Specific Activity Rates, Pakistan, 1968 - 69 to 1971 - 72, 1974 - 75 and 1978 - 79

Percent

- - - - - - - 1978-79
- ———— 1974-75
- ---·---·--- 1971-72
- ———— 1970-71
- ············ 1969-70
- ---··---··--- 1968-69

Age (Years)

Source: Table 4.3
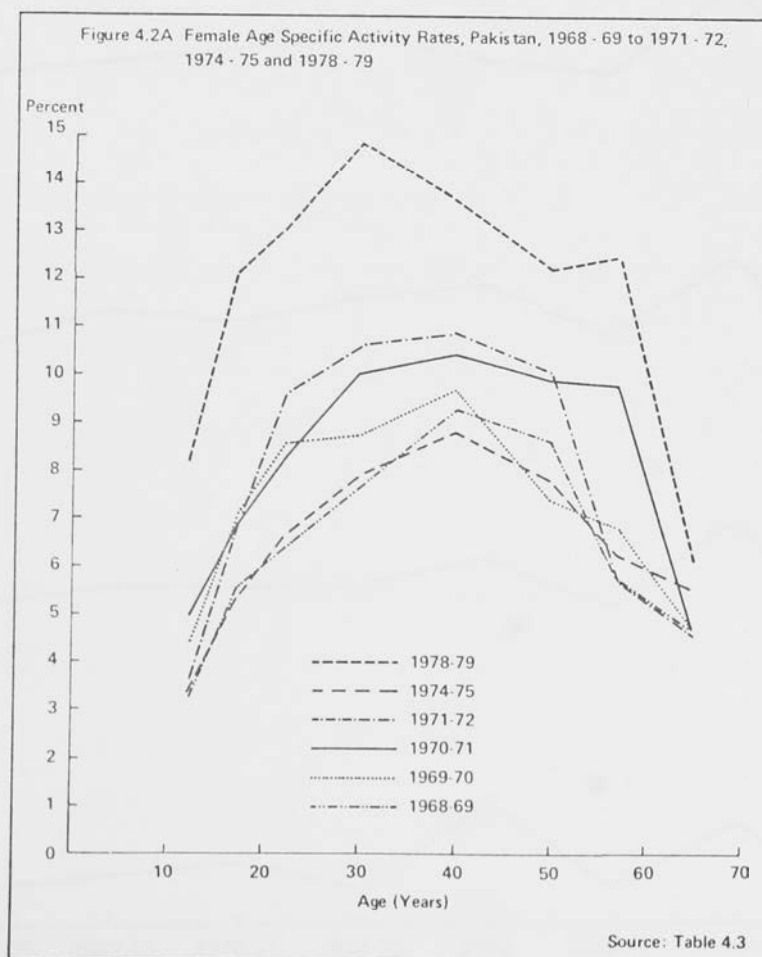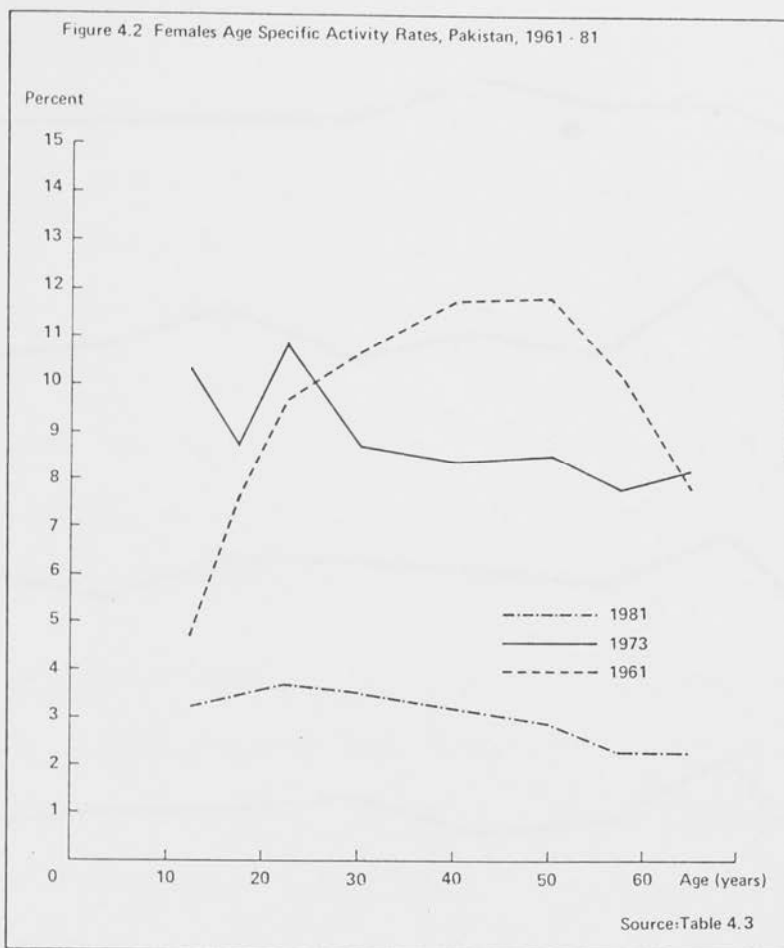
Figure 4.2B Trends in Age Specific Activity Rates for Females, Pakistan, 1961 - 1981

Source: Table 4.3
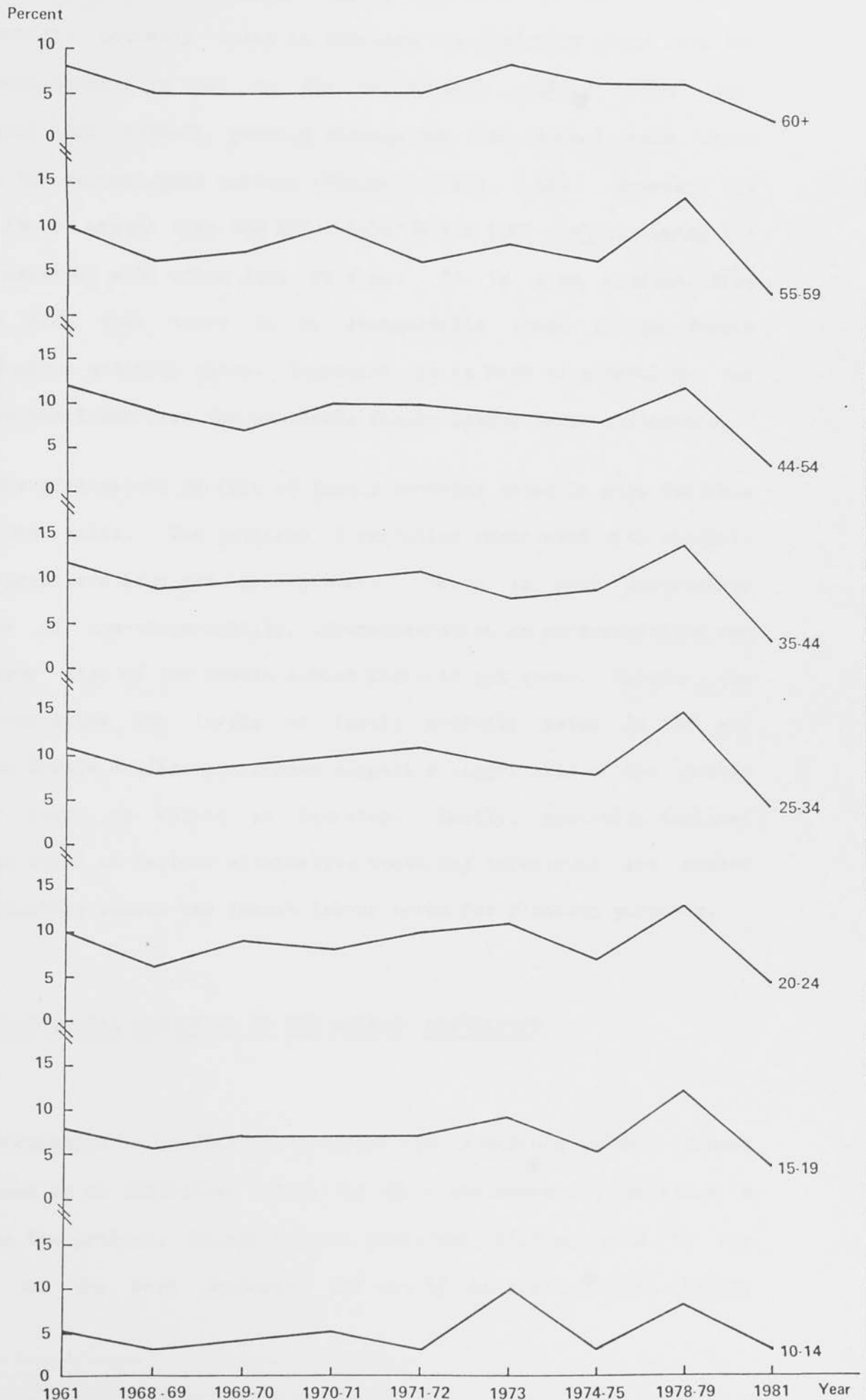
In this discussion it might appear that the pattern of female age-specific activity rates in Pakistan has gradually moved from the late peak pattern in 1961 to the early peak pattern since 1973, excepting the 1974-75, passing through the transitional phase, which showed the central peak pattern (Figure 4.2 and 4.2A). However, it may also be argued that the 1973, 1978-79 and 1981 activity rates are not consistent with other data sources. It is also evident from Figure 4.2B that there is no recognizable trend in the female age-specific activity rates. Therefore, it is hard to generalize the conclusions drawn from the available female labour force statistics.

The statistical profile of female activity rates is more variable than for males. The patterns of variation associated with economic development are hazy and inconsistent. There is much uncertainty because of non-comparability, underenumeration or underreporting and the "true" size of the female labour force is not known. However, the unrepresetative low levels of female activity rates in 1981 and various female welfare programmes suggest a bigger size of the female labour force in future in Pakistan. Lastly, specially designed studies based on various alternative measuring techniques are needed to accurately assess the female labour force for planning purposes.

4.6 OCCUPATIONAL STRUCTURE OF THE WORKING POPULATION

Occupation in manufacturing industries is defined as the process performed by an individual during the whole manufacturing operation to produce the product. Occupation is, therefore, distinguished by the nature of the work performed and not by the final product [Brown,

1962:87; Farooq, 1975:101]. It is argued that a gradual and continuous structural transformation of economic agents from rural based traditional agrarian society to urban oriented modern society occurs through economic development. The most obvious and easily measurable impact of this transformation is usually seen through changes in the occupational structure of the working population [Todaro, 1969:139; Johnston and Nielsen, 1966:280-1]. In the following paragraphs the expected changes in the occupational composition of Pakistani employed labour between 1973-81 will be discussed.

It is evident from Table 4.4 that the male working population has increased by 29 percent between 1973-81 compared with an increase of 21 percent in the total male labour force (Table 4.1). In the same period the margin of decrease in the female working population was only -8 percent compared to -52 percent for the total female labour force. The occupational distribution reveals that the share of both male and female agricultural workers has decreased from 56 and 64 percent in 1973 to only 52 and 38 percent in 1981.

TABLE 4.4   OCCUPATIONAL STRUCTURE OF WORKING POPULATION BY SEX, PAKISTAN, 1973-81.

Major Occupations	Males					Females				
	1973		1981		+ or -	1973		1981		+ or -
	(000)	%	(000)	%	%	(000)	%	(000)	%	%
Professional, Technical and Related Workers	798	4.9	715	3.4	-10.0	81	9.7	128	16.5	58.0
Administrative and Managerial Workers	100	0.6	287	1.4	187.0	4	0.5	6	0.8	50.0
Clerical and Related Workers	561	3.4	668	3.2	16.0	9	1.1	21	2.7	133.0
Sales Workers	1,435	8.8	1,782	8.4	24.0	19	2.3	37	4.8	95.0
Service Workers	662	4.0	858	4.0	30.0	74	8.8	65	8.4	-12.0
Agriculture, Forestry, Animal Husbandry Workers; Fishermen and Hunters	9,183	56.2	10,981	51.9	20.0	536	64.0	296	38.3	-45.0
Production and Related Workers Transport Equipment Operators and Labourers	3,490	21.4	5,404	25.5	55.0	72	8.6	200	25.9	178.0
Workers not Classified by Occupation	115	0.7	457	2.2	297.0	42	5.0	20	2.6	-52.0
TOTAL	16,344	100.0	21,152	100.0	29.0	837	100.0	773	100.0	-8.0

Sources: Derived from: Census Organization, n.d.(Table 17; pp 228-31) and Unpublished 1981 Population Census Data, (Table 15).

This declining trend for males may be attributed partly to the effect of economic development and partly to the impact of international migration, whereas the major decrease in the number as well as the proportion of female agricultural workers is mostly a reflection of definitional changes and seasonal variations as already discussed in Chapter Three. Production workers form the second biggest occupational group in Pakistan. Since 1973, this occupation has attracted a large number of people of both sexes. In spite of an emigration of about 374,000 production workers (Gilani et al, 1981:40), the proportion of male production workers has increased from 21 percent in 1973 to 26 percent in 1981 while the proportion of females has reached 26 percent from only 9 percent in 1973 in the same occupation. The rapid increase in the number of production workers is a result of industrial advancement, improvements in transport facilities, the spread of vocational education, opening up of suitable jobs for females in the industrial sector as well as the heavy demand for skilled labour in the international market [Finance Division, 1982:6-7 and 123-8; Godfrey, 1983:953].

Brown (1962:89) argues that administrative, technical and clerical occupational groups expand as a result of economic development. These trends have been studied in England and Wales since 1841, in U.S.A. since 1870, and in Australia and Canada since 1901 [United Nations, 1973:326]. Pakistan's experience confirms the growth of these professions (Table 4.4) for both males and females except the male technical group which declined by 10 percent in 1981 compared with the 1973 figure. This can be explained in the context of international migration with the emigration of about 102,000 workers of this category during the period under review [Gilani et al,

1981:40]. The significant increase in the proportion of females in professional and technical; administrative and clerical occupations may be attributed to the expansion of educational and health services as well as to the promotion of female doctors and teachers for the female population because of sex segregation.

Galenson (1963:506-7) claims that the creation of new jobs in the sales and services and professional occupations seems to be slow compared with the progress made in production industries in the process of economic development in developing countries. This is also true in Pakistan where the increase of male sales and service workers is slower compared with male production workers. On the other hand female service workers decreased by 12 percent while the number of female sales workers almost doubled compared with the 1973 level, although still less than the increase in production workers (Table 4.4). The pronounced decrease of females in service industries may be due to increasing family incomes (Table 2.2) as argued by Boserup (1973:386).

In conclusion it seems that economic development, educational advancement, expansion in health services, increases in transport facilities and rapid industrial development will further change the occupational structure of Pakistani labour in future. Professions associated with modern technology are likely to expand rapidly at the cost of traditional occupations.

CHAPTER FIVE

LABOUR FORCE PROJECTIONS 1981-2006

5.1 POPULATION PROJECTIONS

Demographic estimates and projections play an important role in socio-economic and development planning. The targets of future national and regional growth are often fixed on the basis of the anticipated population size, its distribution and age structure. Population projections are not only necessary to estimate the growing demand for food, housing, education and health facilities, but also they indicate the future size of the labour force [United Nations, 1981:1].

This chapter consists of two major sections: the first deals with the projections of the national population while the second is devoted to the projection of labour force. The population projections have been prepared using the component method of projection. The computer package programme FIVFIV/SINSIN [Shorter and Pasta, 1978:7-8] was used with the West Family of Life Tables, prepared by Coale and Demeny (1966). The population projections are based on the 1981 Poplation Census Data.

5.2 FERTILITY

The fertility assumptions are based on the pattern of fertility decline in the past. Although the population planning programme was launched in 1965 with the objective of controlling the high population growth rate, around 3 percent per annum, the programme did not produce the desired results. The growth rate is still about 3 percent per annum at the time of this study [Finance Division, 1982:1; Lucas, 1982:204; Norman, 1978:51-59; Planning Commission, 1983:354].

This does not mean that there has been no decline in fertility. In terms of the Crude Birth Rate (CBR) fertility has decreased from 46.5 per thousand in 1970-71 to 41.0 per thousand in 1981. However, the impact of this fertility decline on population growth has been nullified by a reduction in the Crude Death Rate (CDR) from 16.5 per thousand in 1970-71 to 12.0 in 1981 [Planning Commission, 1978:806 and 1983:354]. The estimated Total Fertility Rate (TFR) declined from 7.1 in 1970 to 6.8 in 1977 at the rate of 0.7 percent per annum [Planning Commission, 1978:398; Population Division, 1981:8]. However, the TFR declined from 6.8 in 1977 to 5.9 in 1983 at the rate of 2 percent per annum [Planning Commission, 1983:355]. The TFR for the year 1981 was estimated at 6.2 using linear interpolation on the basis of 1977 and 1983 estimates. Keeping in view the trends in fertility behaviour in Pakistan, one can assume that the decline in fertility may follow three paths. The first reflects the slow decline between 1970-77. The second depicts the recent more rapidly declining pattern between 1977-83. Slow declining fertility could reduce TFR to 4.6 by the year 2006, whereas a rapid decline in fertility may result in a TFR of 3.4

by the end of projection period. The third possibility is a continuation of the 1981 level of fertility (TFR 6.2). Fertility returned to the former high levels in both China and the USSR after a sharp decline in China during the 1950s and 1960s and in the 1930s in the Soviet Union [Demeny, 1984:121].

Generally, it is argued that a decline in fertility starts slowly, gathers momentum and then slows down [United Nations, 1981:3; United Nations, 1984a:26]. The fertility decline in Pakistan started in the early seventies and was still slow by the late seventies. This argument is supported by Frejka (1981:505) who suggests a relatively slow decline in fertility in the late seventies in South Asia. Frejka is supported by Demeny (1984:116) who forecasts that Pakistan would achieve replacement level fertility by the 2030s.

The above discussion seems to be enough to support the slow-declining fertility assumption for the population projections. However, the fertility decline experienced during 1977-1983 is more marked and future decline may be achieved through behavioural changes favouring the small family norms, community participation and an integrated programme to remove public misgivings through effective communication strategies [Planning Commission, 1983:358]. In the words of Dr. Mahbubul Haq, Minister for Planning and Development "Our advocacy of a small family norm is a response to the choice that the people demand for improving their own economic welfare, and our approach is to create an environment and an infrastructure in which people can exercise their voluntary choices in accordance with their faith and beliefs, but in an educated and informed framework" [United Nations, 1984b:13]. But the above objective of reducing the TFR to

3.4 by the year 2006 could only be achieved if there is "(a) Political, economic and social stability that will permit uninterrupted programme operation, since in the past, a lack of this has proved to be a severe constraint; (b) continued government priority and visible commitment to the population sector; and (c) availability of international assistance at adequate levels until the government can wholly sustain the programme" [Planning Commission, 1983:360].

5.3 MORTALITY

In spite of poor health facilities including a lack of safe drinking water, improper sanitation, as well as a high incidence of malnutrition and communicable and preventable diseases, mortality conditions have improved gradually in Pakistan since independence in 1947. The Infant Mortality Rate (IMR) decreased from 130 in the 1950s to 96 per thousand in 1981, while the Crude Death Rate (CDR) was reduced to 12 per thousand by 1981 from 15 per thousand in 1972, resulting in an average annual improvement in life expectation of 0.4 and 0.5 years between 1965 and 1981 for males and females, respectively. This rate of improvement in life expectancy was only 0.2 years per annum both for males and females during the last ten years i.e.1971-81. The estimated life expectation at birth in 1981 was 54.6 and 53.6 years for males and females, respectively. This improvement in health status may be attributed to the increase in health services, the introduction of the latest medical technology, the expansion of higher medical education, the eradication of smallpox and the control of malaria [Planning commission, 1978:359-65,786 and

1983;322].

Taking into account the previous trends in the mortality situation, it can be assumed that there would be a slow improvement in the mortality in the future and life expectation would improve from the present level of 54.6 for males to 59.4 by 2006 and for females from 53.6 to 59.2 years. This mortality projection is in line with the United Nations estimate which suggests an expectation of life of between 57 and 61 years in 1995-2000 for Pakistan [United Nations, 1980:31]. Demeny also argues that Pakistan is one of the large developing countries that would achieve a relatively low level of mortality towards the end of 21st century [Demeny, 1984:115]. This assumption corresponds with the projected slowly improving mortality (an annual improvement of 0.2 years) assumed for Indian population projections [Cassen and Dyson, 1976:111].

A second set of assumptions may be made on the basis of an expected rapid improvement in the expectation of life from 54-55 years to a little more than 60 years during the Sixth Five Year Plan period 1983-88. This objective may be achieved through the eradication of communicable diseases, protection of children against preventable diseases, the elimination of malnutrition, the improvement of environmental conditions such as increasing availability of protected household water supplies, improved sanitation facilities and general socio-economic development, particulary consolidation of existing facilities and development of rural health facilities [Planning Commission, 1983:328-29,395]. Therefore, it may be assumed that the expectation of life may increase from 54.6 for males to 66.7 by 2006 and 53.6 for females to 68.2. The comparatively faster increase in

female life expectancy at older ages may be due to biological
differences which lead to higher male mortality [McDonald, 1982:55].

TABLE 5.1 FERTILITY AND MORTALITY ASSUMPTIONS FOR THE PROJECTION
PERIOD, 1981-2006.

Projection	Fertility Level (Total Fertility Rate)				
	1981-86	1986-91	1991-96	1996-2001	2001-2006
F1	6.2	6.2	6.2	6.2	6.2
F2	5.8	5.5	5.2	4.9	4.6
F3	5.5	4.9	4.4	3.9	3.4

	Mortality Level (Expectation of Life at Birth)									
	M	F	M	F	M	F	M	F	M	F
M1	54.6	53.6	54.6	53.6	54.6	53.6	54.6	53.6	54.6	53.6
M2	55.6	54.6	56.6	55.6	57.6	56.8	58.5	58.0	59.4	59.2
M3	59.6	59.6	62.3	62.9	63.7	64.6	65.2	66.4	66.7	68.2

Sources: (1) Planning Commission, (1978:359-65; 398; 786 and 1983:322;
328-9; 355; 395). (2) Population Division, (1981:8).

Notes:F1= Constant Fertility   M1= Constant Mortality

F2= Slowly Declining Fertility M2= Slowly Declining Mortality

F3= Rapidly Declining Fertility M3= Rapidly Declining Mortality

M= Male   F= Female

Demographic research reveals that the increase in life expectation is not a continuous process. Periodic downward fluctuations in life expectation and the CDR occurred in India during 1967-69 and 1971-72 and in Bangladesh during the late 1960s and early 1970s [Cassen and Dyson, 1976:111; Gwatkin, 1980:623]. A similar pattern was experienced by the Soviet Union in the recent past [Demeny, 1984:119]. Therefore, it is valuable to make another assumption of constant mortality at the 1981 level throughout the projection period. However, the above assumptions may be proven wrong in the event of major catastrophes like nuclear war, famines, social conflicts and massive law breakdowns [Demeny, 1984:117-119]. Fertility and mortality assumptions have been given in Table 5.1 for ready reference.

5.4 INTERNATIONAL MIGRATION

In the recent past, Pakistani workers have found ample opportunities for employment in the foreign labour market, especially in the oil rich countries of the Middle East. Yet the absorption of Pakistani labour in these countries is likely to diminish in the future, partly due to the competitive cheap labour supply from other developing countries and partly due to the recent recession and uncertain economic conditions in the Persian Gulf [Finance Division, 1983:176; Godfrey, 1983:953; Tsakok, 1982:324]. Moreover, there is a gradually diminishing demand for unskilled and semi skilled workers in the receiving countries which may affect the amount of net migration, due to the completion of their construction phase in

development [Iqbal and Khan, 1981:11; Godfrey, 1983:953; Planning Commission, 1983:428]. Under these circumstances, it is difficult to predict the magnitude of net migration in future, although it is expected that the unskilled labour currently abroad may return [Iqbal and Khan, 1981:11]. Lastly, because Pakistan is temporarly a home for about 3 million Afghan refugees, it is difficult to predict immigration [Jones, 1982:4]. Hence, no allowance has been made for migration while making the present projections.

5.5 POPULATION GROWTH

The population projections indicate that the population of Pakistan will continue to increase. The projected population of the country for the next 25 years (1981-2006) using three different sets of assumptions is shown in Table 5.2. Projections A, B, and C are based on a slow decline in fertility and rapid decline in mortality, a slow decline in both fertility and mortality and a rapid decline in both fertility and mortality respectively. A set of nine different projections is included in Appendix A.

It is evident from Table 5.2 that the 1981 population of 84,254,000 will increase to at least 146,362,000 by the year 2006 using any of the three different sets of assumptions. Even under conditions of rapid decline in both fertility and mortality (projection C) the population would increase by 74 percent in 25 years.

TABLE 5.2   PROJECTED MALE, FEMALE AND TOTAL POPULATION (IN THOUSANDS) FOR PAKISTAN, 1986-2006.

TOTAL POPULATION

Projection	1986			1991			1996			2001			2006		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
A	49,768	45,541	95,309	56,403	52,119	108,522	64,386	59,957	124,343	73,613	68,974	142,587	83,828	78,911	162,739
B	49,263	44,969	94,232	55,108	50,638	105,746	62,107	57,356	119,463	70,072	64,973	135,045	78,662	73,157	151,819
C	49,381	45,174	94,555	55,093	50,879	105,972	61,570	57,289	118,859	68,504	64,131	132,635	75,426	70,936	146,362

WORKING AGE POPULATION

Projection	1986			1991			1996			2001			2006		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
A	36,080	32,017	68,097	40,523	37,098	77,621	46,101	42,625	88,726	52,579	49,010	101,589	60,372	56,618	116,990
B	35,855	31,776	67,631	39,924	36,404	76,328	44,851	41,166	86,017	50,452	46,531	96,983	57,121	52,870	109,991
C	36,080	32,017	68,097	40,523	37,097	77,620	45,722	42,267	87,989	51,290	47,792	99,082	57,591	53,986	111,577

Sources: Computed using FIV FIV/ SIN SIN computer package (Shorter and Pasta, 1978).

Unpublished 1981 Population Census results used as base population.

Fertility and Mortality assumptions taken from TABLE 5.1.

Notes: Projection "A" based on a slow decline in fertility and a rapid decline in mortality.

Projection "B" based on a slow decline in both fertility and mortality.

Projection "C" based on a rapid decline in both fertility and mortality.

Yet the peculiar socio-economic conditions of Pakistan do not suggest a rapid decline in fertility and mortality in near future. The most plausible assumption for Pakistan is a slow decline in both fertility and mortality. Projection B suggests that the population of Pakistan would be 151,819,000 by 2006, an increase of a little more than 80 pecent as compared to 1981.

The projections suggest that the working age population (10 years and above) could reach 109,991,000 in 2006 as compared to 57,820,000 in 1981 (projection B). The male and female working age population would increase from 30,895,000 and 26,925,000 in 1981 to 57,121,000 and 52,870,000 in 2006, an increase of 85 percent and 96 percent respectively. The overall increase for both the sexes would be 90 percent, if the minimum age of entering the labour force remained unchanged. It is, however, anticipated that the minimum age of entry into the labour force will increase from 10 to 15 by the end of this century, if Pakistan can achieve the target of universal education up to Grade 12 [Planning commission, 1983:306]. Therefore, the estimated working age persons would be 92,496,000 instead of 109,991,000 by the year 2006, considering no possibility of fixing an upper age limit for the working age population.

Population Age Structure and Dependency The patterns of fertility, mortality and migration determine the age structure of a population at a certain point in time [Afzal, 1974:32]. In the case of a closed population like Pakistan, as already discussed in section 5.4, fertility and mortality alone are responsible for age composition. Demographic trends in Pakistan, in the recent past,

reveal that the effect of fertility decline on population composition may be more pronounced as compared to the declines in mortality which would decrease the proportion of children under 15 and expand the proportion of working age population (15-64 years).

The analysis of data derived from the population projections (Table 5.2A) suggests that under all the fertility and mortality assumptions, the proportion of children under 15 years would decrease during the entire projection period. However, the proportion of the old population over 65 years would at first decline and then increase. This proportion will be a little bigger compared with the 1981 level under the assumption of rapid decline in both fertility and mortality. It is, however, clear from Table 5.2A that the proportion of central age population (15-64 years) will be bigger than the 1981 level under all assumptions. This trend is comparable with the projected future age distribution trends in other developing countries [United Nations, 1975:32].

TABLE 5.2A   PERCENTAGE DISTRIBUTION OF THE TOTAL PROJECTED POPULATION

BY BROAD AGE GROUPS, PAKISTAN, 1981-2006.

PROJ	1981*			1991			2001			2006		
	0-14	15-64	65+	0-14	15-64	65+	0-14	15-64	65+	0-14	15-64	65+
A	44.5	51.2	4.2	40.0	56.3	3.6	40.2	56.0	3.8	39.8	56.2	4.0
B	44.5	51.2	4.2	39.5	57.0	3.5	39.4	57.0	3.6	39.1	57.1	3.8
C	44.5	51.2	4.2	38.6	57.7	3.7	36.2	59.7	4.1	34.7	60.8	4.4

Source: Population projections computer output.

Notes: PROJ= Projection   (*) Base year. (1) Due to rounding totals

for all age groups may not be equal to exact 100.

TABLE 5.2B   DEPENDENCY RATIOS BASED ON THE TOTAL PROJECTED POPULATION,

PAKISTAN, 1981-2006.

PROJ	1981* %			1991 %			2001 %			2006 %		
	0-14	65+	Total	0-14	65+	Total	0-14	65+	Total	0-14	65+	Total
A	87	8	95	71	6	77	72	7	79	71	7	78
B	87	8	95	69	6	75	69	6	75	68	7	75
C	87	8	95	67	6	73	61	7	68	57	7	64

Source: Table 5.2A.   Notes: PROJ=Projection (*) Base year.

The above analysis reveals that the dependency ratios would decrease in future as a result of changing age structure. Table 5.2B suggests that total dependency ratio would decrease from 95 percent to 64 percent by 2006, assuming rapid decline in both fertiliy and mortality. However, the level of total dependency ratio would be constant at 75 percent from 1991 to 2006 if both fertility and mortality declines slowly, whereas it will vary between 77 to 79 percent if fertility declines slowly and mortality declines rapidly. It is also clear that most of the change in total dependency ratios depends upon the proportion under 15 years as the proportion 65 years and over does not change significantly.

5.6 LABOUR FORCE PROJECTIONS

The future size of the labour force depends on the number of males and females in the working age groups and their activity rates during the projection period. Age-specific activity rates are influenced by socio-economic and cultural variables. It is, however, difficult to measure the impact of these factors on activity rates. Nonetheless, the level of economic development, the number and type of jobs created for young population and the quality of available data play an important role in the projection of activity rates [United Nations, 1971:6-7].

The methods of projecting the activity rates may be classified into two main groups. The first group extrapolates future activity rates from past rates, whereas the second group correlates observed activity rates with anticipated future economic development [United

Nations, 1971:10; Eltahir, 1983:74]. Extrapolation methods are useful if a clear picture of the past trends of the labour force participation rates are available from the comparable census statistics [United Nations, 1960: 19-20 and 54]. Pakistan, being a young country neither keeps a long series of labour force data based on population censuses nor these are adequately comparable with each other (Page 3 and Table 3.1). Even an analysis of the labour force data based on population censuses and other labour force surveys do not show a clear cut trend of the male and female labour force participation rates (Chapter Four). Therefore, the use of extrapolation methods for the projection of the economically active population does not seem to be appropriate in case of Pakistan.

In such a situation, United Nations, (1971:23-4) suggests an alternative method "based on the relationship between activity rates and certain economic and social variables which are assumed to have an effect on future rates of economic activity, particularly among the young people and those in the older age groups". This method is known as the correlation method and was tried in the Philippines in 1957 owing to the lack of reliable and comparable labour force participation trends from the census data [United Nations, 1960:54]. Before using this method, a study based on the Philippines regional labour force data was carried out to examine the association between activity rates and certain characteristics such as the proportion of the economically active males engaged in agriculture, the percentage of the population 10+ years who were literate and the percentage of the economically active males in age groups 10-14, 15-19, 55-64 and 65+ and for females 10-14 years old, and the percentage of persons in young age groups attending school, for projecting the future labour

force trends. However, it was preferred to project the future activity rates for the Philippines on the basis of the association found in the data of other countries because of the high coefficient of sampling variation for regional estimates of the Philippines labour force by broad age groups [United Nations, 1960:54-5].

On the basis of the above analysis four regression equations were developed for the projection of future activity rates for males aged 10-14, 15-19, 55-64 and 65+ years and only one regression equation was derived for the projection of future female activity rates aged 10-14 years because no clear relationship was found between the labour force percentages and industrialization on school enrolment for females over age 15 in a study of data for various countries. The regression equations formulated by the United Nations (1960:56) on the basis of the thirty countries data for males and females are given below:

Males 10-14 years	$X_1 = 42.20 + .156X_2 - .488X_3$
Males 15-19 years	$X_1 = 89.68 + .026X_2 - .812X_3$
Males 55-64 years	$Y = 79.75 + .178X_2$
Males 65+ years	$Y = 28.33 + .684X_2$
Females 10-14 years	$X_1 = 6.34 + .072X_2 - .071X_3$

where

X_1 = the percentage economically active in the given age group

X_2 = the percentage of economically active males engaged in agriculture

X_3 = the percentage in the given age group attending school

Y = the percentage economically active in the given age group

Pakistan's data was not included in the analysis of the thirty countries used for developing the above regression equations. However, Pakistan's data on specific variables fits properly into the

upper and lower limits of the data of various countries (Table 5.3) used for formulating the regression equations, and so provides ample evidence to assume that Pakistan's socio-economic and development level and trend in 1981 may be comparable with a number of countries included in the analysis in 1957. Under this assumption, the above regression equations are used in this study for the projection of the future male activity rates in Pakistan.

TABLE 5.3

DATA ON VARIOUS VARIABLES FOR PAKISTAN, THE PHILIPPINES, AND THEIR
MINIMUM AND MAXIMUM VALUES BASED ON THIRTY COUNTRIES DATA USED FOR
DEVELOPING THE REGRESSION EQUATIONS FOR PROJECTING THE ECONOMIC
ACTIVITY RATES IN THE PHILIPPINES IN 1957.

	Percentage of economically active males engaged in agriculture	Percentage of literate population 10 years and over	Percentage of economically active among males			
			10-14	15-19	55-64	65+
Pakistan	51.9	23.3	34.7	62.0	86.0*	68.7*
Philippines	68.8	77.1	22.5	68.8	85.1	51.0
Minimum values	14.4	10.5	1.2	44.6	78.4	24.7
Maximum values	88.7	99.1	48.7	91.1	97.1	87.3

Sources: Unpublished 1981 Population Census Data.

United Nations, 1960 (Table D.1; pp 55).

Notes:(1) Assumed that activity rate for age group 60-64 years is a
simple average of the activity rates of the age groups
55-59 and 60+ years.

(*) Activity rate for the age group 55-64 years is calculated
by the weighted average formula given as under:

$$A.R\ 55\text{-}64 = \frac{(A.R\ 55\text{-}59 \times pop\ 55\text{-}59) + (A.R\ 60\text{-}64 \times pop\ 60\text{-}64)}{(pop\ 55\text{-}59 + pop\ 60\text{-}64)}$$

Labour Force 60-64 = A.R 60-64x pop 60-64

Labour Force 65+ = Labour Force (60+)- Labour Force 60-64

A.R= Activity Rate   Pop= Population

Future Activity Rates For Males The projection of the male activity rates through the regression equations requires the projection of the percentage of economically active males engaged in agriculture and the percentage of males attending school in the age groups 10-14 and 15-19 years, respectively. The data for the proportion of the economically active males engaged in agriculture and the proportion of males attending school aged 15-19 have been used from the 1961 and 1981 Censuses because these are the only census data sources which are more or less comparable as explained in Table 3.1 and subsequent discussion. The 1951 Census Data are not considered for studying the trends of the proportion of the economically active male population engaged in agriculture (which is assumed to be a measure of industrial development) and the proportion of males attending school due to the fact that economic growth during 1951-61 was very low and is not comparable with the following period (Chapter Two). However, the proportion of males attending school aged 10-14 years reflected by the 1961 Census seems to be on the high side compared with the subsequent published data. Therefore, the observed trend in the proportion of males aged 10-14 years attending school between 1977-78 to 1981 has been used for future projection of the proportion of males attending school in this age group [Census

Commissioner, n.d:iv-17; Planning Commission, 1978:736 and Unpublished 1981 Population Census Data].

The percentage of the economically active males engaged in agriculture has been projected on the basis of declining trend obsereved during the period 1961-81. This trend has been measured using the compound interest formula method [Pollard, 1981:115]. The proportion of the economically active males engaged in agriculture according to the 1961 Census was 59.0 percent which decreased to 51.9 percent in the 1981 Census at the annual average rate of -0.64 percent of the proportion of economically active males engaged in agriculture [Home Affairs Division, n.d:1381; Unpublished 1981 Census Data]. The projected proportion of the economically active males engaged in agriculture by the year 2006, the end of the projection period will be 44.3 percent, assuming a constant annual average rate of decline observed during 1961-81. Similarly, the proportion of males attending school aged 15-19 is projected using the same formula on the basis of the 1961 and the 1981 Population Census Data of the proportion of males attending school in the same age group which was 14 percent in 1961 and 22.3 percent in 1981 [Census Commissioner, n.d:iv-17 and Unpublished 1981 Population Census Data]. The projected figure for the males attending school for the year 2006 comes to be 40.4 percent assuming constant annual average growth rate of 2.4 percent of the proportion of males attending school aged 15-19 years. The proportion of males attending school aged 10-14 years was 29 percent in 1977-78 and increased to 32 percent in the 1981 Census at the annual average growth rate of 2.5 percent. Assuming the same growth rate as constant throughout the projection period, the proportion of the school going males of 10-14 years would be 59.4 percent in the year 2006. The data

on the proportion of the economically active males engaged in agriculture and the proportion of males attending school aged 10-14 and 15-19 years for the year 1961, 1981 and the projection period is given in Table 5.4.

TABLE 5.4

PROJECTED PROPORTION OF THE ECONOMICALLY ACTIVE MALES ENGAGED IN AGRICULTURE, PROPORTION OF MALES ATTENDING SCHOOL AGED 10-14 AND 15-19 YEARS, PAKISTAN, 1961 AND 1981-2006.

Year	Percentage of economically active males in agriculture	Percentage of males 10-14 years attending school	Percentage of males 15-19 years attending school
1961	59.0	29.0*	14.0
1981	51.9	32.0	22.3
1986	50.3	36.2	25.1
1991	48.7	41.0	28.3
1996	47.2	46.4	31.9
2001	45.7	52.5	35.9
2006	44.3	59.4	40.4

Annual average rate of increase/decrease

	-0.64	2.5	2.4

Sources: Derived from: Census Commissioner, n.d (Table,4.13; pp iv-17)

Home Affairs Division, n.d (Table, 7; pp 1381).

Planning Commission, 1978 (Annexure S-II; pp 736).

Unpublished 1981 Census Data (Table, 14 and 15).

Note: * Represents 1977-78.

Now, by using different regression equations mentioned in the preceding paragraphs the future male activity rates have been calculated by putting the values of the projected proportion of the economically active males engaged in agriculture, proportion of males 10-14 and 14-19 years attending school. For example, future activity rate for males 10-14 yaers for the year 1986 is calculated as under:

$X_1 = 42.20 + .156X_2 - 0.488X_3$ where $X_2 = 50.3$ $X_3 = 36.2$

$X_1 = 42.20 + .156(50.3) - 0.488(36.2)$

$X_1 = 42.20 + 7.8468 - 17.6656$

$X_1 = 32.38$ or 32.4

Similarly, the future activity rates for males for the age groups 10-14, 15-19, 55-59 and 65+ years have been calculated by using the relevant regression equations.

The projected proportion of the economically active males engaged in agriculture and the males attending school are used in the regression equations to obtain a first approximation of the projected activity rates for future years. As suggested by United Nations (1960:58-9) in the case of Philippines a final adjustment is, however, required to take account of the fact that Pakistan's working patterns are different from the average patterns shown by the analysis of 20-30 countries data. Therefore, each of the male activity rates for the future years based on the regression equations is adjusted by the ratio of the actual 1981 male activity rates to the one derived for 1981 using the regression equations. The adjustment for the age group 10-14 and 55-64 years is insignificant and substantial for the age

groups 15-19 and 65+ years. Calculations of the adjustment factors are given in Table 5.5.

TABLE 5.5   CALCULATIONS OF ADJUSTMENT FACTORS

Age	1981 actual activity rate %	1981 activity rates based on regression equations %	Adjustment factors
10-14	34.7	34.7	34.7/34.7 = 1.000
15-19	62.0	72.9	62.0/72.9 = 0.850
55-64	86.0	89.0	86.0/89.0 = 0.966
65+	68.7	63.8	68.7/63.8 = 1.077

Sources: Table 5.3 and 5.6

The above adjustment factors have been used for adjusting the first approximation of the future male activity rates. Both, the unadjusted and adjusted projected future male activity rates by selected age groups are presented in Table 5.6.

TABLE 5.6 UNADJUSTED AND ADJUSTED BASE YEAR AND PROJECTED FUTURE MALE
ACTIVITY RATES BY SELECTED AGE GROUPS, PAKISTAN, 1981-2006.

Year	Unadjusted projected activity rates %				Adjusted projected activity rates %			
	10-14	15-19	55-64	65+	10-14	15-19	55-64	65+
1981	34.7	72.9	89.0	63.8	34.7	62.0	86.0	68.7
1986	32.4	70.6	88.7	62.7	32.4	60.0	85.7	67.5
1991	29.8	68.0	88.4	61.6	29.8	57.8	85.4	66.3
1996	26.9	65.0	88.2	60.6	26.9	55.3	85.2	65.3
2001	23.7	61.7	87.9	59.6	23.7	52.4	84.9	64.2
2006	20.1	58.0	87.6	58.6	20.1	49.3	84.6	63.1

Sources: Calculated using the regression equations, Table 5.4 and 5.5

The United Nations (1960:58) do not suggest any specific method
for the projection of future male activity rates for the age group
20-24 years due to lack of sufficient international data on school
attendance and strong association between their rates and the growth
of industrial development. Therefore, an arbitrary decision has been
made for the projection of male activity rates aged 20-24 years by
taking an average of the 1978-79 and 1981 activity rates that comes to
be 82.3 percent. It is, however, assumed that this male activity rate
will remain constant throughout the projection period and hoped that
this assumed activity rate will also reflect the effect of
socio-economic development in Pakistan because it is 6.5 percent

points less than the average of the male activity rates aged 20-24 shown by the male activity rates between 1961 and 1974-75 i.e. 88.8 percent (Chapter Four).

Usually, male activity rates for the age group 25-54 years are assumed to remain constant at the base year level throughout the projection period, keeping in view the relatively stable nature of these rates [Jones, 1966:183-84; United Nations, 1960:20]. However, according to the 1981 Census male activity rates for the age group 25-54 years are rather low compared with all other censuses/surveys. It is difficult to assess whether this is a fact of life or a statistical bias. Therefore, it was decided to use an average (arithmetic) of the 1978-79 and 1981 activity rates for projection purposes for the 24-54 years age group and assumed to remain constant throughout the projection period. However, the projected future male activity rates are open to a considerable margin of error, because of possible deficiencies in the available statistics.

Future Activity Rates For Females The projection of female activity rates is a complex proposition in the absence of recognisable trends in the age-specific activity rates. Prediction becomes more difficult when rates are marginal and there are alternatives to participation [Wilson, 1975:178]. The female refined activity rates in Pakistan vary from 3.1 percent in 1951 to 11.8 percent in 1978-79 [Irfan, 1981:6; Chapter Four]. The World Fertility Survey (WFS) suggests a refined activity rate of more than 21 percent for ever married women [Population Planning Council of Pakistan, 1976:64] while the female refined activity rate derived from the 1981 Population Census is 3.2 percent. Such diverse rates do not provide a proper

guideline for future forecasting. However, it may be argued in the light of the discussion in Chapter Four section 4.5 that the future female activity rates will be higher compared with the very low female participation rates reflected in the 1981 Census Data. Therefore, it seems appropriate to make an arbitrary decision for the future projection of female activity rates, considering the impact of economic development on the future female activity rates and the level of female participation rates reflected by various labour force surveys, 1968-69 to 1971-72 and 1974-75 and 1978-79, the Housing Economic and Demographic survey 1973 and the 1961 Census.

However, it is hard to predict the real increase in the future female participation rates. Therefore, being conscious of the implications of projecting the future size of the female labour force, it is decided to make two different assumptions. The first assumes 100 percent increase (Low projection) in the female activity rates over the 1981 Census activity rates and assuming it constant throughout the projection period, the second assumption uses 200 percent increase (High projection) in the female activity rates over the 1981 Census activity rates and then constant throughout the projection period. The projected future female activity rates on the basis of low projection will be closer to the female activity rates derived from the 1968-69 and 1974-75 labour force surveys while the high projection would yield the female activity rates comparable to the 1961 Census and the 1973 HED. The base year and the future assumed female activity rates are shown in Table 5.7.

TABLE 5.7   BASE YEAR AND THE ASSUMED FUTURE FEMALE

AGE-SPECIFIC ACTIVITY RATES, PAKISTAN, 1981-2006.

Age	1981 activity rate %	Assumed activity rate low projection %	Assumed activity rate high projection %
10-14	3.2	6.4	9.6
15-19	3.4	6.8	10.2
20-24	3.6	7.2	10.8
25-29	3.7	7.4	11.1
30-34	3.2	6.4	9.6
35-39	3.1	6.2	9.3
40-44	3.1	6.2	9.3
45-49	2.7	5.4	8.1
50-54	3.1	6.2	9.3
55-64	2.3*	4.6	6.9
65+	2.3*	4.6	6.9

Sources: Unpublished 1981 Population Census Data.

* Estimated according to the method explained for Table 5.3.

The higher projected future female activity rates are in line with the objectives of the Sixth Five Year Plan (1983-88), which envisages a considerable progress in the female education and employment. It is expected that the female literacy rate will increase from 14 to 48 percent during the plan period. Female employment, presently at a low level of even less than three percent in the public sector should improve through the introduction of quota system to fill at least 10-15 percent of government vacancies with

female candidates. In addition to this, over four thousand elected women councillors would participate in the economic development of the country to ensure a visable economic progress in the near future [Planning Commission, 1983:347- 51].

5.7 GROWTH OF THE LABOUR FORCE AND ITS IMPLICATIONS

The projected labour force by sex is shown in Table 5.8. It appears that the labour force would increase by 22,724,000, a little more than double during the projection period (1981-2006), if female activity rates are assumed 100 percent more than the 1981 reported level (low projection), in conjunction with a slow decline in both fertility and mortality. The labour force however, would increase by 24,405,000 or 108 percent, if the female activity rate reaches the assumed level of 200 percent more (high projection) than the 1981 activity level (Table 5.7). The male labour force would be 41,988,000 in 2006 compared with 21,791,000 in 1981, an increase of 93 percent, while the female labour force would be 3,362,000 and 5,043,000 using the low and high activity rates, respectively, along with the projected slow decline in both fertility and mortality. This is an increase of 303 percent and 504 percent over the 1981 Census figures. It is clear, however, that the average rate of growth of the female labour force would exceed the rate of growth of the male labour force under all circumstances. Each, Appendix B and C provides nine different results of the labour force projections based on the low and high female activity rates, along with various combinations of fertility and mortality assumptions.

TABLE 5.8   PROJECTED MALE, FEMALE AND TOTAL LABOUR FORCE (IN THOUSANDS) FOR PAKISTAN, 1986-2006.

<u>LOW PROJECTION</u>

Projection	1986			1991			1996			2001			2006		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
A	26,227	2,033	28,260	29,997	2,364	32,361	34,044	2,723	36,767	38,474	3,126	41,600	44,145	3,597	47,742
B	26,051	2,019	28,070	29,545	2,322	31,867	33,210	2,633	35,843	37,100	2,973	40,073	41,988	3,362	45,350
C	26,227	2,033	28,260	29,997	2,364	32,361	33,944	2,700	36,644	38,060	3,047	41,107	43,006	3,422	46,428

<u>HIGH PROJECTION</u>

Projection	1986			1991			1996			2001			2006		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
A	26,227	3,050	29,277	29,997	3,546	33,543	34,044	4,084	38,128	38,474	4,690	43,164	44,145	5,395	49,540
B	26,051	3,028	29,079	29,545	3,483	33,028	33,210	3,950	37,160	37,100	4,459	41,559	41,988	5,043	47,031
C	26,227	3,050	29,277	29,997	3,546	33,543	33,944	4,050	37,994	38,060	4,571	42,631	43,006	5,133	48,139

Sources: (1) Computed using FIV FIV/ SIN SIN computer package (Shorter and Pasta, 1978).

(2).Male activity rates based on Table 5.6 (adjusted projected activity rates) for the age groups 10-14, 15-19, 55-64 and 65+ years and an average of the 1978-79 and 1981 activity rates for the age groups 20-54 years.

(3) Female activity rates as given in TABLE 5.7 columns 3 and 4.

The projected total population and the labour force, assuming slow decline in both fertility and mortality suggests that the proportion of the female labour force would increase either measured in terms of the crude activity rates or the refined activity rates. However, the male crude activity rates will increase while the refined male activity rates will decrease if compared with the average of 1978-79 and 1981 activity rates (Table 5.9).

TABLE 5.9 FUTURE TRENDS IN THE PROPORTION OF THE MALE AND FEMALE LABOUR FORCE TO THE TOTAL AND 10+ MALE AND FEMALE POPULATION IN PERCENTAGE, PAKISTAN, 1981-2006.

		1981a	1986	1991	1996	2001	2006
Males	CAR	51.5*	52.9	53.6	53.5	52.9	53.4
	RAR	74.9*	72.7	74.0	74.0	73.5	73.5
Females							
Low projection							
	CAR	2.1	4.5	4.6	4.6	4.6	4.6
	RAR	3.2	6.4	6.4	6.4	6.4	6.4
High projection							
	CAR	2.1	6.7	6.9	6.9	6.9	6.9
	RAR	3.2	9.5	9.6	9.6	9.6	9.5

Sources: Table 5.2 and Table 5.8.

Notes: a = Base year   * = Average of 1978-79 and 1981.

CAR = Crude Activity Rate   RAR = Refined Activity Rate.

The increase in the female activity rates is straight forward which is mostly due to the assumed higher activity rates in the future. The increase in the male CAR may be attributed partly to the higher assumed activity rates between age groups 20-54 years and partly to the change in age structure, resulting in a higher proportion of the population entering into the labour force, although other variables i.e. advances in education, improvement in the social security schemes and rise in wage levels suggest a decline in the activity rates particularly at younger and older ages. However, the increasing trend is not reflected by the male refined activity rates which are relatively free from the effects of age composition.

The above discussion suggests that the future size of the labour force would be much bigger than needed to perform the work for the development of the country. This situation may be exacerbated by increasing unemployment rate from 1.8 percent in 1974-75 to 3.1 percent in 1981 (Finance Division, 1982:6; Population Census Organization, 1983:16), the smaller proportion of emigration, the increase in female labour force participation, the increase in urbanization. In addition, expected structural changes in the production pattern (moving from labour intensive to capital intensive), the sharp reduction in the intake of labour force to the government sector and the absorption of those returning from overseas would add to the problem. In spite of the unemployment problem, there is a scarcity of certain skills both in rural and urban areas. This is hampering the growth of the domestic economy, wage levels have increased considerably and a significant increase in labour productivity is required to maintain the wage level. It is, however, feared that this would adversely affect labour absorption in the

economy [Planning Commission, 1983:428-29].

The Government of Pakistan is not only aware of the future employment problems, but also believes in the welfare of the people. Therefore, the government is working on both the domestic and international fronts to create employment opportunities to achieve the ultimate goal of full employment as soon as possible. It is believed that 1.47 million man years of employment will be created within the agriculture sector during the Sixth Plan period to absorb the expected increase in the labour force [Planning Commission, 1983:432]. This objective will be achieved through a multidimensional approach: developing an appropriate atmosphere in agriculture for intensive labour, promoting small agro-based industries in rural areas and expanding rural electrification, farm to market roads, infrastructure, construction, water supply, drainage and social service schemes. This policy will not only increase labour demand in rural areas, but also help to reduce the population drift to the urban centres.

On the other hand the Government of Pakistan is creating new jobs in the urban areas by installing new industries as well as expanding existing industrial establishments. As a policy measure the government is putting resources into labour intensive small scale industries instead of capital intensive large industries. If the industrial policy works smoothly during the plan period, small scale industries will provide the livelihood for 0.35 to 0.45 million additional persons [Planning Commission, 1983:432-34].

Moreover, the government will develop appropriate technology for developing indigenous labour intensive techniques in sectors like construction, highways, waterlogging and salinity. Lastly, a

relatively higher investment in social services, especially in education and health will encourage female employment [Planning Commission, 1983;435].

Although the above steps will help to absorb a large number of new entrants into the labour force, the domestic economy may not be able to reach the objective of full employment in the near future. Therefore, the government is taking positive steps to encourage emigration. These steps include training the labour force in the fields in demand in the importing countries, safeguarding their interests at the destination by diplomatic representation, providing opportunities for investment in profitable projects at home and helping the absorption of returnees into the domestic economy. If the Government of Pakistan continues to stress the above objective even after the expiry of the present plan, full employment economy in the near future is possible. Also a solid infrastructure would be established which could accelerate the pace of economic development, a necessary step for future prosperity.

CHAPTER SIX

SUMMARY AND CONCLUSIONS

A survey of Pakistan's recent economic history and development efforts reveal that reasonable progress has generally been made in all facets of economy and society. This is in spite of a number of handicaps like political instability, two major wars with India in 1965 and 1971, secession of former East Pakistan, management/labour disputes, reluctance of private investors after 1969, the effects of international recession and diversion of development funds towards defence priorities and the welfare of Afghan refugees.

Noticeable diversification within and between economic sectors has occurred as a result of economic development in Pakistan since independence. Both the industrial as well as agricultural sectors shared in the development process. Pakistan's industrial sector has now entered a phase of sophisticated heavy engineering as well as the manufacturing of consumer goods and the agricultural sector now favours mechanised commercial industry rather traditional subsistence farming. The contribution of the industrial sector to GDP has more than doubled since 1951. Pakistan now has a surplus in rice, cotton, wheat and sugar because of increased agricultural production. There has also been a remarkable increase in international trade. In addition, GDP and per capita income have both increased.

As well as economic progress, social improvements have also contributed to the well being of the Pakistani Nation. The literacy ratio has improved and enrolments in schools, colleges and universities have increased considerably except the male college students. The provision of utilities and services has also shown significant advances. The general health standard has improved and life expectancy has increased both for males and females, which indicates a decline in mortality. Fertility is still high, although showing a modest decline, resulting in a high rate of population growth. The present demographic situation indicates that the population of Pakistan could double in less than 25 years.

Population is unevenly distributed among the provinces. The Punjab is densely populated while Baluchistan has a sparse population. Pakistan is gradually becoming an urbanized society, particularly Sind because of the industrial and commercial importance of Karachi city. Rural-urban migration is responsible for the rapid growth of the urban population, hence the quality of life of the poor masses in big cities is further deteriorating because of strain on urban amenities.

The proportion of the population in the labour force has been gradually decreasing because of economic development and the age structure of the population. Yet the economic conditions of Pakistan do not provide productive employment for all eligible workers, so a large number of Pakistanis are serving in many other countries, particularly in the Middle East. However, there is a limited scope for further absorption of Pakistani workers in the international labour market because of recent recession, uncertain economic conditions in the Persian Gulf, the Iran-Iraq war, changes in the

emigration policy of Nigeria and completion of the construction boom in the Middle East, as well as competitive cheap labour supplies from other developing countries.

The effects of economic development, particularly changes in the economic structure, education and urbanization are more pronounced than the influence of age structure in lowering the proportion of the economically active males and females in Pakistan except for the males during the period 1961-73. Perhaps it is because of the exceptionally low participation rates produced by the 1981 Census. It is, however, interesting to note that almost all of the reduction in the activity rates for the females comes from changes in age-specific activity rates whereas the age-specific activity rates as well as age structure influence the male economically active population. It is evident from this study that the males have higher activity rates than the females. Perhaps males have benefitted relatively more from developmental variables such as education, industrialization and urbanization. This study also reveals that participation rates of Pakistani females are much lower than the "true" rates because of understatement of female economic activities. This is partly due to definitional weaknesses and partly due to socio-cultural, religious and traditional factors as well as seasonal variations. Although, the 1973, 1978-79 and 1981 labour force data show that the patterns of female participation in economic activities have gradually changed from the late peak to the early peak, a characterisic of the modern economy, yet it is difficult to generalize this conclusion in the light of the inconsistent levels, trends and patterns of the female participation rates in Pakistan. The occupational composition indicates that both males and females are leaving the traditional occupations and joining modern professions

such as production groups as well as professional and technical occupations. This suggests that further structural changes among the occupational groups would be dominated by modern scientific and technological innovations.

The projections of the national population and the labour force indicate that declining fertility and mortality will reduce the proportion of the younger and older population and increase the proportion of the working age population. Therefore, the labour force size in future will be much bigger as compared with the 1981 level. Moreover, gradual increase in the unemployment rate, the relatively smaller size of future emigration, the relatively rapid increase in the female labour force, the anticipated absorption problem of the returning overseas Pakistanis and structural changes in production patterns (from labour intensive to capital intensive) suggest that there would be more workers than required to run the public and private business of the country in the future. It is, therefore, felt that if the Pakistani Nation wishes to achieve the goal of full employment in the future, it needs to adopt solid policy measures to reduce the fertility level as well as to boost the capacity for job creation in the country. Therefore, multidimensional measures of fertility control and employment expansion programmes should be planned. It is suggested that fertility should be reduced to replacemant level as soon as possible to improve the employment situation in the country by the end of the century. This objective could be achieved by the expansion of education, especially the grooming of adult females for participation in socio-economic and political affairs by providing maximum opportunities to women. It is, however, recommended that special surveys based on various measuring

techniques are conducted to gauge the representative size of the female labour force for effective manpower planning. Special government attention is also required for female welfare through general as well as technical and vocational education and the exposure of modern technology to rural women by the introduction of small-scale agro-based domestic industries suitable for self employment.

Previous growth oriented development policies have neither generated sufficient jobs for growing manpower in Pakistan nor brought any basic change in the life of the average man. In future policy makers should ensure that development planning has a strong influence on employment generation and income redistribution for social justice and human satisfaction. The basic elements of future rural development strategy should be the development of small farmers and "informal" small scale non-farm activities of all kinds. Rural unemployment may be alleviated not only by establishing agro-based small scale rural industries, useful for utilizing local raw material but also by improving infrastructural facilities as well as providing social services and the other amenities of life using the services of local people.

On the other hand, policies of industrial concentration in big industrial cities should be reviewed in favour of establishing new industrial estates to erode regional disparaties in economic development and the promotion of employment opportunities in comparatively backward areas of the country. Such policies will serve the dual purpose of employment generation as well as rural and regional development, necessary to bridge development gap between rural and urban areas. This will ultimately help to reduce

rural-urban migration and release growing pressure on limited urban resources.

In view of strong competition in the international labour market and the changing dimension of labour demand, high priority may be accorded to the production of technical and skilled manpower to maintain the present tempo of emigration of Pakistani workers to other countries. This is necessary for labour absorption as well as earning foreign exchange for domestic economic development. However, productive investment of hard earned foreign exchange should be ensured to accelerate the pace of economic development in the country. Moreover, overseas Pakistanis should be encouraged to import productive machinery for establishing individual or co-operative industries around their home towns to generate more employment opportunities for returning workers from overseas and new entrants into the labour force.

Lastly, although Afghan refugees were not enumerated in the 1981 Population Census, as their stay in Pakistan was considered temporary. Later developments indicate that probably Pakistan will be their new homeland in future. Therefore, researchers as well as policy makers should use projected population and labour force statistics with caution because they do not reflect the impact of Afghan refugees.

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APPENDIX 1

CALCULATION OF MALE REFINED AGE-STANDARDIZED ACTIVITY RATES,

PAKISTAN, 1961-73.

Age Years	Population Distribution %		Activity Rates %		Calculation of Age-standardized Activity Rates	
	1961 a	1973 a	1961	1973	1973 Rates 1961 Population	1961 Rates 1973 Population
10+	100.0	100.0	80.8	77.6	80.4*	78.1*
10-14	14.6	19.4	38.4	39.5	5.8	7.4
15-19	13.3	13.4	72.3	67.7	9.0	9.7
20-24	11.3	10.0	87.9	87.4	9.9	8.8
25-34	20.2	17.5	93.7	95.4	19.3	16.4
35-44	15.0	14.1	94.5	96.8	14.5	13.3
45-54	11.6	11.4	94.3	95.3	11.0	10.7
55-59	3.1	2.8	91.0	90.8	2.8	2.5
60+	10.8	11.5	80.2	73.7	8.0	9.2

Sources: Table 4.2; Census Commissioner, n.d.(Table, 13; pp III-70).

Census Organization, n.d.(Table, 1; pp 1).

Notes: (*) Sum of unrounded products.

(a) Due to rounding figures 10+ may not be equal to exact 100.

APPENDIX 2

CALCULATION OF MALE REFINED AGE-STANDARDIZED ACTIVITY RATES,

PAKISTAN, 1961-81.

Age Years	Population Distribution %		Activity Rates %		Calculation of Age-standardized Activity Rates	
	1961 a	1981 a	1961	1981	1981 Rates 1961 Population	1961 Rates 1981 Population
10+	100.0	100.0	88.8	72.4	75.3*	77.9*
10-14	14.6	19.6	38.4	34.7	5.1	7.5
15-19	13.3	14.0	72.3	62.0	8.2	10.1
20-24	11.3	10.9	87.9	76.5	8.7	9.6
25-34	20.2	17.5	93.7	87.2	17.6	16.4
35-44	15.0	13.5	94.5	92.4	13.9	12.7
45-54	11.6	10.8	94.3	92.9	10.8	10.1
55-59	3.1	2.8	91.0	90.4	2.8	2.6
60+	10.8	10.9	80.2	75.7	8.2	8.8

Sources: Table 4.2; Census Commissioner, n.d.(Table, 13; pp III-70).

Unpublished 1981 Population Census Data, (Table, 4)

Notes: (*) Sum of unrounded products.

(a) Due to rounding figures 10+ may not be equal to exact 100.

APPENDIX 3

CALCULATION OF MALE REFINED AGE-STANDARDIZED ACTIVITY RATES,

PAKISTAN, 1973-81.

Age Years	Population Distribution %		Activity Rates %		Calculation of Age-standardized Activity Rates	
	1973 a	1981 a	1973	1981	1981 Rates 1973 Population	1973 Rates 1981 Population
10+	100.0	100.0	77.6	72.4	72.7*	77.4*
10-14	19.4	19.6	39.5	34.7	6.7	7.7
15-19	13.4	14.0	67.7	62.0	8.3	9.5
20-24	10.0	10.9	87.4	76.5	7.7	9.5
25-34	17.5	17.5	95.4	87.2	15.2	16.7
35-44	14.1	13.5	96.8	92.4	13.0	13.0
45-54	11.4	10.8	95.3	92.9	10.5	10.3
55-59	2.8	2.8	90.8	90.4	2.5	2.6
60+	11.5	10.9	73.7	75.7	8.7	8.0

Sources: Table 4.2; Census Organization, n.d.(Table, 1; pp 1).

Unpublished 1981 Population Census Data, (Table, 4).

Notes: (*) Sum of unrounded products.

(a) Due to rounding figures 10+ may not be equal to exact 100.

APPENDIX 4

CALCULATION OF FEMALE REFINED AGE-STANDARDIZED ACTIVITY RATES,

PAKISTAN, 1961-73.

Age Years	Population Distribution %		Activity Rates %		Calculation of Age-standardized Activity Rates	
	1961 a	1973 a	1961	1973	1973 Rates 1961 Population	1961 Rates 1973 Population
10+	100.0	100.0	9.3	9.0	9.0*	9.1*
10-14	14.1	18.5	4.7	10.3	1.5	0.9
15-19	13.4	12.5	7.6	8.7	1.2	0.9
20-24	12.0	10.5	9.6	10.8	1.3	1.0
25-34	22.0	19.7	10.6	8.7	1.9	2.1
35-44	15.1	15.3	11.7	8.4	1.3	1.8
45-54	10.8	11.1	11.8	8.5	0.9	1.3
55-59	3.0	3.3	10.2	7.8	0.2	0.3
60+	9.7	9.1	7.9	8.2	0.8	0.7

Sources: Table 4.2; Census Commissioner, n.d.(Table, 13; pp III-70).

Census Organization, n.d. (Table, 1; pp 1).

Notes: (*) Sum of unrounded products.

(a) Due to rounding figures 10+ may not be equal to exact 100.

APPENDIX 5

CALCULATION OF FEMALE REFINED AGE-STANDARDIZED ACTIVITY RATES,

PAKISTAN, 1961-81.

Age Years	Population Distribution %		Activity Rates %		Calculation of Age-standardized Activity Rates	
	1961 a	1981 a	1961	1981	1981 Rates 1961 Population	1961 Rates 1981 Population
10+	100.0	100.0	9.3	3.2	3.2*	9.0*
10-14	14.1	18.7	4.7	3.2	0.5	0.9
15-19	13.4	13.4	7.6	3.4	0.5	1.0
20-24	12.0	11.9	9.6	3.6	0.4	1.1
25-34	22.0	18.3	10.6	3.5	0.8	1.9
35-44	15.1	15.2	11.7	3.1	0.5	1.8
45-54	10.8	10.6	11.8	2.9	0.3	1.2
55-59	3.0	2.8	10.2	2.3	0.1	0.3
60+	9.7	9.1	7.9	2.3	0.2	0.7

Sources: Table 4.2; Census Commissioner, n.d.(Table, 13; pp III-70).

Unpublished 1981 Population Census Data, (Table, 4).

Notes: (*) Sum of unrounded products.

(a) Due to rounding figures 10+ may not be equal to exact 100.

APPENDIX 6

CALCULATION OF FEMALE REFINED AGE-STANDARDIZED ACTIVITY RATES,

PAKISTAN, 1973-81.

Age Years	Population Distribution %		Activity Rates %		Calculation of Age-standardized Activity Rates	
	1973 a	1981 a	1973	1981	1981 Rates 1973 Population	1973 Rates 1981 Population
10+	100.0	100.0	9.0	3.2	3.2*	9.1*
10-14	18.5	18.7	10.3	3.2	0.6	1.9
15-19	12.5	13.4	8.7	3.4	0.4	1.2
20-24	10.5	11.9	10.8	3.6	0.4	1.3
25-34	19.7	18.3	8.7	3.5	0.7	1.6
35-44	15.3	15.2	8.4	3.1	0.5	1.3
45-54	11.1	10.6	8.5	2.9	0.3	0.9
55-59	3.3	2.8	7.8	2.3	0.1	0.2
60+	9.1	9.1	8.2	2.3	0.2	0.7

Sources: Table 4.2; Census Organization, n.d.(Table, 1; pp 1).

Unpublished 1981 Population Census Data, (Table, 4).

Notes: (*) Sum of unrounded products.

(a) Due to rounding figures 10+ may not be equal to exact 100.

APPENDIX A   MALE, FEMALE AND TOTAL POPULATION PROJECTIONS (IN THOUSANDS) FOR PAKISTAN, 1986-2006.

Projection	1986			1991			1996			2001			2006		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
F1M1	49,630	45,315	94,945	56,187	51,652	107,839	64,405	59,482	123,887	74,279	68,798	143,077	85,670	79,451	165,121
F1M2	49,764	45,441	95,205	56,629	52,065	108,694	65,393	60,438	125,831	76,122	70,649	146,771	88,783	82,658	171,441
F1M3	50,284	46,030	96,314	57,994	53,626	111,620	67,862	63,250	131,112	80,084	75,110	155,194	94,803	89,330	184,133
F2M1	49,133	44,847	93,980	54,689	50,247	104,936	61,197	56,477	117,674	68,432	63,328	131,760	76,003	70,419	146,422
F2M2	49,263	44,969	94,232	55,108	50,638	105,746	62,107	57,356	119,463	70,072	64,973	135,045	78,662	73,157	151,819
F2M3	49,768	45,541	95,309	56,403	52,119	108,522	64,386	59,957	124,343	73,613	68,974	142,587	83,828	78,911	162,739
F3M1	48,760	44,495	93,255	53,458	49,090	102,548	58,599	54,043	112,642	63,815	59,010	122,825	68,597	63,500	132,097
F3M2	48,887	44,615	93,502	53,857	49,463	103,320	59,445	54,859	114,304	65,295	60,493	125,788	70,911	65,882	136,793
F3M3	49,381	45,174	94,555	55,093	50,879	105,972	61,570	57,289	118,859	68,504	64,131	132,635	75,426	70,936	146,362

Sources: Computed using FIV FIV/ SIN SIN computer package (Shorter and Pasta, 1978).

Unpublished 1981 Population results used as base population.

Fertility and Mortality assumptions taken from TABLE 5.1.

Notes: F1= Constant Fertility   M1= Constant Mortality

F2= Slowly declining Fertility   M2= Slowly declining Mortality

F3= Rapidly declining Fertility   M3= Rapidly declining Mortality

APPENDIX B   MALE, FEMALE AND TOTAL LABOUR FORCE LOW PROJECTIONS (IN THOUSANDS) FOR PAKISTAN, 1986-2006.

Projection	1986			1991			1996			2001			2006		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
F1M1	26,006	2,016	28,022	29,399	2,311	31,710	33,008	2,634	35,642	36,958	3,003	39,961	42,198	3,450	45,648
F1M2	26,051	2,019	28,070	29,545	2,322	31,867	33,339	2,662	36,001	37,587	3,062	40,649	43,306	3,560	46,866
F1M3	26,227	2,033	28,260	29,997	2,364	32,361	34,179	2,753	36,932	38,990	3,223	42,213	45,554	3,812	49,366
F2M1	26,006	2,016	28,022	29,399	2,311	31,710	32,881	2,605	35,486	36,482	2,916	39,398	40,921	3,260	44,181
F2M2	26,051	2,019	28,070	29,545	2,322	31,867	33,210	2,633	35,843	37,100	2,973	40,073	41,988	3,362	45,350
F2M3	26,227	2,033	28,260	29,997	2,364	32,361	34,044	2,723	36,767	38,474	3,126	41,600	44,145	3,597	47,742
F3M1	26,006	2,016	28,022	29,399	2,311	31,710	32,787	2,584	35,371	36,101	2,844	38,945	39,889	3,106	42,995
F3M2	26,051	2,019	28,070	29,545	2,322	31,867	33,114	2,612	35,726	36,709	2,899	39,608	40,923	3,202	44,125
F3M3	26,227	2,033	28,260	29,997	2,364	32,361	33,944	2,700	36,644	38,060	3,047	41,107	43,006	3,422	46,428

Sources: (1) Computed using FIV FIV/ SIN SIN computer package (Shorter and Pasta, 1978).

(2) Male activity rates based on Table 5.6 (adjusted projected activity rates) for the age groups 10-14, 15-19, 55-64,and 65+ years and an average of the 1978-79 and 1981 activity rates for the age groups 20-54 years.

(3) Female activity rates as given in Table 5.7 column 3.

APPENDIX C   MALE, FEMALE AND TOTAL LABOUR FORCE HIGH PROJECTIONS (IN THOUSANDS) FOR PAKISTAN, 1986-2006.

| Projection | 1986 | | | 1991 | | | 1996 | | | 2001 | | | 2006 | | |
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
F1M1	26,006	3,024	29,030	29,399	3,467	32,866	33,008	3,950	36,958	36,958	4,504	41,462	42,198	5,175	47,373
F1M2	26,051	3,028	29,079	29,545	3,483	33,028	33,339	3,993	37,332	37,587	4,593	42,180	43,306	5,340	48,646
F1M3	26,227	3,050	29,277	29,997	3,546	33,543	34,179	4,130	38,309	38,990	4,835	43,825	45,554	5,719	51,273
F2M1	26,006	3,024	29,030	29,399	3,467	32,866	32,881	3,908	36,789	36,482	4,373	40,855	40,921	4,890	45,811
F2M2	26,051	3,028	29,079	29,545	3,483	33,028	33,210	3,950	37,160	37,100	4,459	41,559	41,988	5,043	47,031
F2M3	26,227	3,050	29,277	29,997	3,546	33,543	34,044	4,084	38,128	38,474	4,690	43,164	44,145	5,395	49,540
F3M1	26,006	3,024	29,030	29,399	3,467	32,866	32,787	3,876	36,663	36,101	4,266	40,367	39,889	4,658	44,547
F3M2	26,051	3,028	29,079	29,545	3,483	33,028	33,114	3,918	37,032	36,709	4,348	41,057	40,923	4,803	45,726
F3M3	26,227	3,050	29,277	29,997	3,546	33,543	33,944	4,050	37,994	38,060	4,571	42,631	43,006	5,133	48,139

Sources: (1) Computed using FIV FIV/ SIN SIN computer package (Shorter and Pasta, 1978).

(2) Male activity rates based on Table 5.6 (adjusted projected activity rates) for the age groups 10-14, 15-19,
55-64 and 65+ years and an average of the 1978-79 and 1981 activity rates for the age groups 20-54 years.

(3) Female activity rates as given in Table 5.7 column 4.