CHAPTER 1

INTRODUCTION

The demographic statistics refer with the quantitative aspects of the population of a country. The importance of using demographic statistics is inevitable in the development of a country.

2. Traditional sources for vital statistics are the Civil Registration System (birth and death registration system) and population census. The Civil Registration System in Pakistan, as in several other developing countries appears to be highly deficient and inadequate to provide reliable birth and death statistics.

3 In the absence of efficient civil registration system and inability of decennial census to provide birth and death statistics, during the intercensal periods, several demographic surveys have been undertaken by the Federal Bureau of Statistics in the country since, early sixties either independently or in collaboration with other organizations. The latest series of demographic surveys, known as Pakistan Demographic Survey (PDS) was launched in 1984. This report pertains to the data collected through PDS during 2003.

OBJECTIVES

4. The main objectives of the PDS survey are: -

   i). to collect statistics of births and deaths in order to arrive at various measures of fertility and mortalility for Pakistan and its rural and urban areas;

   ii). to estimates current rate of natural increase of population at national level.

   iii). to collect information on other selected characteristics of population. to asses the impact of family planning and other Socio-Economic developing programme.

ADMINISTRATIVE SET UP OF THE COUNTRY

5.   Pakistan is administratively divided into four provinces, namely, Punjab, Sindh, North West Frontier Province (NWFP) and Balochistan. Its population and areas is unevenly distributed. Balochistan is the largest province with about 44 percent of total area but showed only 5 percent of the total population.

        Punjab is the most populous province; its population exceeds the aggregates of the other three provinces. Table 1.1 gives the distribution of area, population annual growth rate and population density of the country as enumerated in the census of 1981 and 1998. Islamabad being the capital of Pakistan so its population is presented separately. The figures of Federally Administered Tribal Area (FATA) are also shown separately.

Table 1.1 **DISTRIBUTIONS OF AREA, POPULATION BY PROVINCE AND ANNUAL GROWTH RATE**

PROVINCE	AREA		POPULATION (IN THOUSAND)				POPULATION DENSITY		ANNUAL GROWTH RATE
	(Sq.Km)	%	1981	%	1998	%	1981	1998	1998
PAKISTAN	796095	100.0	84254	100.0	132352	100.0	106	166	2.69
PUNJAB	205344	25.8	47293	56.1	73621	55.6	230	359	2.64
SINDH	140914	17.7	19029	22.6	30440	23.0	135	216	2.80
NWFP	74521	9.4	11061	13.1	17744	13.4	148	238	2.82
BALOCHISTAN	347190	43.6	4332	5.2	6566	5.0	12	19	2.48
ISLAMABAD	906	0.1	340	0.4	805	0.6	376	889	5.20
FATA	27220	3.4	2199	2.6	3176	2.4	81	117	2.19

PERCENTAGE DISTRIBUTION OF POPULATION BY PROVINCE, 1998 CENSUS
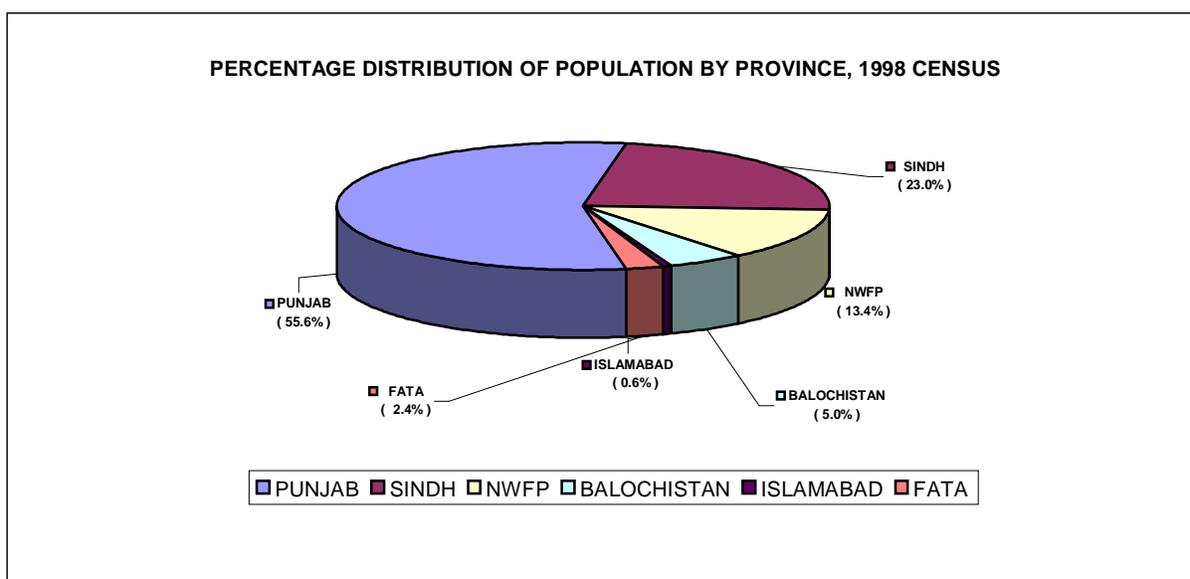
CONCEPTS AND DEFINITIONS

6.   Concepts and definitions used in the survey are as follows: -

I.   **Crude Birth Rate** is defined as the number of births in a year per 1000 persons (based on mid year population).

II.   **General Fertility Rate**   is defined as the number of births in a year per 1000 women of childbearing ages (Females of ages 15-49).

III.   **Age Specific Fertility Rate**   is defined as the number of births by age of mother per 1000 females in the same age group.

IV**. Age Specific Marital Fertility Rate** is defined as the number of births by age of mother per 1000 currently married females in the same age group.

V.   **Total Fertility Rate**   is defined as the average number of children, which a cohort of 1000 women would bear during their reproductive span if they experience no mortality and are exposed to the age specific birth rate in effect during a particular year.

VI.   **Crude Death Rate** is defined as the number of deaths during a year per 1000 persons (based on mid year population).

VII.   **Age Specific Death Rate** is defined as the number of deaths in a given age group during a year per 1000 persons in the same age group.

VIII.   **Life Expectancy At Birth** is defined as the total number of years a person would be lived after his birth.

IX.   **Infant Mortality Rate** is defined as the number of deaths under one year of age during a year per 1000 live births during the same year.

X.   Neo-natal and post-neo-natal Mortality Rates

  a)   **Neo-natal mortality rate** is defined as the number of deaths of infants under 1 month of age during a year per 1000 live births during the same year.
  b)   Post-**neo-natal mortality rate** is defined as the number of   infant deaths at 1 through 11 months of age during a year per 1000 live births during the same year.

XI.   **Sex Ratio** is defined as the number of   males per hundred females.

XII.   **Dependency Ratio** is defined as the proportion of children under 15 years and old persons aged 65 years and above to the population between ages15 to 64 years. The ratio is expressed as percentage.

XIII.   **Literate** is a person who can read and write a simple statement with understanding in any language.

XIV.   **Household** is defined to be constituted of those persons who usually live   together   and share their meals. A household consists of one or more persons   who may or may not be related to one another.

CHAPTER 2

UNIVERSE:

The Universe consists of all urban and rural areas of all four provinces, of Pakistan defined as such by Population Census 1998, excluding FATA & Military restricted areas. The population of excluded areas constitutes about 3% of the total population.

SAMPLING FRAME

2.   Federal Bureau of Statistics has developed its own sampling frame for urban area. Each city / town has been divided into a number of enumeration blocks (EBs). Each enumeration block consists of 200-250 households on the average with well-defined boundaries and maps. The lists of enumeration blocks as updated during 2003-04 and the lists of villages/mouzas/dehs published /prepared by Population Census Organization have been undertaken as sampling frame. Enumeration blocks and villages have been considered as primary sampling units (PSUs) for urban and rural domain respectively**.**

STRATIFICATION PLAN.

a)   URBAN DOMAIN

i)   Self Representing Cities

3.   Large size cities i.e. Karachi, Lahore, Gujranwala, Faisalabad, Rawalpindi, Multan, Sialkot, Sarghoda, Hyderabad, Peshawar, Quetta and Islamabad have been considered as self-representing cities. Each of these cities constitutes a separate stratum which has further been sub-stratified according to low, middle and high income groups based on the information collected in respect of each enumeration block at the time of demarcation / updating of urban area sampling frame.

ii)   Remaining Urban Areas

4.   After excluding the population of large sized cities from the population of respective administrative division, the remaining urban population of each administrative division of four provinces has been grouped together to form a stratum called other urban. Thus each division in remaining urban areas in the four provinces constitutes a stratum.

RURAL DOMAIN

5.　　　　In rural domain, each district in the Punjab, Sindh and NWFP, Provinces has been considered as independent and explicit stratum, whereas in Balochistan Province each administrative division constitutes a stratum.

SAMPLE SIZE AND ITS ALLOCATION

6.　　　　Considering the variability of the characteristics for which estimates are to be prepared, population distribution and field resources available a sample size of about 31585 sample households (SSUs) have been considered appropriate to provide reliable estimates of key variables at National and Provincial level with expected reliability within 5% coefficient of variation at 95% degree of confidence. The entire sample households (SSUs) has been drawn from 704 primary sampling Units (PSUs) out of which 308 are urban and 396 are rural. As urban population is more heterogeneous therefore, higher proportion of sample size has been assigned to urban domain. Similarly NWFP and Balochistan being the smaller provinces and to get reliable estimates, for these provinces higher proportion of sample has also been fixed to these provinces. After fixing the sample size at provincial level, further distribution of sample PSUs and SSUs to different strata in rural and urban domains in each province has been made proportionately, keeping in view the minimum requirement of each stratum.

7.　　　　The distribution of sample PSUs and SSUs in the urban and rural domain of the four provinces is as under: -

PROVINCE	NUMBER OF PRIMARY SAMPLING UNITS COVERED DURING 2003			NUMBER OF SAMPLE HOUSEHOLD COVERED DURING 2003		
	TOTAL	URBAN	RURAL	TOTAL	URBAN	RURAL
PAKISTAN	704	308	396	31585	13775	17810
PUNJAB	364	158	206	16311	7050	9261
SINDH	160	80	80	7192	3592	3600
N.W.F.P	112	42	70	5040	1890	3150
BALOCHISTAN	68	28	40	3042	1243	1799

SAMPLE DESIGN:

A stratified two stage of sample design has been adopted for the survey.

SAMPLE SELECTION PROCEDURE

a) **Selection of primary sampling Units (PSUs)**

8.   Enumeration blocks in urban domain and mouzas/dehs/villages in rural domain have been taken as primary sampling units (PSUs). In the urban domain, sample PSUs from each ultimate stratum/sub-stratum have been selected with probability proportional to size (PPS) method of sampling scheme. In urban domain, the number of households in enumeration block as per quick count record survey 2003-04 and population of village/deh/mouza/ according to population census 1998 have been considered as measure of size.

b) **Selection of Secondary sampling Units (SSUs)**

9.   Household within sample PSUs has been taken as secondary sampling units (SSU). A specified number of households i.e. 45 from each urban and rural sample PSU have been selected with equal probability using systematic sampling technique with a random start.

CHAPTER 3

METHODOLOGY OF DATA COLLECTION

LISTING OPERATION – RURAL AREAS

Village/ mouza /deh (as defined and published by the population census organization in the 1998 Census) constituted the primary sampling unit (PSU) in each rural stratum. List of selected PSUs was supplied to the field staff by the headquarter.

2. Boundaries of the selected village/mouza/deh were identified by the enumerators with the help of revenue staff i.e. patwari, qanoongo, etc. Information regarding location of the village, its boundary, description and means of approaching the village, etc. was obtained by the field staff through personals visits.

3. Two types of maps, sketch and detailed maps, were prepared for each village / mouza /deh. The sketch map shows its general location and outer boundaries. The detailed map of the village /mouza /deh has been prepared by the Enumerator with the help of revenue map, where such maps were available with the revenue authorities or Directorate of Land Records, incase revenue map was not available, then enumerator has prepared its own map demarcating clearly the boundaries of the area showing important land marks such as mosques, schools, shops, hospitals, etc. Detailed instructions and guidelines in this respect were provided to the field staffs by headquarter.

4. Household listing and numbering of structures were carried out simultaneously. All the structures in the selected village/ mouza /deh were serially numbered, starting from a prominent mark. This number was written clearly at a prominent place of the structure. In order to distinguish this number from other number on the structure, the letter 'PD' preceded it, for instant, PD-12, PD-432, etc. Each structure number was shown at the appropriate place in the detailed map. After the completion of household listing, in the selected village /mouza /deh, 45 households were randomly selected from it. Identification particulars of the sample areas, serial number of structures, and serial number of households and names of the head of households were copied in the PDS-5 form.

LISTING OPERATIONS – URBAN AREAS

5.　　　　City / Town in each province has been divided by the field staff of the Federal Bureau of Statistics into Enumeration Block (EB), each block comprises about 200 to 250 households An Enumeration Block has been taken as a PSU. List of the selected PSUs along with their identification in terms of Enumeration Block codes was supplied to the field staff by the headquarter. Maps of these Enumeration Blocks already prepared at the time of demarcation / updating however, were updated in case of new structures in any Enumeration Block. Household listing and structure numbering was carried out simultaneously.

TRAINING OF FIELD STAFF

6.　　　　Regular field staff of the Federal Bureau of Statistics posted at Regional and field offices throughout the country was utilized for the survey. Majority of the field enumerators and supervisory staff engaged in PDS work possessed long experience of surveys, including demographic surveys. However, training of the field staff was arranged in selected field offices, including the staff of other field offices of the nearest districts. Extensive training for filling the questionnaires / schedules was imparted to all enumerators and supervisors. Besides the emphasis was laid on the objectives of the survey, definitions of the terms used in the questionnaires / schedules, probing methods to achieve the correct information of vital events.

7.　　　　A Manual of Instructions for the enumerators and supervisory staff was developed and provided to the field staff. This Manual also contained detailed procedure for the collection of information on birth and death events and other demographic characteristics with a reference period of last 12 months (from 1st January to 30th December, 2003) in January 2004 round.

SURVEY METHODOLOGY

8.　　　　In the previous surveys the methodology was used to collect, birth and death events on quarterly basis with a reference period of last six calendar months, providing an overlap period of three months. Birth and death events of overlapping period were matched on case to case basis and non-matched events were through field visits.

　　　　Reports of the PGE 1962-65, PGS 1968-71, PGS 1976-79 and PDS 1984-97 have already been published and their detailed survey methodologies have been described in these

reports. In PDS-1999, PDS-2000, PDS-2001 and PDS-2003, a new methodology has been introduced and justification for using the same is given below: -

JUSTIFICATION FOR USING NEW METHODOLOGY

9.   The experiences of previous methodologies revealed that much time and cost were involved in matching of birth and death events case to case basis for overlapping period and non-matched events through field reconciliation which also caused delay in publishing the important demographic indicators in time. Due to time lag these indicators were of no use for policy makers, researchers and scholars.

10.   In order to minimize the time-lag and release the findings of the survey well in time, a one time survey with slightly changed methodology was adopted and tested for PDS-1999 with a reference period of last 12 months (i.e. 01-01-1999 to 31-12-1999). Instead of forming clusters, 45 households were randomly selected directly from PSUs. Births and deaths for the same period were recorded on PDS-3 and PDS-4 forms respectively. In PDS-2000, the survey was conducted in two phases with the same methodology adopted in 1999. In phase-I (July round), the reference period was from first   January, 2000 to 30th June, 2000. In phase-II (January round), the reference period was taken from 1st July 2000 to 31st December 2000. The births and deaths collected from these two rounds were combined. In PDS-2003, the methodology used for PDS- 1999 has been used. In January, 2004, the births and deaths were enumerated with a reference period of last 12 months. The population was enumerated as on 1st January, 2004. The population of Pakistan has been estimated taking into consideration of growth rate calculated by the said survey.

11.   The methodology adopted in the PDS-2003 is described below: -

POPULATION COVERAGE

12.   In the PDS 2003, the coverage of the population was on dejure basis i.e. all persons who usually live in the sample areas, whether present or temporarily absent at the time of enumeration (night prior to the date of enumeration) were included in the survey. On the other hand any person who was present in the sample areas (night prior to the date of enumeration) but whose usual residence was out of the sample areas, was not enumerated in the survey. Students who were studying in any other village/town but living in the hostels or boarding

houses were enumerated with their parent's household. However, if any such student was living with his relatives, friends or in a private house, then he was enumerated at the place where he was being studied. Population of institutions, such as patients admitted in the hospitals, inmates of prison houses were not covered. Instead, they were enumerated with their usual households, provided their period of absence was not more than six months.

13.   The details of persons included and excluded in the survey are given below: -

PERSONS INCLUDED	PERSONS EXCLUDED
a) All persons usually residing in households in the sample area and found at their residence last night.	a) All persons who spent last night in sample households but were not usual members of those households. These might be relatives, friends, visitors, guests, etc
b) All usual members of households in the sample area who were temporarily absent last night due to vacation, visiting friends and relatives, on business, getting education in another village, town or city and were living in hostels, boarding houses, etc.	b) Person who were residing in the premises of a foreign embassy.
c) A person found at his place of business within the sample area, provided it was with his usual residence also.	c). Person living in military barracks and other security or prohibited areas.
d) Persons (friends, relatives, etc.) who have come in the sample area from outside to acquire education and were staying with the households or in a separate house but not in hostel or boarding house.	d) Persons living in boarding houses, hostels that were located in the sample area.
e) Persons who were temporarily admitted to a hospital for medical treatment.	e) Married daughters who were temporarily residing in the parent's home for delivery of an expected birth or on a short visit.
f) Married daughters whose husbands were in military service or working in a distant place but who were usual residents of sample households.	f). Persons who usually live at the place of their work but returned to their family on week-ends or during holidays.
g) Servants, who used to sleep and take meals in the sample households.	
h) Household member who were in jail and convicted for a period of less than six months or whose cases were not yet decided.	

COVERAGE OF BIRTH AND DEATH EVENTS

14.   Birth and death events which occurred to the usual members of the selected household, were enumerated one time with a reference period of last 12 calendar months (i.e.01-01-2003 to 31-12-2003) in January, 2004 visit.

15.   For each live birth, which occurred to a usual household member during the reference period i.e. from 1st January 2003 to 31st December 2003, a "Birth Enumeration Form" was filled-in. This forms contains the information about the new born, such as sex, date of birth, whether or not birth had occurred in any medical institution, type of medical attendant at the time of birth, etc. It also recorded certain particulars of the parents. Similarly, for each death which occurred to a usual member of the sample household during the combined reference periods i.e.01-01-2003 to 31-12-2003, a "Death Enumeration Forms "was filled-in.

CHAPTER 4

FINDINGS OF THE SURVEY

DEMOGRAPHIC CHARACTERISTICS

Although the main objective of the Pakistan Demographic Survey (PDS) was to collect data on birth and death events, information on important demographic characteristics of the sample population, such as age, sex, marital status, literacy and educational level were also collected in the PDS 2003. Summary of the main findings based on this information is given in the subsequent paragraphs.

AGE DATA

2.   Data on age were obtained in completed years. For persons aged one year or over, the age was recorded in completed years; for children of one month and over but less than one year, in completed months and for babies less than one month, it was recorded in days only.

AGE MISREPORTING

3.   Data on age in developing countries are subject to errors. Given the importance of correct age reporting, efforts were therefore, made to obtain correct information on age. This point was greatly stressed in the training sessions of enumerators. Numerous suggestions for eliciting accurate age from the respondents were also incorporated in the Manual of Instructions for the field enumerators.

4.   Despite best efforts, age misreporting is quite common due to low literacy level in the country .A common error in the age reporting is the tendency of rounding the ages to the nearest figure ending in '0' or '5'or to a lesser extent, in even number. Because of this tendency, commonly known as "digital preference", age heaping occurs at certain ages.

WHIPPLE INDEX

Whipple's Index is a very effective measure of age accuracy so far as digit preference is concerned and has the advantage that it can be compared easily. It measures the preference for two digits ending 0 and 5.

SURVEY / CENSUS	WHIPPLE INDEX					
	ALL		URBAN		RURAL	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
PDS- 2003	216.7	212.2	201.1	204.1	230.5	218.9
PDS- 2001	213.5	208.9	204.5	206.2	221.8	211.2
CENSUS- 1998	172.5	200.9	150.8	175.9	185.4	213.8

The Whipple Indices of PDS Survey and Census 1998 show high degree of age heaping. The indices show that in PDS males have higher tendency of age heaping than females in rural areas where it has been observed reverse in urban areas.

This heaping of age is world-wide "phenomenon". Table 4.1 shows the percentage distribution of population by age and sex obtained from the PDS and from population census 1998.

Table 4.1 **PERCENTAGE DISTRIBUTION OF POPULATION BY BROAD AGE GROUPS AND SEX**

SURVEY/CENSUS	TOTAL	UNDER 15 YEARS	15-64 YEARS	65 YEARS AND ABOVE
MALE				
PDS -2003 a/	100.0	42.3	54.0	3.7
PDS -2001 a/	100.0	42.8	53.4	3.8
CENSUS -1998 b/	100.0	43.1	53.3	3.6
FEMALE				
PDS-2003 a/	100.0	42.1	54.8	3.1
PDS-2001 a/	100.0	42.7	54.4	2.9
CENSUS-1998 b/	100.0	43.3	53.5	3.2

Note: a) =Survey data refers only to Survey Universe.
   b) =Census data excludes the population of Federally Administered Tribal Areas (FATA), Military Restricted areas, Kohistan
       areas of Hazara Division and Provincially Administered Tribal Areas (FATA).

5.   The above table shows that the proportion of children under 15 years was 42.3 percent. The census figures of 1998 indicates slightly higher share i.e. 43.1 percent. This indicates fertility decline in the country. The proportion of old persons (65 years and over) was quite low. Only about 3 to 4 percent of population falls in this age group.

DEPENDENCY RATIO

6.   Dependency ratio, defined as the proportion of children under 15 years and old persons aged 65 year and above to the population between 15 to 64 years, reflects the burden on economically active population. Table 4.2 indicates dependency ratio as obtained from PDS-2003 and population census of 1998.

Table 4.2 **DEPENDENCY RATIOS FOR PAKISTAN AND PROVINCES**

PROVINCE	DEPENDENCY RATIOS		
	PDS – 2003	PDS – 2001	CENSUS – 1998
PAKISTAN	83.8	85.5	87.3
PUNJAB	82.6	81.9	85.6
SINDH	84.2	87.8	83.4
NWFP	92.0	93.0	100.3
BALOCHISTAN	97.4	97.7	95.9

7.　　　　Compared with some other countries, both developed and developing, dependency ratios particularly youth dependency ratio (proportion of children less than 15 year to the population 15-64 years) is very high in Pakistan. Dependency ratios were generally higher in NWFP and Balochistan as compared to Sindh and Punjab during 2003.The same pattern was observed in the census of 1998.

SEX RATIO

8.　　　　Sex ratio at birth has been recorded as 107 for PDS 2003. Sex ratio at birth is high in rural areas as compared to urban areas .An analysis of data during 1951-2003 indicates that overall sex ratio has been steadily declining in Pakistan since the first population Census in 1951. This can be attributed to relatively faster decline in the female mortality due to improved health facilities, availability of vaccine for various diseases and better female coverage in the censuses and surveys. In PDS 2003, the overall sex ratio was 107. The sex ratio for urban areas was higher as compared to rural areas (table 4.3).

Table 4.3 **SEX RATIO BY URBAN AND RURAL AREAS.**

SURVEY/ CENSUS	SEX RATIO		
	ALL AREAS	URBAN AREAS	RURAL AREAS
PDS-2003	107	108	106
PDS-2001	106	107	105
CENSUS-1998	108	112	106

HOUSEHOLD SIZE

9.　　　　A household in the PDS 2003 was defined to be constituted of all those persons who usually live together and share their meals. A household may consists of one person or more than one person who may not be related to each other.

10.　　　　The average household size as obtained from the PDS 2003 was 6.8 (table 4.4). This was same to that reported in PDS-2001 and 3 percent higher than census 1998. This

household size was larger in rural areas than in urban areas in all the provinces in the year 2003 except in Balochistan where the household size is higher in urban areas than in rural areas.

Table 4.4 **AVERAGE HOUSEHOLD SIZES BY PROVINCE & URBAN-RURAL RESIDENCE**

A R E A	PDS-2003	PDS-2001	CENSUS-1998
PAKISTAN	6.8	6.8	6.8
URBAN	6.7	6.8	7.0
RURAL	6.9	6.7	6.8
PUNJAB	6.5	6.6	6.9
URBAN	6.5	6.7	7.1
RURAL	6.6	6.5	6.9
SINDH	6.9	6.7	6.0
URBAN	7.0	7.0	6.8
RURAL	6.8	6.5	5.5
N.W.F.P	8.0	8.0	8.0
URBAN	7.6	7.5	7.9
RURAL	8.1	8.1	8.0
BALOCHISTAN	7.0	6.2	6.7
URBAN	7.6	7.2	7.8
RURAL	6.8	6.0	6.4

11.   Percentage distribution of households by number of persons separately for urban and rural areas for the year 2003 is given in table 4.5. This table shows that the share of single person's household was 1 to 2 percent. The households with 5 or less persons constituted 36 percent of the total households in the survey of PDS-2003. The corresponding figures i.e. 37 percent in urban areas whereas 38 percent in rural areas were shown in PDS-2003 respectively. The households constituting 10 or more members in the survey were 17 percent.

TABLE 4.5 **PERCENTAGE DISTRIBUTIONS OF HOUSEHOLDS BY NUMBER OF PERSONS AND URBAN-RURAL RESIDENCE**

DATA SOURCE/ AREAS	ALL HOUSE HOLDS	PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY NUMBER OF PERSONS									
		1	2	3	4	5	6	7	8	9	10
PDS-2003 ALL AREAS	100.0	1.3	5.2	7.3	10.0	12.6	14.2	13.5	11.0	7.9	17.0
URBAN REAS	100.0	1.9	4.5	7.0	10.1	13.2	15.3	12.8	10.5	7.7	17.0
RURAL AREAS	100.0	1.1	5.5	9.5	9.9	12.2	13.6	13.9	11.3	8.0	17.0
PDS-2001 ALL AREAS	100.0	1.8	5.5	7.4	10.2	12.8	14.0	13.2	11.2	7.8	16.1
URBAN REAS	100.0	2.6	4.8	6.6	9.8	12.7	14.5	13.5	10.8	7.5	17.2
RURAL AREAS	100.0	1.3	5.9	7.8	10.4	13.0	13.7	13.0	11.5	8.0	15.4
1998 CENSUS ALL AREAS	100.0	2.8	7.6	8.0	9.8	11.6	12.8	11.4	9.7	7.7	18.6
URBAN AREAS	100.0	3.1	5.9	7.2	9.6	12.0	13.6	11.4	9.7	7.6	19.9
RURAL AREAS	100.0	2.8	8.4	8.3	9.9	11.3	12.4	11.1	9.8	7.8	18.2

MARITAL STATUS

14.   Age at first marriage and proportions of never married are among the important determinants of fertility in a population. Data on marital status was collected according to classification of never-married, married, widowed and divorced. A simple but important distribution of population by marital status was obtained by grouping the population into two

broad marital status categories, never-married and ever-married by age sex. For the age group 15-49 (after 49 only a small proportion of both sexes remain never-married), percentage of never-married by age both for males and females are given for the PDS-2003 in table 4.6.

Table 4.6 **PERCENTAGES OF NEVER MARRIED BY SEX AND AGE GROUPS**

SEX/AGE GROUP (YEARS)	PDS - 2003	PDS - 2001	CENSUS 1998
MALE			
15-19	97.4	97.1	93.9
20-24	76.0	75.7	70.0
25-29	38.6	37.1	37.1
30-34	13.9	13.0	16.1
35-39	4.4	4.6	8.1
40-44	2.2	2.5	5.4
45-49	1.7	1.9	3.8
FEMALE			
15-19	86.6	85.9	79.4
20-24	43.5	41.5	38.6
25-29	13.3	12.8	14.8
30-34	4.4	4.2	7.2
35-39	2.1	1.8	4.4
40-44	1.4	1.4	3.7
45-49	0.9	1.0	2.5

15   The Above Table indicates that in case of females, 0.9 percent remained unmarried after reaching the age of 49 years in 2003 survey, whereas, 1.7 percent of males remained unmarried, it shows that marriage is almost universal in Pakistan for males and females.

16   The measuring proportion of never-married were observed among the age groups 15-19 to 25-29 years particularly for females. It indicates pattern of increase for age at first marriage. In PDS 2003, 87 percent females in the age group 15-19 were single as compared to 25 percent in the 1961 population census indicates more than 3 fold increase in 42 years.

17.   Comparing the proportion of never married females by age for various data sources, it is evident that the age at marriage is increased. For instance, the proportions of never-married females in the age group of 15-19 years were increased about 9 percent in 2003 as compared to 1998. The percentage share of never- married females in the age group of 20-24 years was also increased by 13 percent for the same period. When compared with 1998 Census the corresponding proportions of these age groups for males showed a remarkable increase.

18.		Table 4.7 gives singulate Mean Age at Marriage calculated from the proportions of single up to age 50 years because the proportion for unmarried after 50 years is negligible to enter the wedlock for the first time.

TABLE 4.7	**SINGULATE MEAN AGE AT MARRIAGES BY SEX**

SURVEY/CENSUS	MALE (YEARS)	FEMALE (YEARS)
PDS-2003	26.4	22.3
PDS-2001	26.3	22.1
CENSUS-1998	25.6	21.7

19.		An analysis of data from 1961 to 2003 indicates an increasing trend for singulate mean age at marriage for both sexes. The age at marriage for males from 23.3 years in 1961 had risen to 26.4 years in 2003, similarly for females, the age at marriage increased from 16.7 to 22.3 years during the same period. The corresponding figures of the census 1998 show a similar pattern. This increasing trend at marriage would contribute in fertility reduction in the country.

FERTILITY

20.		Data on birth events were collected through January 2004 visits by asking retrospective questions with a reference period of last 12 months (i.e. from 1st January to 31st December 2003). If a live birth has occurred to a usual member of the household in-or out-side the sample household, particulars of the child and those of the parents of the child were recorded in PDS-3 Form.

CRUDE BIRTH RATE

21.		Crude Birth Rate (CBR) is the simple way of measuring current fertility level in any population. It is defined as the number of births in a year per 1000 (mid-year) population. Crude birth rate for Pakistan with urban-rural break down as obtained from the PDS surveys are given in table 4.8. The crude birth rate as obtained from the PDS 2003 was 26.5 per 1000 persons.

22.		Table 4.8 indicates that rural-urban differentials exist in the fertility level; rates for rural areas were higher than those of urban areas in both the surveys. The crude birth rate is about 13.6 percentage higher in rural areas as compared to urban areas.

Table 4.8   **CRUDE BIRTH RATES BY URBAN-RURAL RESIDENCE**

SURVEY	CRUDE BIRTH RATE		
	ALL AREAS	URBAN AREAS	RURAL AREAS
PDS-2003	26.5	24.1	27.9
PDS-2001	27.8	25.0	29.4

GENERAL FERTILITY RATES

23.   Crude Birth Rate (CBR), though a very useful index of fertility level, is subject to a number of limitations, as it includes in the denominator certain segments of population that are not "exposed to risk' of child-bearing. Another important summary measure of fertility level is the general fertility rate (GFR), defined as the number of births in a year per 1000 women of child-bearing ages (i.e. females of ages 15-49 years). It is a refined method to measure fertility as compared to crude birth rate. Table 4.9 shows the general fertility rates as obtained from PDS 2003 and 2001. Area wise comparison indicates that general fertility rates were higher (about 21 percent) in rural areas as compared to urban areas of the country.

Table 4.9   **GENERAL FERTILITY RATES BY URBAN / RURAL RESIDENCE**

SURVEY	GENERAL FERTILITY RATE		
	ALL AREAS	URBAN AREAS	RURAL AREAS
PDS-2003	114.5	97.9	124.5
PDS-2001	120.8	103.0	131.6

AGE SPECIFIC FERTILITY RATES

24.   Age specific fertility rate is more refined way to measure fertility trends. In general, fertility is comparatively low among women of ages less than 20 years and after 39 years. It is concentrated at the ages 20-34 years as shown in table 4.10 and figures 4.1.

Table 4.10   **AGE SPECIFIC FERTILITY RATES (PER 1000 WOMEN) BY URBAN-RURAL RESIDENCE PAKISTAN**

AGE GROUP	PDS – 2003			PDS – 2001		
	ALL AREAS	URBAN AREAS	RURAL AREAS	ALL AREAS	URBAN AREAS	RURAL AREAS
15-19	23.7	14.2	29.7	24.2	18.6	27.8
20-24	163.1	137.1	178.9	162.0	135.8	178.4
25-29	229.6	219.3	236.1	242.9	227.9	251.3
30-34	190.0	169.2	201.6	197.2	176.7	208.7
35-39	112.7	93.4	124.5	118.5	96.2	133.0
40-44	49.0	34.2	57.8	57.9	41.9	67.1
45-49	18.8	11.2	23.7	2.9	12.6	27.3

25.   From the above table it is visible that the age specific fertility rate raises sharply for age group 20-24 years and reaches the peak in the age group 25-29 years, then declines

slowly up to age 35-39 years and rapidly in the age groups 40-44 and 45-49 years. This trend was observed in both urban and rural areas of the country.

26.   Table 4.10 shows the age specific fertility rates for PDS 2003 and 2001. It may be noticed that in both the surveys the modal age group was 25-29 years.

27.   Table 4.11 indicate that 4 to 6 percent births were contributed by the women below the age of 20 years and 1 to 5 percent of births had occurred to women of the ages 40 years and above in the survey of 2003. About 89 to 92 percent were contributed by the women aged 20-39 years. The percentage contribution of births is higher in urban areas than in rural areas in the age group of 20-34 years. The percentage distribution of births contributed by age group 15-19 years is higher in rural areas than in urban areas, which show the traditionally early marriages in the rural females.
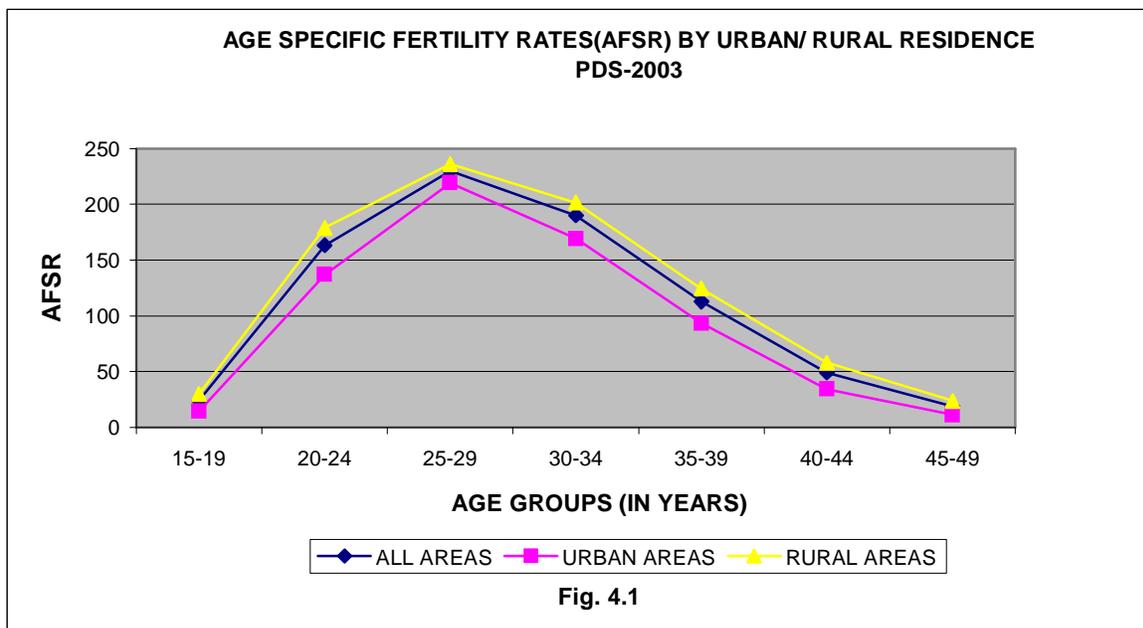

Fig. 4.1

19

TABLE 4.11 **PERCENTAGE DISTRIBUTION OF BIRTHS BY AGE OF MOTHER AND URBAN-RURAL RESIDENCE**

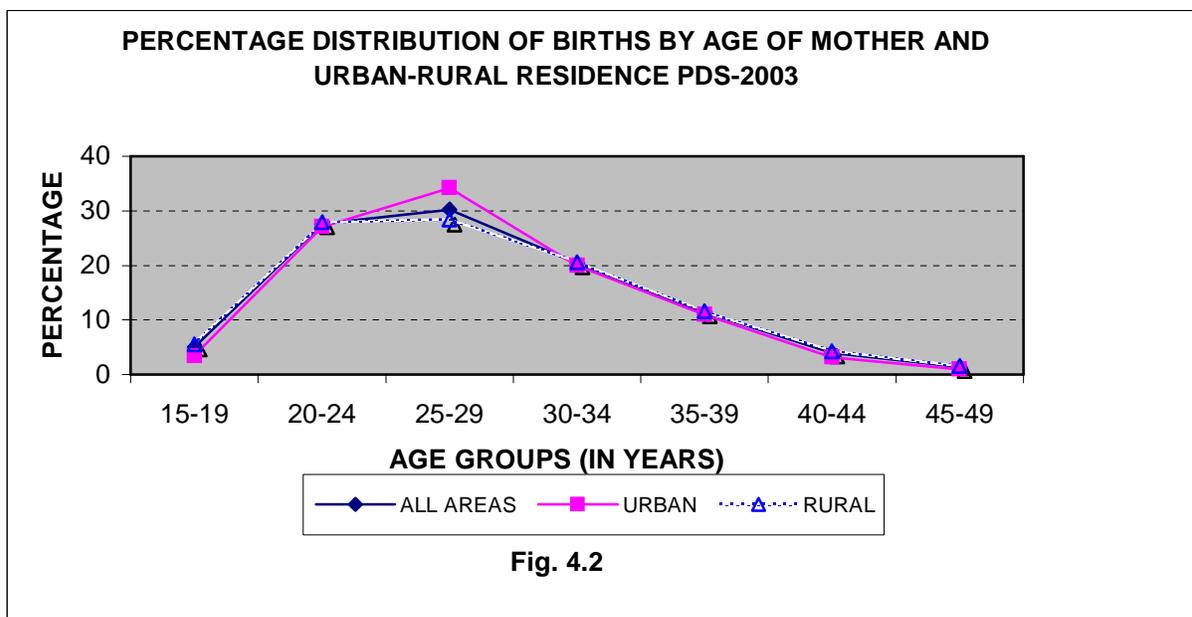| SURVEY	AGE GROUP (YEARS)							
	TOTAL	15-19	20-24	25-29	30-34	35-39	40-44	45-49
PDS-2003								
ALL AREAS	100.0	5.0	27.6	30.2	20.4	11.4	4.0	1.4
URBAN	100.0	3.5	27.1	34.2	20.0	11.0	3.2	1.0
RURAL	100.0	5.6	27.9	28.4	20.6	11.6	4.3	1.6
PDS-2001								
ALL AREAS	100.0	4.6	26.5	31.3	20.7	11.2	4.2	1.5
URBAN	100.0	4.3	26.5	32.7	20.8	11.2	3.5	1.0
RURAL	100.0	4.8	26.4	30.6	20.6	11.2	4.6	1.8

AGE SPECIFIC MARITAL FERTILITY RATES

28.   Age specific marital fertility Rate (ASMFR) is an advance step in the analysis of fertility levels. Married females in any age group in the reproductive period constitute the population actually exposed to the risk of child-bearing as all reported births in PDS had occurred to married women only. In the age group 45-49 years about one percent woman remained never married.

29   Table 4.12 indicates that ASMFR rised sharply from age group 15-19 years and reached the maximum value in the age group 20-24 years then declined gradually in the next age groups and rapidly after age group 35-39 years. This patter was followed in the urban and rural areas in PDS-2003. Here the model age group is 20-24 years.

TABLE 4.12   **AGE SPECIFIC MARITAL FERTILITY RATES (PER 1000 CURRENTLY MARRIED WOMEN) BY URBAN-RURAL RESIDENCE**

AGE GROUP (YEARS)	PDS – 2003			PDS-2001		
	ALL AREAS	URBAN AREAS	RURAL AREAS	ALL AREAS	URBAN AREAS	RURAL AREAS
15-19	178.7	185.9	176.6	173.0	230.5	156.2
20-24	292.0	326.6	278.3	279.5	296.0	272.3
25-29	268.3	272.5	266.0	282.9	282.3	283.1
30-34	203.5	184.7	213.7	210.1	190.9	220.7
35-39	119.6	99.5	131.7	125.2	102.5	139.8
40-44	52.6	37.3	61.6	62.1	45.3	71.6
45-49	21.3	12.9	26.5	24.5	14.4	30.2

PERCENTAGE DISTRIBUTION OF BIRTHS BY AGE OF MOTHER AND URBAN-RURAL RESIDENCE PDS-2003

Fig. 4.2

TOTAL FERTITLITY RATE

30.   Total Fertility Rate (TFR) is one of the summary measures of current fertility level. It indicates the number of children to be born to a woman during her reproductive span of life. The advantage of this measure is that it is less influenced by the age structure of the population. The TFRS depicted by the PDS 2003 and 2001 are given in table 4.13.

TABLE 4.13   **TOTAL FERTILITY RATE**

S U R V E Y	TOTAL FERTILITY RATE (PER WOMAN)		
	ALL AREAS	URBAN AREAS	RURAL AREAS
PDS-2003	3.9	3.4	4.3
PDS-2001	4.1	3.5	4.5

31.   TFR in urban areas was lower than that in rural areas in both surveys.

MORTATLITY

32.   Information on death events was obtained through January, 2004 visit with a reference period of last 12 months (e.g., 1st January to 31st December, 2003) In case of the death of usual member of the household during the reference period, detailed information in respect of the deceased was recorded in PDS-4 Form.

CRUDE DEATH RATE

33. Crude death rate (CDR) i.e. deaths per 1000 persons as obtained from PDS 2003 and 2001 for Pakistan with urban-rural breakdown are given in table 4.14.

TABLE 4.14 **CRUDE DEATHS RATES BY URBAN-RURAL RESIDENCE**

SURVEY	CRUDE DEATH RATE								
	ALL AREAS			URBAN AREAS			RURAL AREAS		
	BOTH SEXES	MALE	FEMALE	BOTH EXES	MALE	FEMALE	BOTH EXES	MALE	FEMALE
PDS-2003	7.0	7.3	6.6	6.2	6.8	5.6	7.4	7.9	6.9
PDS-2001	7.2	7.4	6.9	6.3	6.6	6.0	7.6	7.9	7.3

34. The Crude death rate obtained from the PDS 2003 was 7.0 per thousand persons for Pakistan. The crude death rate was lower in urban areas than in rural areas in both the surveys.

SEX AND AGE SPECIFIC MORTALILTY

35 The impact of mortalilty on various age groups is not evenly distributed. The age curve of mortality (figure 4.3) is bimodal i.e., it has two peaks. The Age specific Death Rate (ASDR) starts at a very high peak immediately after birth, decline to a minimum value for the young age population (5-19 years) then rises gradually among the age groups 20-49 years and then rapidly at the advanced ages. This pattern had been observed both for males and females in both the surveys. The child mortalilty 0-4 (years) is very high in Pakistan i.e. about 39 percent of the total deaths.

TABLE 4.15 **AGE SPECIFIC DEATH RATES BY SEX, PAKISTAN**

AGE GROUP (YEARS)	P D S – 2 0 0 3			P D S – 2 0 0 1		
	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE
ALL AGES	7.0	7.5	6.4	7.2	7.4	6.9
BELOW-1	81.8	86.6	76.5	81.9	85.2	78.5
01-04	6.2	6.8	5.6	5.6	5.7	5.5
05-09	0.8	1.1	0.6	1.6	1.5	1.7
10-14	0.4	0.7	0.1	1.2	0.8	1.7
15-19	0.9	0.6	1.3	1.4	1.5	1.3
20-24	1.7	1.4	1.9	1.9	1.5	2.3
25-29	1.8	1.9	1.6	2.1	2.2	1.9
30-34	2.0	2.3	1.7	2.5	3.4	1.8
35-39	2.6	2.7	2.6	4.2	4.8	3.5
40-44	3.5	3.8	3.1	4.0	3.9	4.1
45-49	4.8	5.6	4.1	5.4	6.4	4.3
50-54	11.4	10.0	12.9	8.7	9.1	8.1
55-59	15.8	16.7	14.7	13.2	13.2	13.1
60-64	23.7	26.3	20.7	20.3	18.4	22.6
65+	57.7	57.6	57.8	53.2	53.3	53.1

36.   The urban and rural differentials also depict the socio-economic development and medical facilities available in urban areas.

AGE SPECIFIC DEATH RATES (ASDR) BY SEX, PAKISTAN PDS-2003

Fig. 4.3
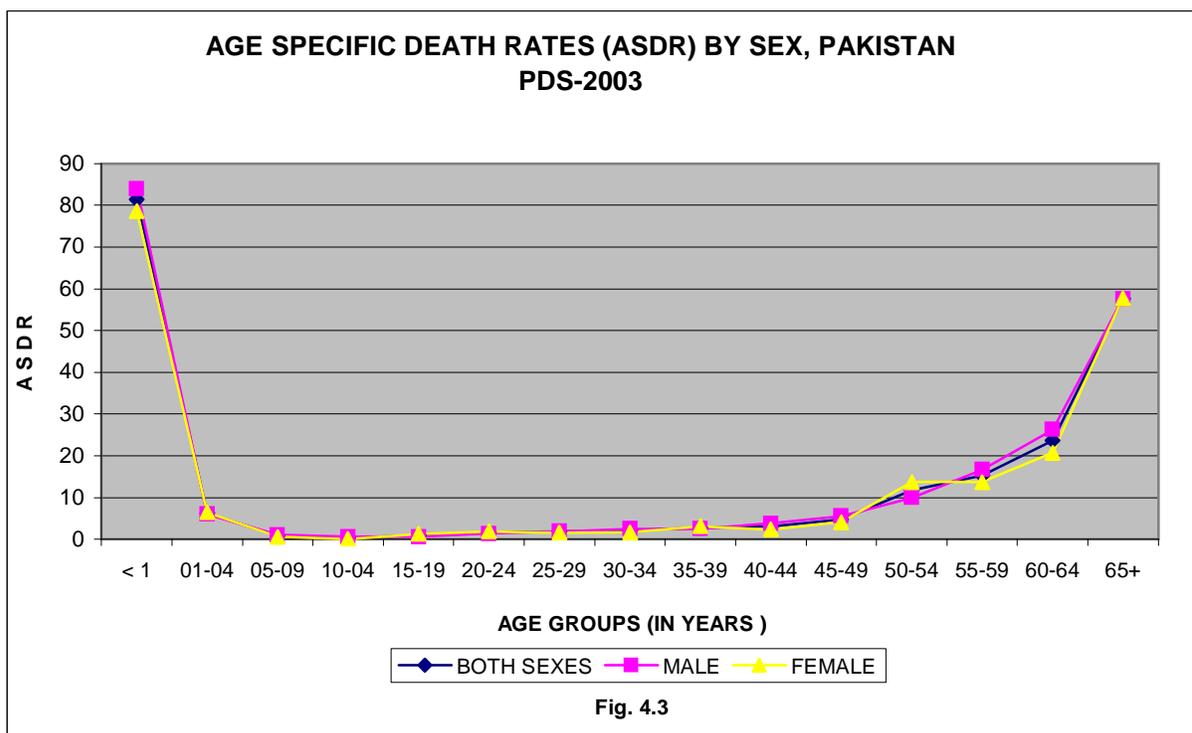
37.   Females have higher chances of survivorship in all countries of the world, with only a few exceptions. In the past female life expectancy was lower than that of males in Pakistan. However, at present the universal pattern has been observed in Pakistan, i.e. female life expectancy is slightly higher than male life expectancy. Females have lower death rates than the males for most age groups except for the ages 0-4 years and some ages during the reproductive period. The age specific mortality rates by age and sex are graphically shown in fig. 4.3 for PDS 2003.

INFANT MORTALITY RATES (IMRS)

38.   Infant Mortality Rate (IMR) measures the mortality below one year of age. It is defined as the number of infant deaths during a calendar year per 1000 live births in the same year. Infant mortality is an important indicator to judge socio-economic conditions, cultural factors, status of hygiene and availability & utilization of medical services.

39.   Table 4.16 exhibits the Infant mortality rates as obtained from PDS 2003 and 2001. Infant mortality rate has been declining in Pakistan but it is still high. The infant mortality rate has declined by 1.2 percent in 2003 as compared to 2001.

Table 4.16 **INFANT MORTALITY RATES BY URBAN-RURAL RESIDENCE**

SURVEY	INFANT MORTALITY RATE								
	ALL AREAS			URBAN AREAS			RURAL AREAS		
	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE
PDS-2003	76.2	81.1	71.0	67.2	69.7	64.4	80.6	85.6	74.1
PDS-2001	77.1	77.1	77.0	68.9	68.3	69.2	80.9	82.8	82.3

40.   Infant mortality rates were much higher (about 20 percent) in rural areas than in urban areas where better neo-natal and post-natal facilities are available.

NEO-NATAL AND POST-NEO-NATAL MORTALITY RATES

41.   Mortality during the first year of life is divided into two main period's i.e.

     i)   Neo-natal Mortality occurring within the first month and,
     ii)   Post-neonatal mortality occurring during the remaining 11 months.

INFANT MORTALITY RATES BY URBAN-RURAL RESIDENCE PDS-2003

Fig. 4.4
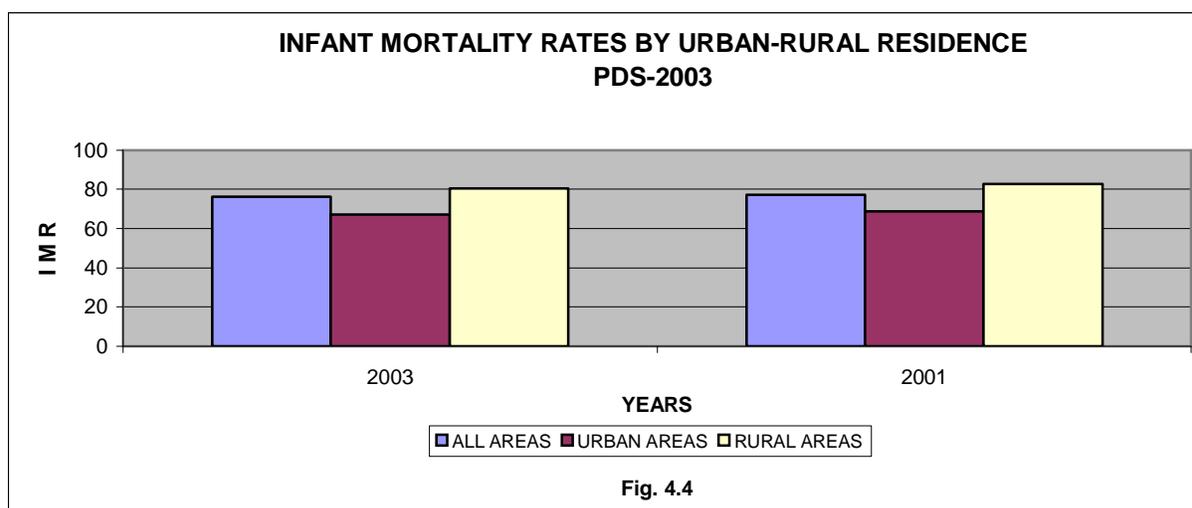
42   This distinction is useful as the causes as well as the levels of mortality are quite different in these two periods. Table 4.17 and figures 5.5 shows that mortality within the first month after birth was very high in 2003.

Table 4.17   **NEO-NATAL AND POST NEONATAL MORTALITY RATES (PER 1000 LIVE BIRTHS) BY URBAN – RURAL RESIDENCE**

SURVEY	ALL AREAS		URBAN AREAS		RURAL AREAS	
	NEO-NATAL MORTALITY	POST NEO-NATAL MORTALITY	NEO-NATAL MORTALITY	POST NEO-NATAL MORTALITY	NEO-NATAL MORTALITY	POST NEO-NATAL MORTALITY
PDS-2003	43.1	33.1	33.4	33.8	47.8	32.7
PDS-2001	46.8	30.3	43.0	25.9	48.6	32.3

43.   Like crude death rates and infant mortalility rates, the PDS-2003 data indicates that the neo-natal mortality in rural areas was about 43 percent higher than in the urban areas.

INFANT MORTALIITY RATES NEO-NATAL AND POST NEO-NATAL MORTALITY RATES BY URBAN – RURAL RESIDENCE PDS-2003

FIG. 4.5
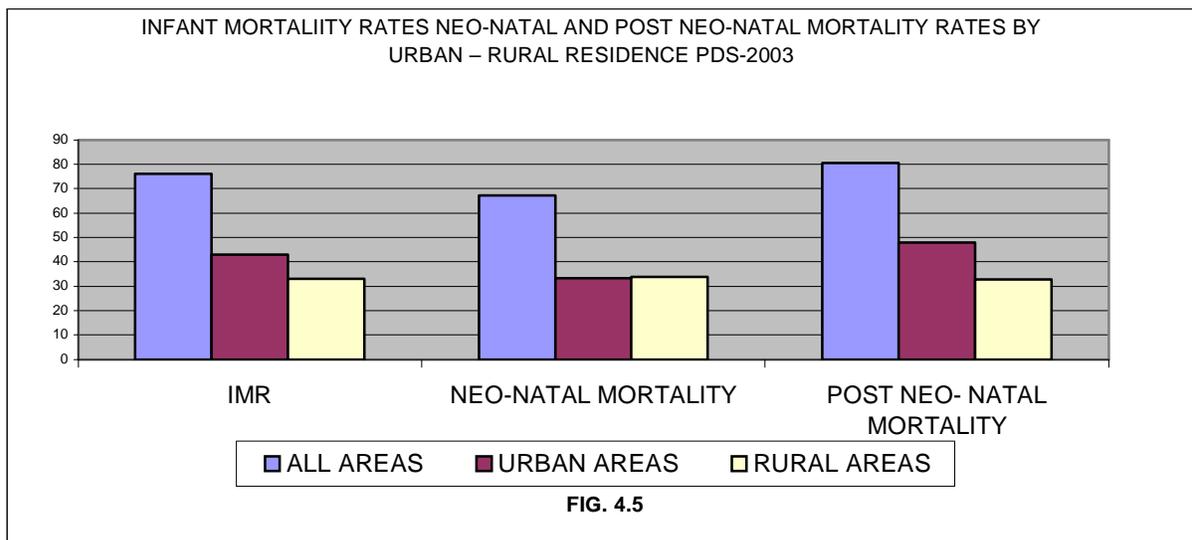
44.   The maternal mortality rate as obtained from PDS 2003 is 364 per 100,000 live births. The maternal mortality rate is very high in Pakistan although mortality rate is declining.

NATURAL GROWTH RATE

45.   The natural growth rate as depicted from PDS 2003 was 1.95 per annum (Table 4.18). The growth rate has declined about 5 percent in 2003 as compared to 2001. High natural growth rate during the last few decades was the result of a steadily declining trend in mortality with only moderate decline in fertility. With this high growth rate, the population of the country will be doubled in 36 years.

TABLE 4.18   **BIRTH RATES, DEATH RATES AND NATURAL RATES OF INCRASE**

SURVEY	BIRTH RATE (PER 1000 PERSONS)	DEATH RATES (PER 1000 PERSONS)	NATURAL RATE OF INCRASE (PERCENT)
PDS-2003	26.5	7.0	1.95
PDS-2001	27.8	7.2	2.06

EXPECTATION OF LIFE

46**.**   The expectation of life at birth is a summary measure Index that is obtained from a life table. It shows the average number of years that persons can expect to live from the time of birth if they experience currently prevailing the age specific death rates throughout their life. The expectation of life at birth is independent of the age structure of a population and therefore provides a more reliable index for international comparisons of the level of mortality, social and economic condition of a country.

47.   From the Life Table of PDS 2003, it depicts that the expectancy of life at birth of males and females in Pakistan are 64 and 66 years respectively.

TABLE: 4.19 ABRIDGED LIFE TABLE PDS-2003

MALE

Age X	Width n	nMx	nax	nqx	lx	ndx	nLx	5Px	Tx	ex
0	1	0.07914	0.217	0.07452	100,000	7,452	94,163	0.91738	6,473,449	64.73
1	4	0.00595	1.389	0.02344	92,548	2,170	364,527	0.98230	6,379,286	68.93
5	5	0.00117	2.500	0.00585	90,378	528	450,570	0.99549	6,014,758	66.55
10	5	0.00063	2.500	0.00316	89,850	284	448,539	0.99624	5,564,188	61.93
15	5	0.00088	2.500	0.00437	89,566	392	446,851	0.99469	5,115,649	57.12
20	5	0.00125	2.500	0.00625	89,174	557	444,480	0.99192	4,668,798	52.36
25	5	0.00200	2.500	0.00993	88,617	880	440,887	0.98940	4,224,318	47.67
30	5	0.00227	2.500	0.01128	87,737	990	436,213	0.98724	3,783,431	43.12
35	5	0.00287	2.500	0.01425	86,748	1,236	430,648	0.98337	3,347,218	38.59
40	5	0.00385	2.500	0.01904	85,512	1,628	423,487	0.97496	2,916,571	34.11
45	5	0.00633	2.500	0.03115	83,883	2,613	412,883	0.95947	2,493,084	29.72
50	5	0.01030	2.500	0.05022	81,270	4,081	396,148	0.93440	2,080,200	25.60
55	5	0.01706	2.500	0.08180	77,189	6,314	370,159	0.90739	1,684,053	21.82
60	5	0.02203	2.500	0.10439	70,875	7,398	335,878	0.89534	1,313,894	18.54
65	5	0.02215	2.500	0.10496	63,476	6,662	300,726	0.69251	978,016	15.41
70+		0.08388	11.921	1.00000	56,814	56,814	677,290		677,290	11.92

FEMALE

Age X	Width n	nMx	nax	nqx	lx	ndx	nLx	5Px	Tx	ex
0	1	0.07309	0.217	0.06914	100,000	6,914	94,589	0.92145	6,555,708	65.56
1	4	0.00646	1.375	0.02541	93,086	2,365	366,136	0.98301	6,461,119	69.41
5	5	0.00062	2.500	0.00312	90,721	283	452,899	0.99809	6,094,983	67.18
10	5	0.00014	2.500	0.00071	90,438	64	452,032	0.99782	5,642,085	62.39
15	5	0.00073	2.500	0.00366	90,374	330	451,046	0.99423	5,190,053	57.43
20	5	0.00159	2.500	0.00790	90,044	711	448,442	0.99149	4,739,007	52.63
25	5	0.00183	2.500	0.00913	89,333	815	444,625	0.98974	4,290,566	48.03
30	5	0.00230	2.500	0.01141	88,517	1,010	440,062	0.98756	3,845,940	43.45
35	5	0.00271	2.500	0.01348	87,507	1,179	434,588	0.98484	3,405,878	38.92
40	5	0.00340	2.500	0.01687	86,328	1,456	427,999	0.97861	2,971,290	34.42
45	5	0.00526	2.500	0.02598	84,872	2,205	418,846	0.96403	2,543,291	29.97
50	5	0.00946	2.500	0.04621	82,667	3,820	403,782	0.93748	2,124,445	25.70
55	5	0.01658	2.500	0.07961	78,846	6,277	378,538	0.90679	1,720,663	21.82
60	5	0.02283	2.500	0.10798	72,569	7,836	343,255	0.86658	1,342,125	18.49
65	5	0.03524	2.500	0.16193	64,733	10,482	297,459	0.70220	998,870	15.43
70+		0.07735	12.929	1.00000	54,251	54,251	701,412		701,412	12.93