Chapter 1

INTRODUCTION

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.

2. 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 current series of demographic surveys, known as Pakistan Demographic Survey (PDS) was launched in 1984. This report pertains to the data collected through PDS during 2006.

Objectives

3. 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 mortality for Pakistan and its rural and urban areas;

ii. to estimate 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 development programmes.

Administrative set up of the country

4. Pakistan is administratively divided into four provinces, namely, Punjab, Sindh, North West Frontier Province (NWFP) and Balochistan. Its population and area is unevenly distributed. Balochistan is the largest province by area, with about 44 percent of total area however, contains 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 (also figure 1), 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 [Per sq km]		Inter Censal 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

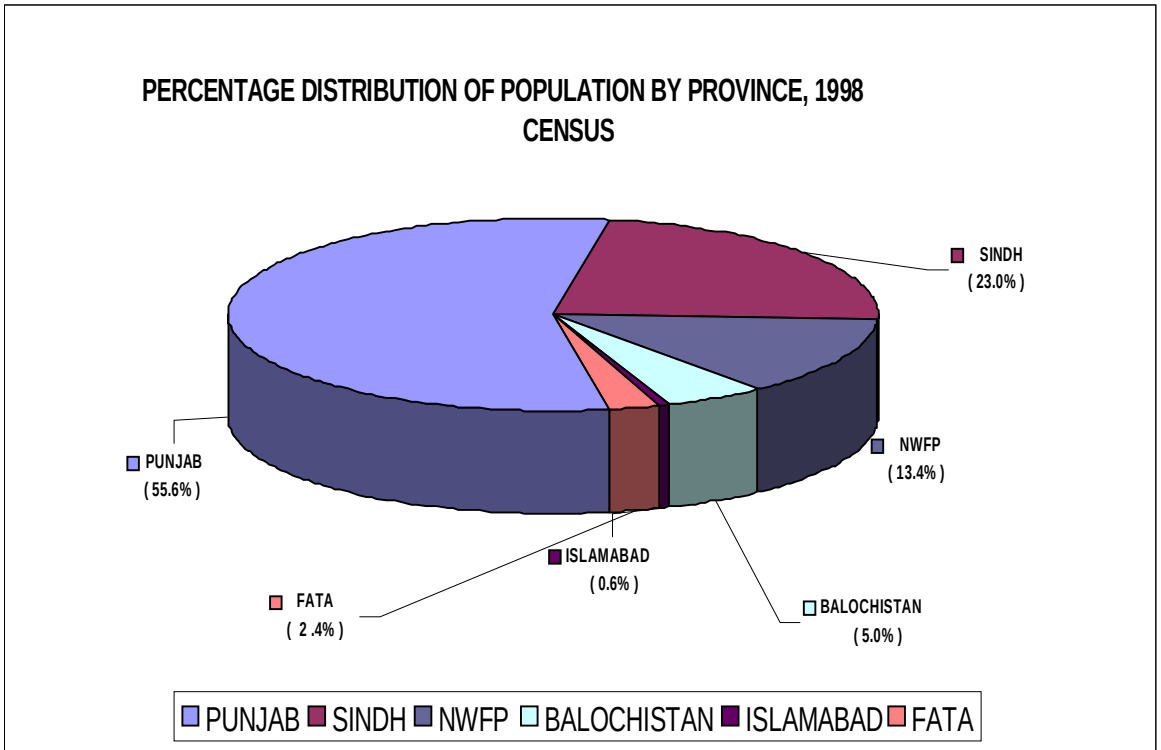


Fig - 1

Concepts and Definitions

5. 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 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.

xv. Whipple's Index reflects the preference for or avoidance of a particular terminal digit or of each terminal digit. It varies between 100-500 showing no preferences & high preferences of digit '0' and 5.

xvi. Singulate Mean Age At Marriage is an estimate of the mean number of years lived by a cohort of males or females before their first marriage.

Chapter 2

SAMPLE DESIGN

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 areas. 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 was updated during 2003 and the list of villages/mouzas/dehs published /prepared by Population Census Organization (Population Census 1998) 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

Large size cities i.e. Karachi, Lahore, Gujranwala, Faisalabad, Rawalpindi, Multan, Sialkot, Sargodha, 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**

After excluding the population of large cities, the remaining urban population of each administrative division in all the provinces has been grouped together to form a stratum.

Rural Domain

3 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

4. Considering the variability of the characteristics for which estimates are to be prepared, population distribution and field resources available a sample size of 31581 out of 31680 sample households (SSUs) have been covered which are appropriate to provide reliable estimates of key variables at National 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 rural population is more heterogeneous therefore, higher proportion of sample size has been assigned to rural 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.

5. 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 2006			Number of Sample Household Covered During 2006		
	Total	Urban	Rural	Total	Urban	Rural
Pakistan	704	308	396	31581	13793	17788
Punjab	364	158	206	16285	7045	9240
Sindh	160	80	80	7197	3599	3598
NWFP	112	42	70	5041	1891	3150
Balochistan	68	28	40	3058	1258	1800

Sample Design:

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

Selection Procedure

a. Selection of primary sampling Units (PSUs): 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 rural domain, the number of households in enumeration block as per record of 2003 lists 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): 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.

Estimation Procedure

Estimation Procedure and formulae based on stratified two stage sample design have been developed.

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 personal 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 are available with the revenue authorities or Directorate of Land Records, incase revenue map is 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 are 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 are 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, same are updated in case of new structures in any Enumeration Block. Household listing and structure numbering is 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 31th December, 2006) in January 2007 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.

9. 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, PDS-2003 , PDS-2005 and PDS-2006, a new methodology has been introduced and justification for using the same is given below: -

Justification for Using New Methodology

10. The experiences of previous methodologies revealed that much time and cost were involved in matching of birth and death events on 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.

11. 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. This methodology of data collection was considered best for better findings of the survey well in time for the users and planners. In PDS-2006, the reference period was the last 12 months i.e. from 01-01-2006 to 31-12-2006. The population was enumerated as on 1st January 2007. The population of Pakistan has been estimated taking into consideration of growth rate calculated by the said survey.

12. The methodology adopted in the PDS-2006 is described below: -

Population Coverage

13. In the PDS 2006, the coverage of the population is 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) are 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 is out of the sample areas, is not enumerated in the survey. Students who are studying in any other village/town but living in the hostels or boarding houses are enumerated with their parent's household. However, if any such student is living with his relatives, friends or in a private house, then he is enumerated at the place where he is being studied. Population of institutions, such as patients admitted in the hospitals, inmates of prison houses are not covered. Instead, they are enumerated with their usual households, provided their period of absence is not more than six months.

14. 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. 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. c) A person found at his place of business within the sample area, provided it was his usual residence also. 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. e) Persons who were temporarily admitted to a hospital for medical treatment. f) Married daughters whose husbands are in military service or working in a distant place but who have usual residents of sample households. 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.	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) Person who were residing in the premises of a foreign embassy. c) Person living in military barracks and other security or prohibited areas. d) Persons living in boarding houses, hostels that were located in the sample area. e) Married daughters who are temporarily residing in the parent's home for delivery of an expected birth or on a short visit. f) Persons who usually live at the place of their work but returned to their family on week-ends or during holidays.

Coverage of Birth and Death Events

15. Birth and death events which occurred to the usual members of the selected household are enumerated one time with a reference period of last 12 calendar months (i.e.01-01-2006 to 31-12-2006) in January-March 2007 visit.

16. For each live birth, which occurred to a usual household member during the reference period i.e. from 1st January 2006 to 31st December 2006, a "Birth Enumeration Form" is filled-in. This form contains the information about the newborn, 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 reference period i.e.01-01-2006 to 31-12-2006, a "Death Enumeration Form "is filled-in.

Chapter 4

FINDINGS OF THE SURVEY

Demographic Characteristics

Although the main objective of the Pakistan Demographic Survey (PDS) is 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 are also collected in the PDS 2006. Summary of the main findings based on this information is given in the subsequent paragraphs.

Age Data

2. Data on age is obtained in completed years. For persons aged one year or over, the age is 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 is 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 are 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 are 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

5. 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- 2006	195.0	185.9	179.1	175.7	203.4	190.9
PDS- 2005	191.7	188.6	181.5	183.9	200.4	192.3
CENSUS- 1998	172.5	200.9	150.8	175.9	185.4	213.8

6. 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.

7. Table 4.1 shows the percentage distribution of population by age and sex based on PDS and population census 1998.

Table No. 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 -2006 a/	100.0	42.2	53.9	3.9
PDS -2005 a/	100.0	41.8	54.6	3.6
CENSUS -1998 b/	100.0	43.1	53.3	3.6
FEMALE				
PDS-2006 a/	100.0	40.9	56.0	3.1
PDS-2005 a/	100.0	41.4	55.6	3.0
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).

8. The above table shows that in PDS-2006, the proportion of children under 15 years is 40.9 percent for females and 42.2 percent for males. The census figures of 1998 indicates slightly higher share i.e. 43.3 and 43.1 percent respectively. The decline in the under 15 years population share indicates a decline in fertility in the country. The proportion of old persons (65 years and over) is quite low. Only about 3 to 4 percent of population falls in this age group.

Dependency Ratio

9. 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-2006 and population census of 1998.

Table No. 4.2: Dependency Ratios for Pakistan and Provinces

PROVINCE	DEPENDENCY RATIOS		
	PDS–2006	PDS–2005	CENSUS–1998
Pakistan	82.0	81.5	87.3
Punjab	78.2	77.0	85.6
Sindh	79.7	84.4	83.4
NWFP	94.4	92.3	100.3
Balochistan	103.6	92.1	95.9

10. 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 are higher in NWFP and Balochistan as compared to Sindh and Punjab during 2006.The same pattern was observed in the census of 1998.

Sex Ratio

11. Sex ratio at birth has been recorded as 104 for PDS 2006. Sex ratio at birth is high in urban areas as compared to rural areas. An analysis of data during 1951-2006 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 2006, the overall sex ratio is 106. The sex ratio for urban areas is higher as compared to rural areas (table 4.3).

Table No. 4.3: Sex Ratio by Urban and Rural Areas

SURVEY/CENSUS	SEX RATIO		
	All Areas	Urban Areas	Rural Areas
PDS-2006	106	107	105
PDS-2005	106	107	105
CENSUS-1998	108	112	106

Household Size

12. A household in the PDS 2006 is 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.

13. The average household size as obtained from the PDS 2006 is 6.7 (table 4.4). This is about 1 percent lower as reported in PDS-2005 and in the census 1998. This household size is larger in rural areas than in urban areas in Punjab and N.W.F.P, while the household size is larger in urban areas of Balochistan in the year 2006.

Table No. 4.4: Average Household Sizes by Province & Urban-Rural Residence

A R E A	PDS-2006	PDS-2005	CENSUS-1998
PAKISTAN	6.7	6.8	6.8
URBAN	6.5	6.5	7.0
RURAL	6.8	6.9	6.8
PUNJAB	6.4	6.5	6.9
URBAN	6.4	6.4	7.1
RURAL	6.5	6.6	6.9
SINDH	6.6	6.7	6.0
URBAN	6.5	6.6	6.8
RURAL	6.6	6.8	5.5
NWFP	7.9	7.9	8.0
URBAN	7.6	7.6	7.9
RURAL	7.9	7.9	8.0
BALOCHISTAN	7.1	7.0	6.7
URBAN	7.2	7.5	7.8
RURAL	7.0	6.8	6.4

14. Percentage distribution of households by number of persons separately for urban and rural areas for the year 2006 is given in table 4.5. This table shows that the share of single person's household is 1 to 1.3 percent. The households with 5 or less persons has been constituted about 38 percent of the total households in the survey of PDS-2006. The corresponding figures i.e. 40 percent in urban areas, whereas, 37 percent in rural areas are estimated in PDS-2006 respectively. The households constituting 10 or more members covered in the survey are 14 to 16 percent.

Table No. 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-2006											
All Areas	100.0	1.2	4.8	7.2	10.7	13.9	15.3	13.7	10.7	7.7	14.8
Urban Areas	100.0	1.3	4.7	6.7	11.4	15.6	16.6	13.5	9.8	6.9	13.6
Rural Areas	100.0	1.1	4.8	7.5	10.4	12.9	14.5	13.8	11.3	8.1	15.5
PDS-2005											
All Areas	100.0	1.2	4.8	6.9	10.5	13.9	14.9	13.6	11.2	7.8	15.2
Urban Areas	100.0	1.5	4.5	7.1	11.1	15.2	16.1	13.7	10.7	6.9	13.1
Rural Areas	100.0	1.0	4.9	6.8	10.1	13.1	14.2	13.5	11.5	8.4	16.5
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

15. Age at first marriage and proportions of never married are among the important determinants of fertility in a population. Data on marital status is collected according to classification of never married, married, widowed, divorced and separated. A simple but important distribution of population by marital status is obtained by grouping the population into two broad marital status categories, never-married and ever-married by age and 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-2006 in Table No. 4.6.

Table No. 4.6: Percentages of Never Married by Sex and Age Groups

SEX/AGE GROUP [YEARS]	PDS–2006	PDS– 2005	CENSUS 1998
MALE			
15-19	97.6	97.5	93.7
20-24	77.8	76.9	70.1
25-29	38.2	38.9	38.4
30-34	13.0	13.0	16.9
35-39	4.4	4.4	8.3
40-44	2.1	2.1	5.5
45-49	0.9	1.4	3.9
FEMALE			
15-19	88.9	88.3	78.9
20-24	47.1	45.1	38.8
25-29	14.5	14.3	14.8
30-34	4.2	4.4	7.1
35-39	1.9	2.2	4.3
40-44	1.3	1.5	3.4
45-49	1.0	1.0	2.5

16. The above table indicates that in case of both male and female, 1 percent remains unmarried in the age group 45-49 years in 2006 survey. It shows that marriage is almost universal in Pakistan for males and females.

17. The rising proportion of never-married are 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 2006, 89 percent females in the age group 15-19 are single as compared to 25 percent in the 1961 population census indicates more than 3 fold increase in 46 years.

18. Comparing the proportion of never married females by age for various data sources, it is evident that the age at marriage has increased. For instance, the proportions of never-married females in the age group of 15-19 years has been increased about 13 percent in 2006 as compared to 1998 population census.

Similarly, the percentage share of never- married females in the age group of 20-24 years has also been increased by 21 percent for the same period. When compared with 1998 Census the corresponding proportions of these age groups for males also showed an increase of 4 percent and 11 percent respectively.

19. Table No. 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 No. 4.7: Singulate Mean Age At Marriages By Sex

SURVEY/CENSUS	MALE [YEARS]	FEMALE [YEARS]
PDS-2006	26.5	22.7
PDS-2005	26.4	22.5
CENSUS-1998	25.8	21.7

20. An analysis of data from 1961 to 2006 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 has risen to 26.5 years in 2006, similarly for females, the age at marriage has been increased from 16.7 to 22.7 years during the same period. This increasing trend in age at marriage would contribute in fertility reduction in the country.

Fertility

21. Data on birth events are collected through January 2007 visits by asking retrospective questions with a reference period of last 12 months (i.e. from 1st January to 31st December 2006). 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 are recorded in PDS-3 Form.

Crude Birth Rate

22. 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. The crude birth rate as obtained from the PDS 2006 is 25.9 per 1000 persons.

23. Table 4.8 indicates that rural-urban differentials exist in the fertility level; rates for rural areas are higher than those of urban areas in both the surveys. The crude birth rate is about 16 percent higher in rural areas as compared to urban areas. The crude birth rate has declined 23 percent during the last 10 years, as it was 33.8 in 1997.

Table No. 4.8: Crude Birth Rates by Urban/Rural Residence

SURVEY	CRUDE BIRTH RATE		
	All Areas	Urban Areas	Rural Areas
PDS-2006	25.9	23.4	27.2
PDS-2005	26.1	23.9	27.4

General Fertility Rates

24. Crude Birth Rate (CBR), though a very useful index of measuring fertility, is subject to a number of limitations, as it includes certain segments of population in the denominator 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 2006 and 2005. Area wise comparison indicates that general fertility rates are higher (about 33 percent) in rural areas as compared to urban areas of the country. The general fertility rate has declined 29 percent as compared to 152.8 in 1997.

Table No. 4.9: General Fertility Rates by Urban/Rural Residence

SURVEY	GENERAL FERTILITY RATE		
	All Areas	Urban Areas	Rural Areas
PDS-2006	108.8	90.6	120.1
PDS-2005	110.6	95.0	120.1

Age Specific Fertility Rates

25. 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 20-39 years as shown in table 4.10 and figure 4.1.

Table No. 4.10: Age Specific Fertility Rates (Per 1000 Women) By Urban-Rural Residence Pakistan

AGE GROUP	PDS – 2006			PDS – 2005		
	All Areas	Urban Areas	Rural Areas	All Areas	Urban Areas	Rural Areas
15-19	18.1	10.1	23.3	20.3	10.7	26.2
20-24	149.8	118.7	170.7	157.6	132.1	173.6
25-29	225.8	209.6	235.3	225.5	210.9	233.9
30-34	176.6	164.6	183.3	179.9	169.6	185.9
35-39	107.7	92.6	116.8	106.6	92.5	115.4
40-44	53.6	25.7	71.2	50.1	31.0	62.0
45-49	15.6	9.0	19.7	18.1	11.6	21.9

26. From the above table it is quite 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 can be observed in both urban and rural areas of the country.

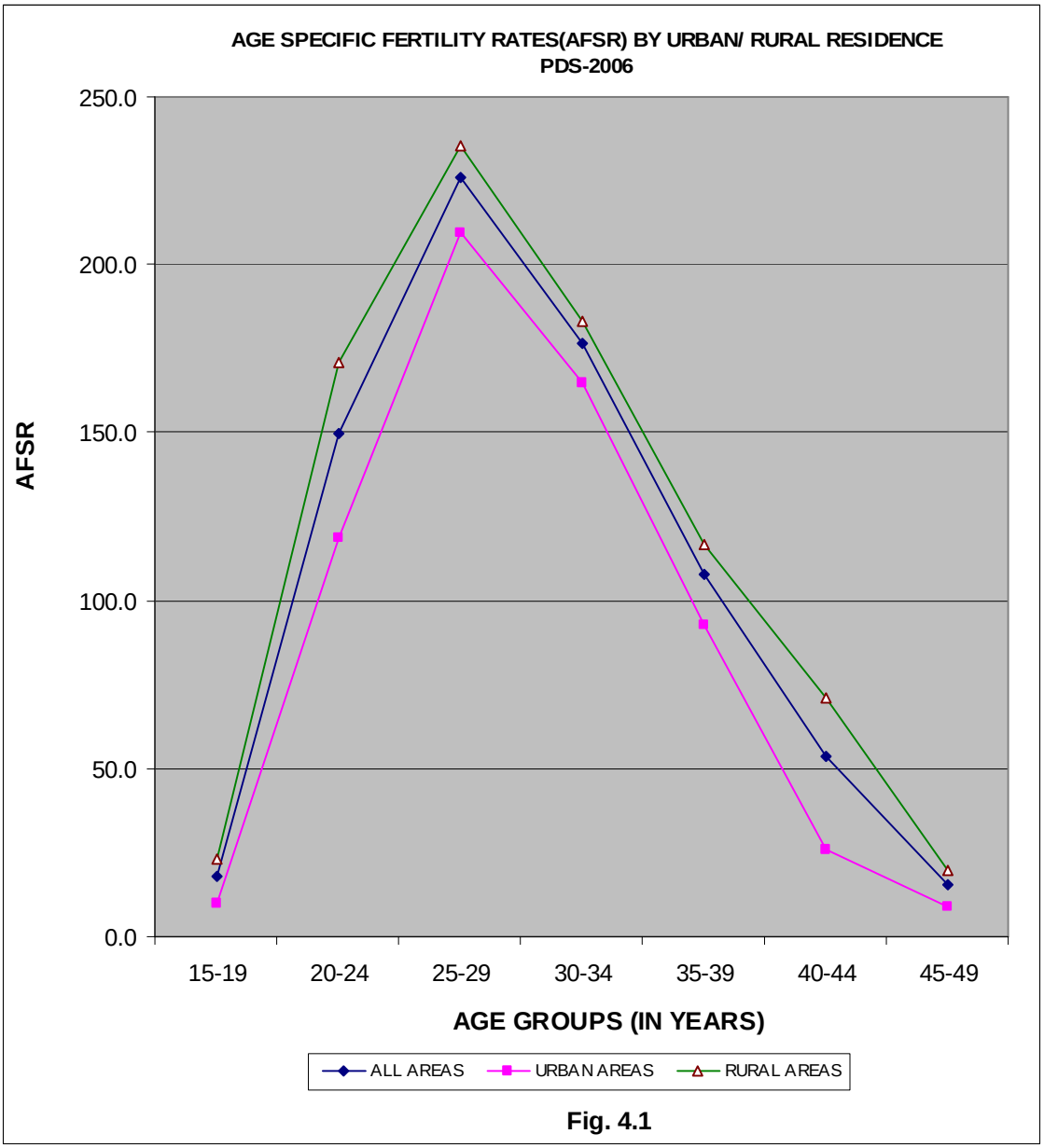


Fig. 4.1

27. Table No. 4.10 shows the age specific fertility rates for PDS 2006 and 2005. It may be noticed that in both the surveys the modal age group was 25-29 years.

28. Table No. 4.11 indicates that 3 to 4 percent births are contributed by the women below the age of 20 years and 1 to 6 percent of births has occurred to women of the ages 40 years and above in the survey of 2006. The women aged 20-39 years has been contributed about 89 to 94 percent births. The percentage contribution of births is higher in urban areas than in rural areas in the age group of

25-39 years. The percentage distribution of births contributed by age group 15-24 years is higher in rural areas than in urban areas, which show the traditionally early marriages in the rural females.

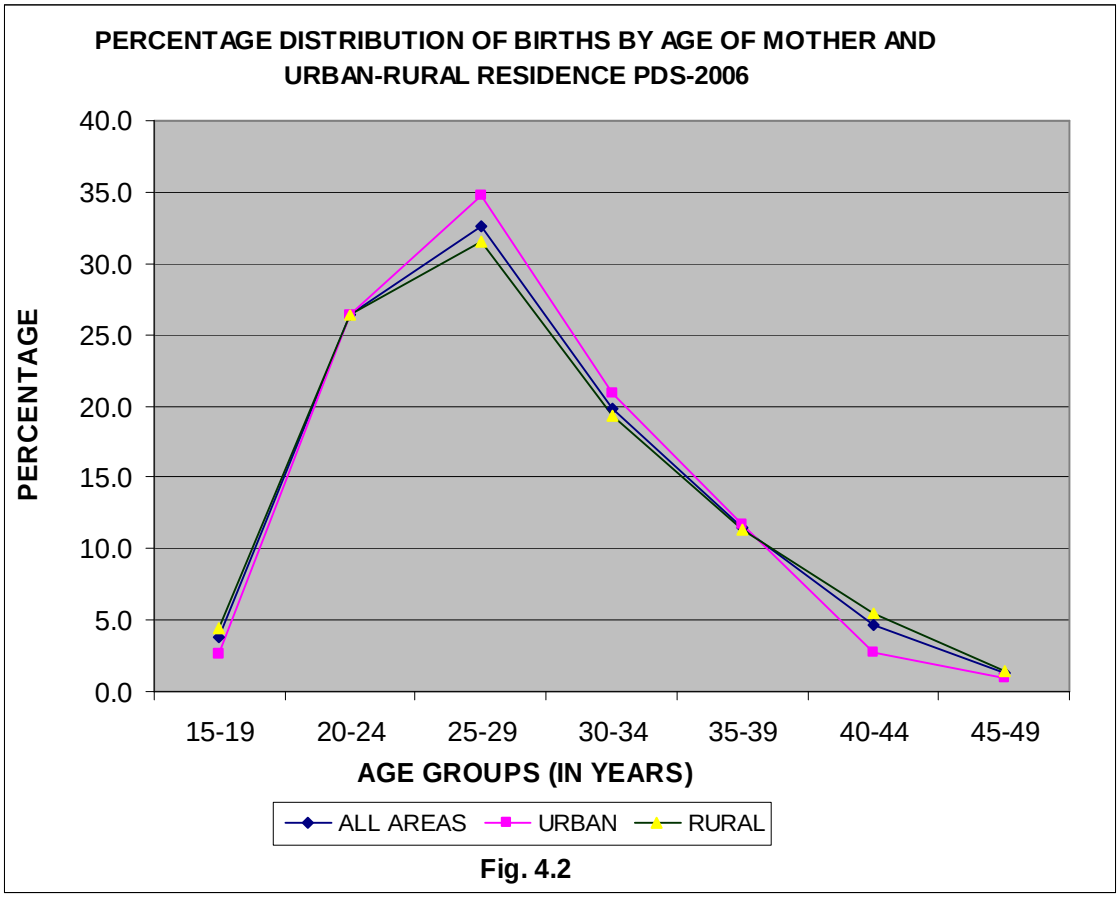


Fig. 4.2

Table No. 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-2006								
All Areas	100.0	3.8	26.4	32.6	19.8	11.5	4.6	1.3
Urban	100.0	2.6	26.4	34.8	20.9	11.7	2.7	0.9
Rural	100.0	4.4	26.4	31.5	19.3	11.4	5.5	1.4
PDS-2005								
All Areas	100.0	4.3	27.9	30.9	20.0	11.3	4.3	1.3
Urban	100.0	2.6	27.6	32.6	21.4	11.6	3.1	1.1
Rural	100.0	5.1	28.0	30.1	19.3	11.1	4.9	1.5

Age Specific Marital Fertility Rates

29. 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 childbearing as all reported births in PDS has occurred to married women only. In the age group 45-49 years about one percent women remained never married.

30. Table 4.12 indicates that ASMFR is raised sharply after age group 15-19 years in the next group to the maximum value in the age group 20-24 years then declines gradually in the next age groups and rapidly after age group 35-39 years. This pattern is also followed in the urban and rural areas in PDS-2006. Here the model age group is 20-24 years.

Table No. 4.12: Age Specific Marital Fertility Rates (Per 1000 Currently Married Women) By Urban-Rural Residence

AGE GROUP [YEARS]	PDS – 2006			PDS-2005		
	All Areas	Urban Areas	Rural Areas	All Areas	Urban Areas	Rural Areas
15-19	164.0	160.3	165.0	175.1	175.2	175.0
20-24	285.8	306.3	277.1	289.5	312.9	279.6
25-29	267.6	268.8	267.1	265.8	263.1	267.2
30-34	187.8	178.5	193.0	192.1	182.5	197.7
35-39	113.4	98.5	122.2	113.0	98.2	122.2
40-44	57.5	28.2	75.5	53.9	33.8	66.1
45-49	17.5	10.4	21.6	20.3	13.4	24.2

Total Fertility Rate

31. 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 2006 and 2005 are given in Table No. 4.13.

Table No.4.13: Total Fertility Rates

SURVEY	TOTAL FERTILITY RATE (PER WOMAN)		
	All Areas	Urban Areas	Rural Areas
PDS-2006	3.7	3.2	4.1
PDS-2005	3.8	3.3	4.1

32. TFR in urban areas is lower than that in rural areas in both surveys. Total fertility rate has also declined from 5 children per woman to 3.7 children per woman during the period 1997 to 2006.

Mortality

33. Information on death events is obtained through January, 2007 visit with a reference period of last 12 months (e.g., 1st January to 31st December, 2006). In case of the death of usual member of the household during the reference period, detailed information in respect of the deceased is recorded in PDS-4 Form.

CRUDE DEATH RATES

34. Crude death rate (CDR) i.e. deaths per 1000 persons as obtained from PDS 2006 and 2005 for Pakistan with urban-rural breakdown are given in Table No. 4.14.

Table No. 4.14: Crude Death Rates By Urban-Rural Residence

SURVEY	CRUDE DEATH RATE								
	ALL AREAS			URBAN AREAS			RURAL AREAS		
	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE
PDS-2006	7.0	7.6	6.3	5.8	6.6	4.9	7.6	8.1	7.0
PDS-2005	7.1	7.8	6.3	6.3	6.9	5.6	7.5	8.3	6.7

35. The Crude death rate obtained from the PDS 2006 is 7 per thousand persons for Pakistan. The crude death rate is lower in urban areas than in rural areas in both the surveys. The crude death rate has slightly declined from 7.1 in 2005 to 7 per thousand in 2006. Females have lower death rate than males in all the areas.

Sex And Age Specific Mortality Rates

36. The impact of mortality 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, declines to a minimum value for the young age population (5-14 years), rises gradually among the age groups 15-49 years and then rapidly at the advanced ages. This pattern has been observed both for males and females in both the surveys (Table-4.15). The child mortality 0-4 (years) is very high in Pakistan i.e. about 38 percent of the total deaths.

Table No. 4.15: Age Specific Death Rates by Sex, Pakistan

AGE GROUP [YEARS]	PDS–2006			PDS–2005		
	BOTH SEXES	MALE	FEMALE	BOTH SEXES	MALE	FEMALE
ALL AGES	7.0	7.6	6.3	7.1	7.8	6.3
BELOW-1	74.2	92.8	56.5	84.4	95.6	72.5
01-04	7.0	6.8	7.2	5.4	5.9	5.0
05-09	1.8	1.6	1.9	1.1	1.1	1.0
10-14	1.1	1.1	1.2	0.8	0.8	0.8
15-19	1.3	1.5	1.0	1.0	0.8	1.2
20-24	1.8	1.6	2.0	1.7	1.5	2.0
25-29	1.8	2.1	1.5	1.9	2.0	1.8
30-34	2.6	2.9	2.3	2.0	2.2	1.9
35-39	3.0	3.3	2.7	2.6	2.7	2.4
40-44	3.3	3.5	3.1	3.8	4.3	3.2
45-49	3.8	3.8	3.8	4.7	5.6	3.8
50-54	7.4	7.0	7.9	10.5	10.2	10.9
55-59	10.9	10.8	11.1	13.3	15.1	11.2
60-64	16.9	17.0	16.7	23.7	27.3	19.5
65+	57.4	57.2	57.6	64.5	66.1	62.5

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

38. Females have higher chances of survivorship in all countries of the world, with only a few exceptions. In the past female life expectancy is 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.

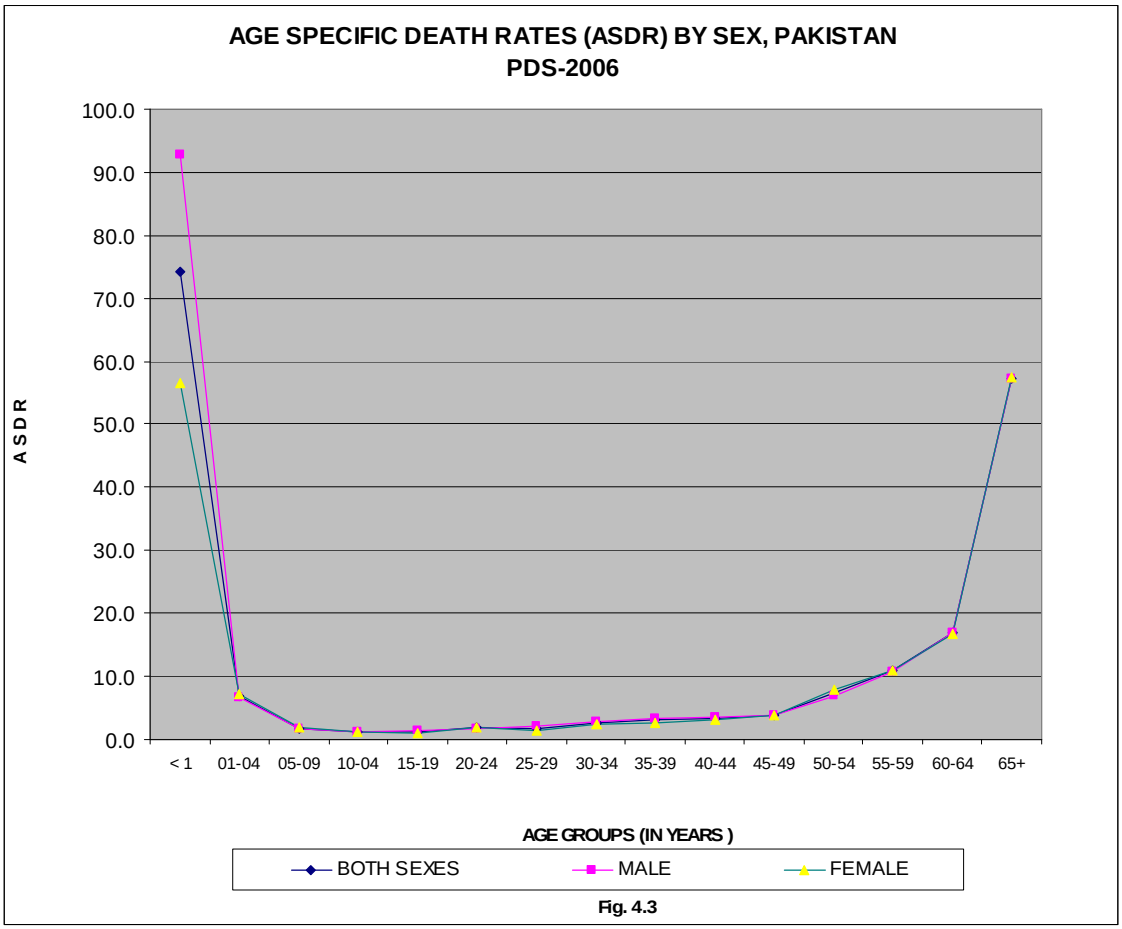


Fig. 4.3

39. Females have lower death rates than the males for most age groups except some ages 01-14, 20-24 and 50-59. The age specific mortality rates by age and sex are graphically shown in fig. 4.3 for PDS 2006.

Infant Mortality Rate (IMR)

40. 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.

41. Table No. 4.16 exhibits the Infant mortality rates as obtained from PDS 2006 and 2005. Infant mortality rate has been declining in Pakistan but it is still high. The infant mortality rate has slightly declined about 1 percent in 2006 as compared to 2005.

Table No. 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-2006	76.2	91.6	60.2	66.4	75.9	56.2	80.7	99.1	62.0
PDS-2005	76.7	84.8	67.6	67.1	76.2	56.7	81.2	88.9	72.7

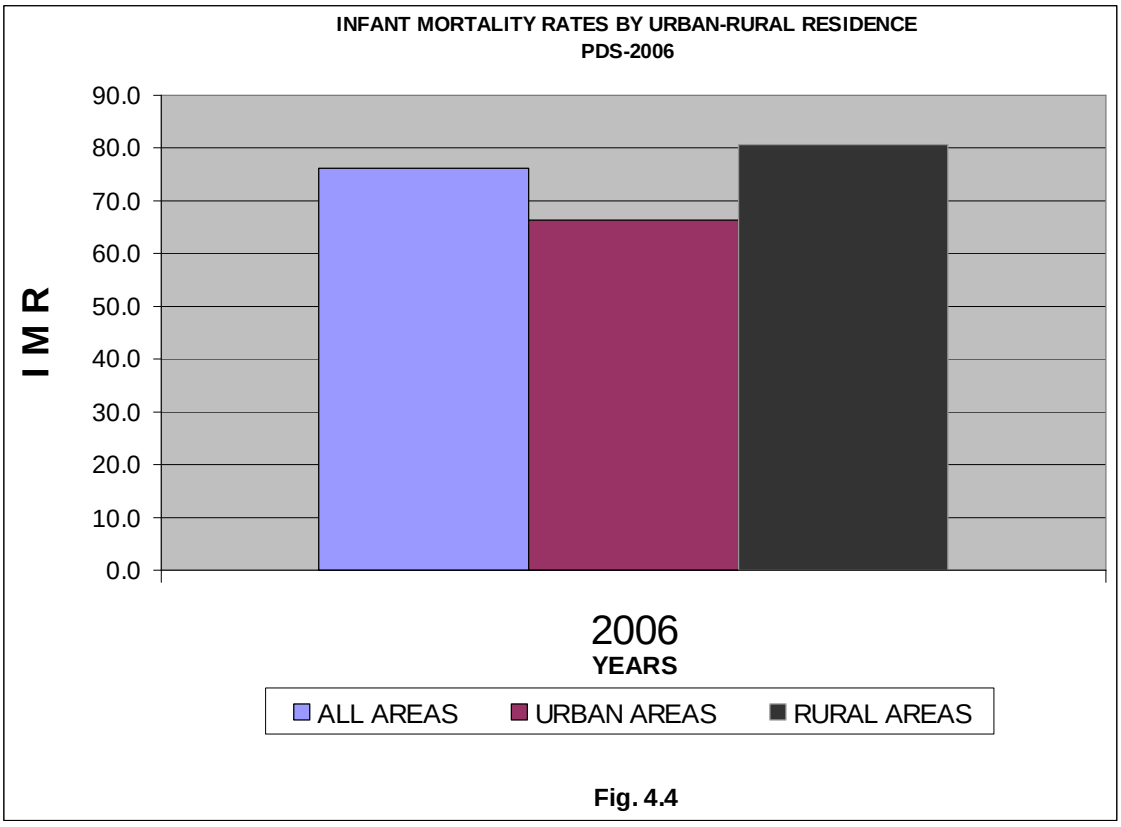


Fig. 4.4

42. Infant mortality rates are much higher (about 21 percent) in rural areas than in urban areas where better neo-natal and post-natal facilities are available. Male Infant mortality rate is higher than female infant mortality rate in all areas of Pakistan.

Neo-Natal And Post-Neo-Natal Mortality Rates

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

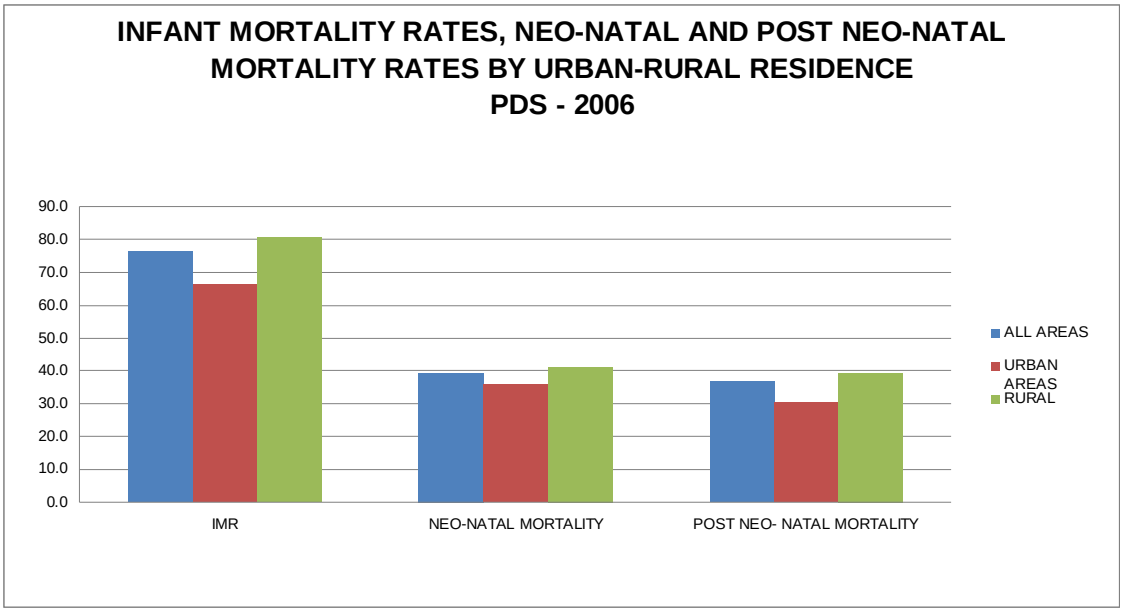
i. Neo-natal Mortality occurring within the first month and,
ii. Post-neonatal mortality occurring during the remaining 11 months.

44. 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 4.5 show that mortality within the first month after birth is very high in 2006.

Table No. 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-2006	39.4	36.8	35.8	30.6	41.1	39.6
PDS-2005	48.5	28.2	39.3	27.8	52.9	28.3



45. Like crude death rates and infant mortality rates, the PDS-2006 data indicates that the neo-natal mortality in rural areas is about 15 percent higher than in the urban areas.

46. The maternal mortality rate as obtained from PDS 2006 is 318 per 100,000 live births.

Natural Growth Rate

47. The natural growth rate as depicted from PDS 2006 is 1.89 percent (Table 4.18). The growth rate has declined about 1 percent in 2006 as compared to 2005. High natural growth rate during the last few decades is 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 37 years.

Table No. 4.18: Birth Rates, Death Rates and Natural Rates of Increase

SURVEY	BIRTH RATE [PER 1000 PERSONS]	DEATH RATES [PER 1000 PERSONS]	NATURAL RATE OF INCREASE [PERCENT]
PDS-2006	25.9	7.0	1.89
PDS-2005	26.1	7.1	1.90

Expectation of Life

48. 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 prevail 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.

49. From the Life Table of PDS 2006, it depicts that the expectancy of life at birth of males and females in Pakistan are 64 and 67 years respectively.

TABLE: 4.19 ABRIDGED LIFE TABLE PDS-2006

MALE

Age X	NMx	Nax	nqx	lx	Ndx	nLx	5Px	Tx	Ex
0	0.09280	0.252	0.08678	100,000	8,678	93,509	0.90470	6,440,753	64.41
1	0.00679	1.353	0.02667	91,322	2,436	358,842	0.97854	6,347,244	69.50
5	0.00162	2.500	0.00806	88,887	716	442,644	0.99322	5,988,403	67.37
10	0.00110	2.500	0.00549	88,171	484	439,644	0.99378	5,545,759	62.90
15	0.00140	2.500	0.00697	87,687	611	436,908	0.99218	5,106,115	58.23
20	0.00175	2.500	0.00869	87,076	757	433,489	0.99027	4,669,207	53.62
25	0.00217	2.500	0.01078	86,320	930	429,272	0.98779	4,235,718	49.07
30	0.00275	2.500	0.01367	85,389	1,167	424,029	0.98516	3,806,446	44.58
35	0.00323	2.500	0.01604	84,222	1,351	417,735	0.98329	3,382,416	40.16
40	0.00351	2.500	0.01740	82,872	1,442	410,753	0.98019	2,964,682	35.77
45	0.00450	2.500	0.02227	81,430	1,813	402,616	0.97277	2,553,928	31.36
50	0.00657	2.500	0.03230	79,616	2,572	391,654	0.95756	2,151,313	27.02
55	0.01087	2.500	0.05292	77,045	4,077	375,032	0.93021	1,759,659	22.84
60	0.01833	2.500	0.08761	72,968	6,393	348,857	0.88594	1,384,627	18.98
65	0.03081	2.500	0.14305	66,575	9,523	309,066	0.81900	1,035,770	15.56
70	0.05078	2.500	0.22529	57,052	12,853	253,125	0.72868	726,704	12.74
75	0.07925	2.500	0.33073	44,198	14,618	184,448	0.60793	473,579	10.71
80	0.12761	2.500	0.48373	29,581	14,309	112,131	0.61218	289,131	9.77
85	0.08628	11.590	1.00000	15,272	15,272	177,000		177,000	11.59

FEMALE

0	0.05651	0.172	0.05398	100,000	5,398	95,530	0.93401	6,657,194	66.57
1	0.00718	1.399	0.02818	94,602	2,666	371,474	0.97959	6,561,664	69.36
5	0.00193	2.500	0.00961	91,936	884	457,470	0.99222	6,190,190	67.33
10	0.00119	2.500	0.00593	91,052	540	453,910	0.99371	5,732,720	62.96
15	0.00133	2.500	0.00665	90,512	602	451,055	0.99312	5,278,809	58.32
20	0.00143	2.500	0.00711	89,910	639	447,953	0.99173	4,827,754	53.70
25	0.00190	2.500	0.00943	89,271	842	444,250	0.99008	4,379,801	49.06
30	0.00209	2.500	0.01040	88,429	920	439,845	0.98814	3,935,551	44.51
35	0.00269	2.500	0.01334	87,509	1,167	434,628	0.98547	3,495,706	39.95
40	0.00317	2.500	0.01573	86,342	1,358	428,314	0.98095	3,061,078	35.45
45	0.00453	2.500	0.02242	84,984	1,905	420,155	0.97179	2,632,764	30.98
50	0.00695	2.500	0.03413	83,078	2,836	408,302	0.95538	2,212,609	26.63
55	0.01141	2.500	0.05547	80,243	4,451	390,084	0.93066	1,804,306	22.49
60	0.01754	2.500	0.08402	75,791	6,368	363,035	0.89212	1,414,222	18.66
65	0.02871	2.500	0.13392	69,423	9,297	323,872	0.83601	1,051,187	15.14
70	0.04413	2.500	0.19871	60,126	11,947	270,761	0.77318	727,315	12.10
75	0.06028	2.500	0.26191	48,178	12,618	209,346	0.71734	456,554	9.48
80	0.07359	2.500	0.31077	35,560	11,051	150,172	0.39253	247,208	6.95
85	0.25258	3.959	1.00000	24,509	24,509	97,036		97,036	3.96

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