

## **CHAPTER III**

### **AGE AND SEX COMPOSITION**

#### **INTRODUCTION**

The primary focus of this chapter is to analyse the various aspects of the age and sex composition of the Nepalese population at the national and regional levels using data collected by the decennial population censuses. A partial attempt is also made to study the factors affecting changes in the sex composition of the population and to examine the causes of the inaccuracies in age reporting.

#### **A. SEX COMPOSITION**

The importance of data relating to the sex composition of the population can hardly be over emphasized. It is the most basic of all demographic characteristics and plays an important role in the population analysis because it affects directly the incidence of marriage, births, etc. The various other population parameters such as occupation structure, migration rate, etc. are also influenced by the ratio between the two sexes. The sex ratio of a region may also be affected by the development activities of the region. For example, construction works undertaken in a big way in an area may attract the male laborers from another economically depressed area of the country. This could affect the sex ratio both at the place of origin and the destination of the migrants. The sex composition of the population must also be kept in view, while formulating the overall development planning of the country because the needs/ aspirations and problems of men and women are not necessarily the same and regional planning rests, to some extent, on the sex composition of the

population. It shows that the sex composition of a population not only plays an important role in population analysis: but also in development planning.

Two basic measures are used here to study the sex composition of the population of Nepal. These are i) sex ratio, and ii) masculinity proportion or femininity ratio. The sex ratio is defined as the number of males per 100 females and the masculinity proportion or ratio is the percentage of males in the total population while the femininity ratio refers to the percentage of females in the total population.

#### **SEX RATIO**

##### **1. General Pattern**

The population of Nepal classified by sex together with the masculinity proportion and the sex ratio for the various census years is shown in Table 3.1.

Given the inferior position of women to men in almost every walk of life in the Indian sub-continent<sup>1</sup> including Nepal,<sup>2</sup> female mortality is expected to be higher than male in Nepal as in other neighboring countries, particularly Bangladesh, Pakistan and India. As a result the overall sex ratio of the population of Nepal is expected to be more than 100. The sex ratio observed in 1952/54 and 1961 was less than 100 implying more females than males in the total population of Nepal (see Table 3.1). This finding is not only unexpected

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<sup>1</sup> Government of India. Department of Social Welfare, *Towards Equality: Report of the Committee on the Status of Women in India, 1974.*

<sup>2</sup> Tribhuvan University, Centre for Economic Development and Administration. *The Status of Women in Nepal, Volumes I and II, 1979/1981, Kathmandu.*

**Table 3.1--Population classified by sex and masculinity proportion and sex ratio, Nepal, Census years 1952/54-81**

Census year	Enumerated population			Masculinity* proportion	Sex ratio**
	Male	Female	Total		
1952/54	4,050,607	4,184,472	8,235,079	49.19	96.80
1961	4,636,033	4,776,963	9,412,996	49.25	97.05
1971	5,817,203	5,738,780	11,555,983	50.34	101.37
1981	7,695,336	7,327,503	15,022,839	51.22	105.02

\* Percentage of males in the total population.

\*\*Number of males per 100 females.

Source: Central Bureau of Statistics, 1958-Population Census 1952/54, Table 2, p. 60;

„ 1968- „ „ 1961, Vol. III, Part II, Table 2;

„ 1975- „ „ 1971, Vol I, Table 2;

„ 1984- „ „ 1981, Vol. II, Table 4;

„ 1977-The Analysis of the Population Statistics of Nepal, Table 3. 1, p. 54.

but also inconsistent with the pattern observed in other SAARC\* countries (see Table 3.2). However, between 1961 and 1981 there was a steady increase in the sex ratio of the population of Nepal from 97 males per 100 females in 1961 to 105 in 1981. This has also been reflected in the masculinity proportion in the total population. The masculinity ratio increased from 49 percent in 1952/54 to 51 percent in 1981. This increase in the sex ratio and masculinity proportion in the total population may be attributed to i) a better census coverage over the years; ii) declining opportunities of finding work outside Nepal in recent years, due to the world wide recession and imposition of increasingly stringent rules restricting immigration by traditionally labour importing countries. This decline in economic opportunities and increasing restrictions on immigration may have restricted the scope for international emigration<sup>3</sup> on the one hand and also

caused the Nepalese working abroad to return home on the other.

This is likely to increase the overall sex ratio of Nepal given the fact that the international emigrants are predominantly males.

**Table 3.2--Masculinity proportion and sex ratio for the SAARC countries**

Country	Date and year	Masculinity proportion	Sex ratio*
Bangladesh	1/VII/1981	51.51	106
Bhutan	NA	-	-
India	1/VII/1981	51.74	107
Maldives	31/XI/1977	52.66	111
Nepal	22/VI/1981	51.22	105
Pakistan	1/III/1981	52.47	110
Sri Lanka	7/III/1981	50.96	104

\*Male per 100 female

Source: same as are those in Table 1.8.

## 2. Sex Ratio by Age

Table 3.3 and Figure 3.1 present sex ratios by five year age-groups for the census years 1952/54-81. Given the definition of sex ratio as the number of males per 100 females, a sex ratio over 100 denotes the excess of males over females and a sex ratio below 100 denotes the excess of females over males. It may be observed that the sex ratio in the age-group 0-4 has been consistently less than 100 in all

\* SAARC is the abbreviation of South Asian Association for Regional Cooperation. The association consists of the following countries: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

<sup>3</sup> Emigration rate, i. e. the proportion of the total population who have been away from Nepal at least for six months in a year decreased from 2.84 per cent in 1961 to 2.68 per cent in 1981 (see Population Census 1981, Household Characteristics, Vol. IV, Table 2)

three censuses conducted since 1952/54. In other words, the number of females was higher than males in the age-group 0-4 for the census years 1952/54-71. This finding is contrary to one's expectation. The sex ratio in the age group 0-4 can be less than one only in situations where there are more female than male births and/or higher male than female infant/ child mortality. There is no evidence to show that at birth there are more females than males. On the contrary, evidence obtained from countries having a complete vital registration system suggest higher male than female births. And this would produce a sex ratio at birth higher than 100. There is also no clear evidence based on reliable data to show higher male than female infant and child mortality. The evidence from neighboring countries particularly from Bangladesh, India and Pakistan, clearly show higher infant and child mortality for female rather than male children. And there is no reason to believe that Nepal should be an exception to this general pattern of infant/child mortality by sex seen in other neighboring countries. Therefore, the finding of excess female over male children in the age-group 0-4 by the censuses of 1952/54, 1961 and 1971, was mostly due to the gross under-enumeration of male children in these censuses. However, an improvement was marked in the 1981 census which gave a sex ratio of 106 in the child age-group 0-4. This finding is in conformity with one's expectation and also implies an improvement in the coverage of the 1981 census.

Nepal had a long history of emigration of men particularly at the young adult ages between 20-34 years. And this was possibly the reason for finding more females than males in these age-groups in all the censuses of Nepal conducted since 1952/54. Although females have consistently out-numbered males at the prime working ages of 20 to 34, the degree of

preponderance of females over males has been declining since 1971. And this has also been reflected in the over-all increase of the masculinity ratio from 49.2 in 1952/54 to 51.2 in 1981 (see Table 3.1).

**Table 3.3-Sex-ratio by five year age-groups, Nepal, Census years 1952/54-81**

Age-group	1952/54	1961	1971	1981
0-4	98	98	94	106
5-9	103	103	103	104
10-14	114	114	118	117
15-19	102	102	110	110
20-24	88	86	93	91
25-29	89	90	96	96
30-34	89	91	91	92
35-39	100	104	108	107
40-44	89	89	98	100
45-49	102	101	114	114
50-54	92	92	104	115
55-59	102	100	107	119
60-64	76	80	89	109
65-69	87	92	100	116
70+	82	82	92	111
Total	97	97	101	105

Source: Central Bureau of Statistics, 1958-Population Census 1952/54, Table 2;  
 Central Bureau of Statistics, 1968-Population Census 1961, Vol. III, Part II, Table 2;  
 Central Bureau of Statistics, 1975-Population Census 1971, Vol. I, Table 6;  
 Central Bureau of Statistics, 1984-Population Census 1981, Vol. II, Table 4.

Two of the reasons for this may be  
 i) a better census coverage over the years and  
 ii) declining opportunities of finding work outside Nepal in recent years owing to the world wide recession and imposition of increasingly stringent rules, restricting immigration by traditionally labour-importing countries. This decline in economic opportunities and increasing restrictions on immigration may have caused the Nepalese working abroad to return home and also slowed the pace of out migration from Nepal in recent years.

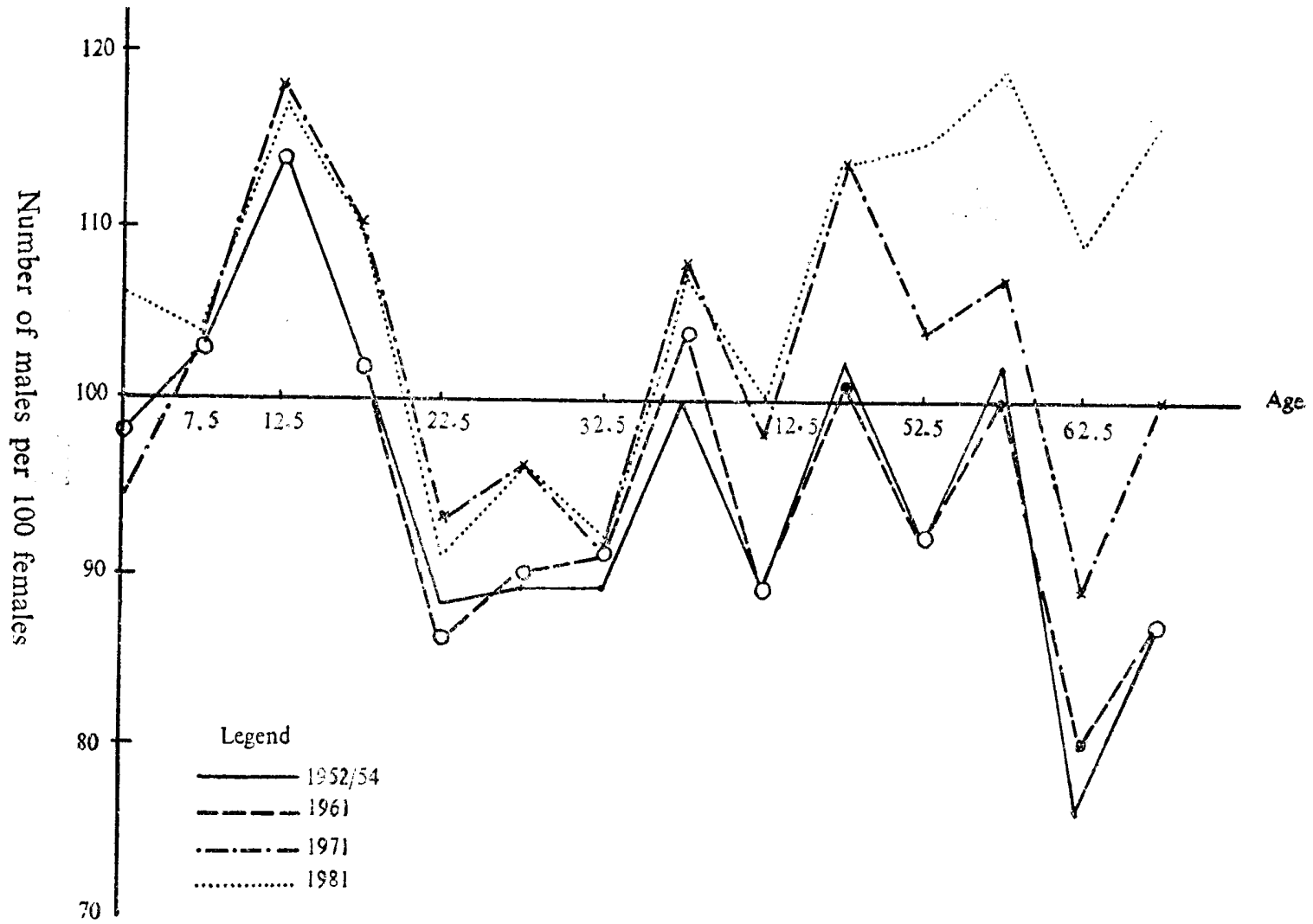


Figure 3.1 Sex ratio 1952/54-81

At all ages over 60 females outnumbered males in the three censuses conducted since 1952/54. This is also contrary to one's expectation. The number of females at higher ages may exceed males if the mortality of the former is lower than the latter and also if men tend to move out of the country more often than women at higher ages. Women in Nepal do not have equal status as men in every walk of life. Given this situation one would expect higher mortality for females than males at all ages in Nepal as in other countries of the sub-continent like Bangladesh, India and Pakistan. Moreover, there is no evidence to show that men tend to outnumber women at higher ages in terms of international migration. The evidence, on the contrary, shows that men working abroad return home at higher ages to join their families. Under the circumstances, one would expect to find males in the higher age group outnumbering females. The finding of more females than males at 60 years and above in the censuses of 1952/54, 1961 and 1971, may perhaps be the result of the under enumeration of female deaths at these ages. However, the expected finding of men outnumbering women at higher ages emerged in the 1981 census. This provides another example of better coverage of the 1981 census.

### 3. Sex Ratio by Geographical Zones and Development Regions

The sex ratios in the different geographical zones and development regions, from 1971 to 1981 are shown in Table 3.4. All the geographical zones and development regions show an excess of males and there has been a steady increase in the sex ratio in all zones and regions over the years. The sex ratio is found to be highest in the Terai zone and the Central Development region. This could be attributed to the highest net life time migrants in these regions.

**Table 3.4- Sex ratio by ecological zones and development regions, Nepal, Census years 1952/54-81**

Area	Sex ratio			
	1952/54	1961	1971	1981
<b>Geographical Zones</b>				
Mountain	-	-	100.79	104.71
Hill	95.95	94.26	98.02	102.14
Terai	100.10	102.14	106.39	108.33
<b>Dev. Regions</b>				
Eastern			102.27	105.26
Central			103.34	107.08
Western			97.92	102.60
Mid-western			100.78	103.48
Far-western			100.71	104.86
Nepal	96.80	97.05	101.37	105.02

Source: CBS, 1958-Population Census 1952/54, Vol. 1, Part II, Table 1, p.58;  
CBS, 1968- Population Census 1961, Vol. III, Part II, Table 4, p. 11;  
CBS, 1975-Population Census 1971, Vol. 1, Table I, p. 01;  
CBS, 1984-Population Census 1981, Vol. II, Table 5, p. 61

### 4. Sex Ratio by Rural/Urban Residence

The sex ratios of the population by rural/urban residence for the various census years are given in Table 3.5. It will be noted that in rural areas the sex ratio steadily increased from 96.64 in 1952/54 to 104.36 in 1981, the highest increase being recorded during 1971-81. Compared to the rural population, the urban population recorded a higher increase in the sex ratio from 104.12 in 1952/54 to 115.24 in 1981. It is to be noted here also that in all census years the sex ratio of the urban population has been consistently higher than that of the rural population. The higher sex ratios for urban areas have to be explained largely by the higher proportion of males among the migrants into urban areas. This is also evident from figures 3.2 and 3.3 which show the age-specific sex ratios of the rural and urban population as enumerated in 1971 and 1981.

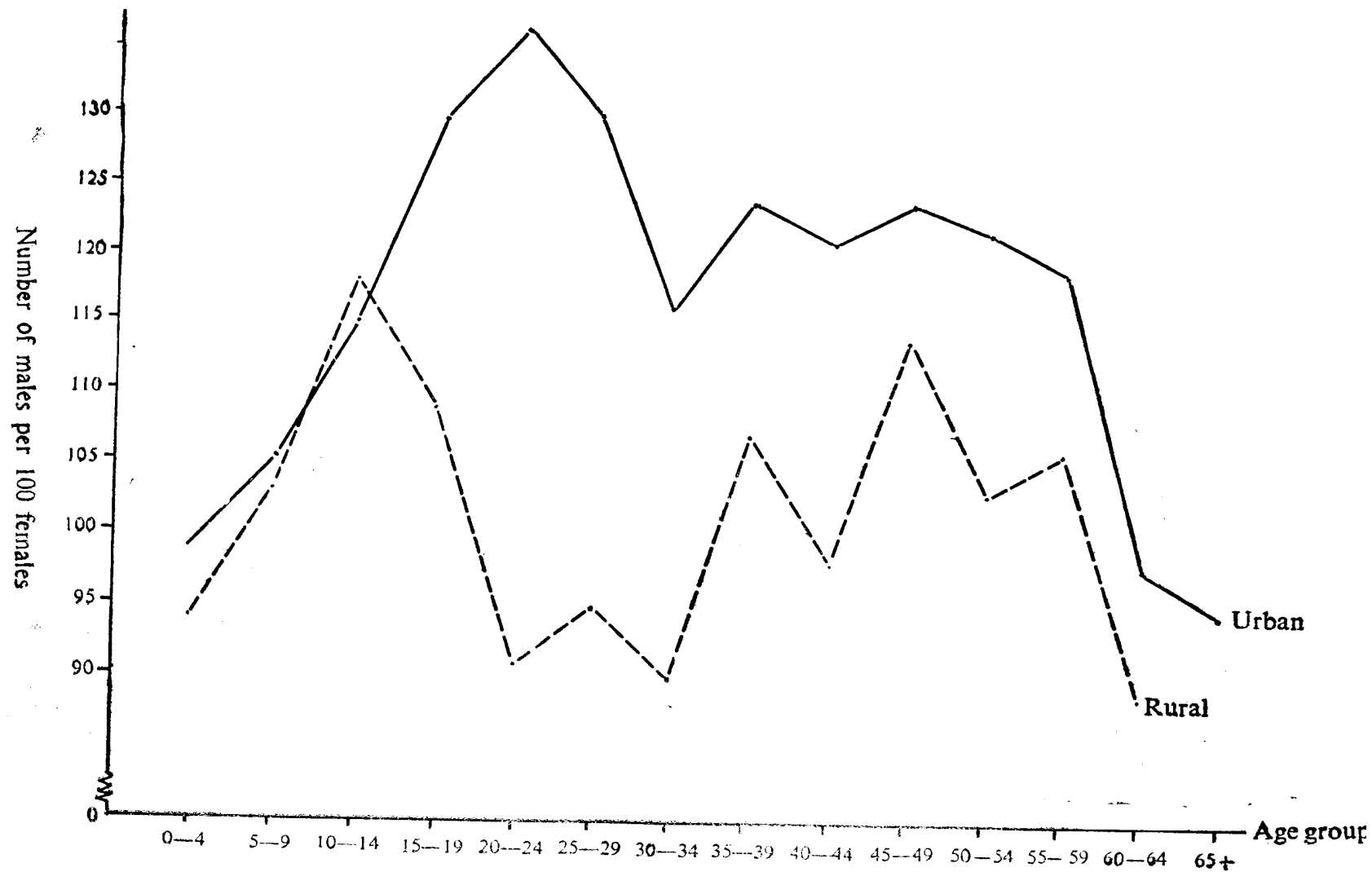


Figure 3.2 Age-specific sex ratio by rural/urban residence, 1971

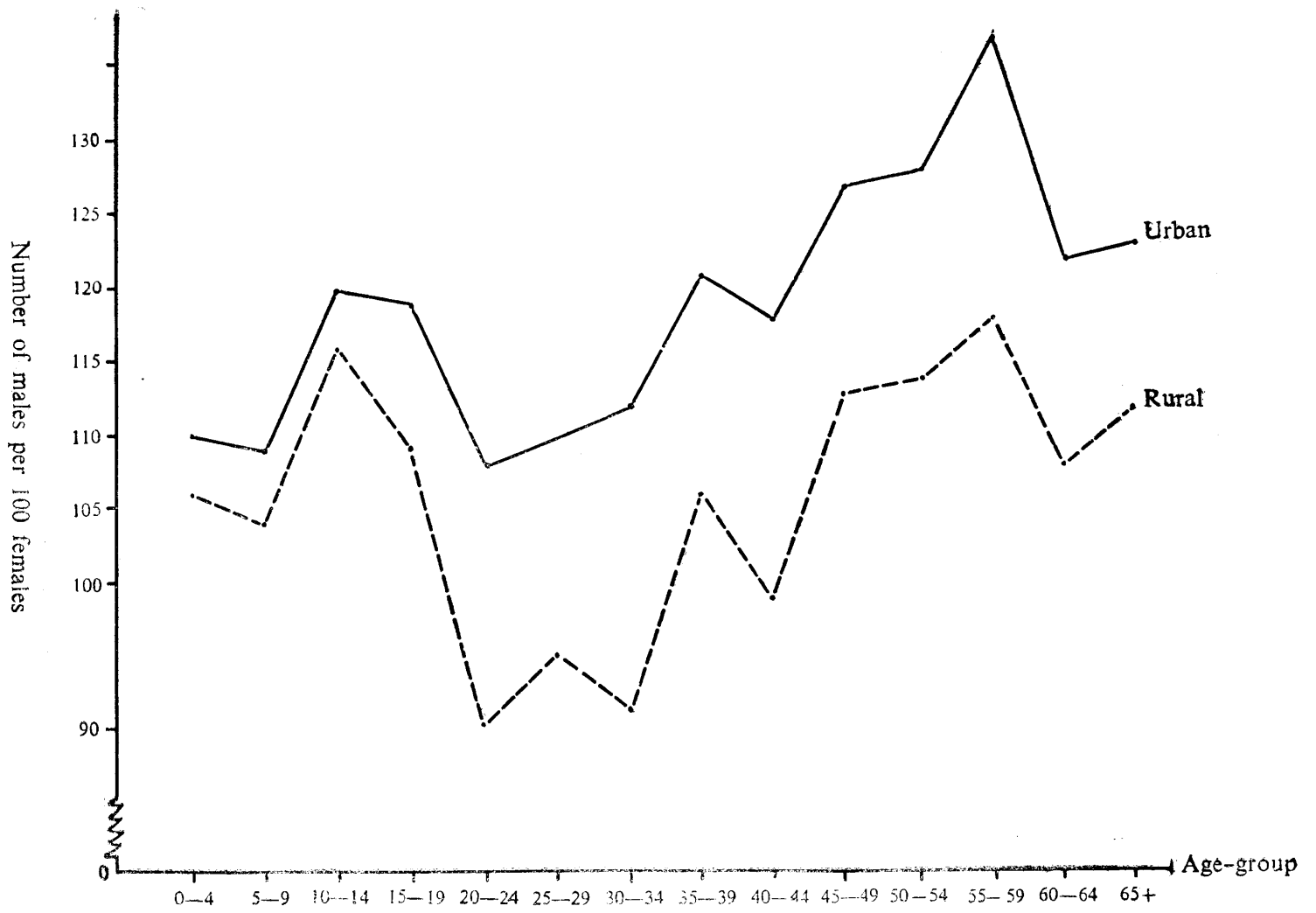


Figure 3.3 Age-specific sex ratio by rural/urban residence, 1981

It will be noted from figures 3.2 and 3.3 that for rural areas the sex ratio shows a marked decline at young adult ages (20-24 to 30-34) suggesting the out-migration to urban areas of a substantially higher proportion

of males in these age-groups. The comparatively lower sex ratios observed for working age-groups in rural areas could also be attributed to the migration of males to urban areas in search of employment.

**Table 3.5-Sex ratios by rural and urban areas, Nepal, Census years 1952/54-81**

Year	Rural			Urban		
	Male	Female	Sex ratio	Male	Female	Sex ratio
1952/54	3,959,518	4,096,986	96.64	91,089	87,486	104.12*
1961	4,458,103	4,618,671	96.52	177,930	158,292	112.41
1971	5,568,552	5,525,493	100.78	248,651	213,287	116.58
1981	7,183,100	6,883,018	104.36	512,236	444,485	115.24

Source: Central Bureau of Statistics, 1958-Population Census 1952/54, Vol. I, Part II, Table I, P. 58;  
 " " 1968- " " 1961, Vol. III, Part II, Table 2, P. 1;  
 " " 1975- " " 1971, Vol. V, Table 39, p. 39-01;  
 " " 1984- " " 1981, Vol. III, Table 3, p. 3.

\*includes only three towns, Kathmandu, Lalitpur and Bhaktapur.

## 5. Sex Ratio by Religious Communities

Table 3.6 shows the sex ratios for the major religious communities in Nepal for various census years. It may be noted that among the three major religious groups, the Muslims (i.e. the followers of Islam) have had the highest sex ratio in all

census years followed by the Hindus. The Buddhists consistently have had the lowest sex ratio among the religious groups in all census years. It should be further noted here that the sex ratio of all the religious communities excepting the Buddhists increased steadily over the years and this increase was more marked for the Muslims.

**Table 3.6-Sex ratio classified by religion, Nepal, Census years 1952/54-81 Sex**

Religion	Sex Ratio			
	1952/54	1961	1971	1981
Hinduism	96.77	N. A.	101.33	105.61
Buddhism	96.32	N. A.	99.44	94.85
Islam	99.56	N. A.	107.08	108.93
Jainism	-	N. A.	137.92	114.50
Christian	-	N. A.	-	121.69
Others	104.18	N. A.	99.25	111.82*

Note: N. A. = Not available

Source: Central Bureau of Statistics, 1958-Population Census 1952/54, Vol. I, Part II, Table 5, p. 88;

" " 1975- " " 1971, Vol. II, Part II, Table 13, p. 13-01;  
 " " 1984- " " 1981, Vol. I, Part III, Table 13, p. 215.

\*includes unstated also.



## 6. Sex Ratio by Language Groups

Sex ratios for the major\* language speaking people recorded for 1981 are presented in Table 3.7. It may be observed that the sex ratio is highest among the *Abadhi* followed by *Maithili* and *Bhojpuri-speaking* people. The absolute majority of the *Abadhi-speaking* people live in the west, mid-west and far western regions of the Terai, while the highest proportion of the *Maithili* and *Bhojpuri* speaking people live in the Eastern Terai and East Inner Terai. It shows that *Abadhi*, *Maithili* and *Bhojpuri* are disproportionately concentrated in the Terai, the zone which has experienced the highest net life time migrants (see Chapter VII: *Internal Migration*) and also has a greater concentration of international migrants<sup>4</sup> and this could very well explain the finding of higher sex ratios among *Abadhi*, *Maithili* and *Bhojpuri-speaking* people. The sex ratio is found to be lowest among the *Gurung* followed by *Limbu* and *Magar-speaking* people. The *Gurung*, *Limbu* and *Magar* speaking people are mostly concentrated in

**Table 3.7-Sex ratio for major ethnic groups classified by mother tongue, Nepal, Census year 1981**

Mother tongue	Sex ratio
Nepali	104.52
Maithili	109.66
Bhojpuri	107.61
Newari	104.51
Gurung	92.05
Tamang	100.91
Abadhi	110.96
Tharu	104.46
Magar	98.31
Limbu	97.85
Rai, Kirati	101.93

Source: Central Bureau of Statistics, 1984-Population Census 1981, Vol. 1, Part III, Table 12, p. 25.

\* i.e. those spoken by at least 1 per cent of the population.

<sup>4</sup> Gurung, H. 1985. *Migration Pattern in Nepal*, East West Centre: Population Institute, USA.

the Hill-the zone which has experienced the highest net exodus of people and highest net out-migration rate. This could also explain the finding of lower sex ratio among the *Gurung*, *Limbu* and *Magar-speaking* people. The large proportion of *Gurung*, *Limbu* and *Magars* are Buddhists who have had the lowest sex ratio among the religious communities.

### B. AGE STRUCTURE

The age structure of a population, that is the proportion of people in different age groups, is a subject of major importance in demographic analysis. The age structure of a population is determined by the levels of fertility, mortality and migration schedules of that population (or where the latter factor is negligible, by the first two alone). Conversely, given the age structure of a population, the levels of fertility and mortality can be estimated under certain assumptions<sup>5</sup>. It is also a potential source for studying the dynamics of population growth. Age data is not merely used for narrow demographic analysis but also for other more important subjects such as development planning. The perspective planning of a country to a large extent is based on the present and potential age distribution of population. Given the many and varied uses of age data, information regarding age has been one of the core items canvassed in most of the censuses and sample surveys conducted in Nepal. However, difficulties in obtaining reliable data on age are well known in developing countries. Nepal is no exception. Ages in most cases are not known and these are imputed either by the respondents and/or enumerators on the basis of linking the probable ages with some well known events or from physical characteristics. Here we will evaluate the quality of age data, particularly those collected by the population census of Nepal.

<sup>5</sup> For estimation of fertility and mortality from age data see, *Methods of Estimating Basic Demographic Measures from Incomplete Data*, Manual IV (United Nations Publications, Sales No. 67, XIII 2).

## 1. Single Year Age Distribution

Table 3.8 and Figures 3.4 and 3.5 present single year age distribution by sex for the census years 1971 and 1981. A complete set of single year age distribution was not available for all the ages in the preceding censuses.

The heaping at ages ending in zero and five is clearly evident from the Figures 3.4 and 3.5 and Table 3.8. The heaping is also marked, although to a lesser degree, at ages ending in even numbers. The pattern of digital preference is the same in the 1971 and 1981 censuses.

**Table 3.8-Percentage distribution of population by single year age and sex, Nepal, Census years 1971-1981**

Age X	Year (X)-(X+4)	Male						Female					
		X	X+1	X+2	X+3	X+4 (X) - (X-{-4)	X	X+1	X-1-2	X+3	X+4		
0-4	1971	13.59	2.48	2.26	2.87	3.12	2.86	14.70	2.55	2.39	3.17	3.56	3.03
	1981	15.47	2.70	3.42	3.21	3.06	3.08	15.34	2.67	3.06	3.30	3.24	3.07
5-9	1971	15.23	4.04	2.73	2.77	3.03	2.66	14.95	4.06	2.74	2.88	2.73	2.54
	1981	14.52	3.53	2.93	2.72	3.02	2.32	14.65	3.51	3.04	2.87	2.88	2.35
10-14	1971	12.09	3.26	1.87	3.12	1.82	2.02	10.35	2.69	1.70	2.48	1.63	1.85
	1981	11.95	3.20	1.83	3.00	1.83	2.09	10.75	2.85	1.69	2.61	1.70	1.90
15-19	1971	9.41	2.41	2.06	1.32	2.44	1.18	8.71	2.06	1.86	1.32	2.33	1.14
	1981	9.04	2.03	2.12	1.36	2.28	1.25	8.63	1.84	1.95	1.34	2.26	1.24
20-24	1971	8.01	1.98	1.57	2.23	0.97	1.26	8.78	2.32	1.60	2.36	1.07	1.43
	1981	8.28	2.13	1.54	2.25	1.09	1.27	9.54	2.69	1.62	2.50	1.25	1.48
25-29	1971	7.84	2.92	1.13	1.10	2.00	0.69	8.26	3.09	1.24	1.10	2.18	0.65
	1971	7.41	2.85	1.22	1.01	1.70	0.63	8.07	3.13	1.29	1.02	2.00	0.63
30-34	1971	6.63	3.05	0.65	1.67	0.62	0.64	7.42	3.76	0.66	1.69	0.61	0.70
	1981	6.09	2.95	0.61	1.41	0.55	0.57	6.92	3.59	0.59	1.53	0.58	0.63
35-39	1971	6.64	3.16	1.23	5.57	1.17	0.51	6.25	3.08	1.02	0.48	1.17	0.50
	1981	6.00	2.94	0.93	0.58	1.10	0.46	5.89	2.98	0.84	0.49	1.14	0.44
40-44	1971	5.19	3.06	0.53	0.84	0.37	0.39	5.36	3.43	0.46	0.78	0.33	0.36
	1981	4.90	2.99	0.43	0.76	0.36	0.36	5.13	3.31	0.39	0.74	0.35	0.34
45-49	1971	4.22	2.36	0.47	0.35	0.75	0.29	3.76	2.14	0.37	0.27	0.72	0.26
	1981	4.28	2.38	0.49	0.37	0.76	0.28	3.95	2.25	0.40	0.31	0.74	0.25
50-54	1971	3.51	2.15	0.34	0.53	0.23	0.21	3.42	2.29	0.27	0.49	0.18	0.19
	1981	3.77	2.33	0.32	0.61	0.27	0.24	3.44	2.29	0.25	0.49	0.21	0.20
55-59	1971	2.29	1.24	0.33	0.22	0.34	0.16	2.17	1.27	0.26	0.17	0.32	0.15
	1981	2.44	1.35	0.34	0.23	0.36	0.16	2.15	1.27	0.25	0.17	0.33	0.13
60-64	1971	2.38	1.58	0.22	0.28	0.16	0.14	2.71	1.98	0.21	0.27	0.13	0.12
	1981	2.49	1.79	0.18	0.25	0.15	0.12	2.40	1.81	0.15	0.23	0.11	0.10
65-69	1971	1.23	0.71	0.16	0.12	0.17	0.07	1.24	0.80	0.12	0.10	0.15	0.07
	1981	1.31	0.79	0.15	0.11	0.17	0.09	1.19	0.76	0.11	0.09	0.15	0.08
70-74	1971	0.96	0.62	0.08	0.15	0.06	0.05	1.06	0.77	0.07	0.13	0.05	0.04
	1981	1.08	0.71	0.08	0.15	0.08	0.06	1.00	0.73	0.06	0.12	0.05	4.00
75+	1971	0.78	-	-	-	-	-	0.86	-	-	-	-	-
	1981	0.97	-	-	-	-	-	0.95	-	-	-	-	-
Total	1971	5,817,203						5,738,780					
No.	1981	7,695,336						7,327,503					

Source: Central Bureau of Statistics, 1975- Population Census 1971, Vol. I, Table 6;  
 „ „ 1984- „ „ 1981, Vol. II, Table 4.

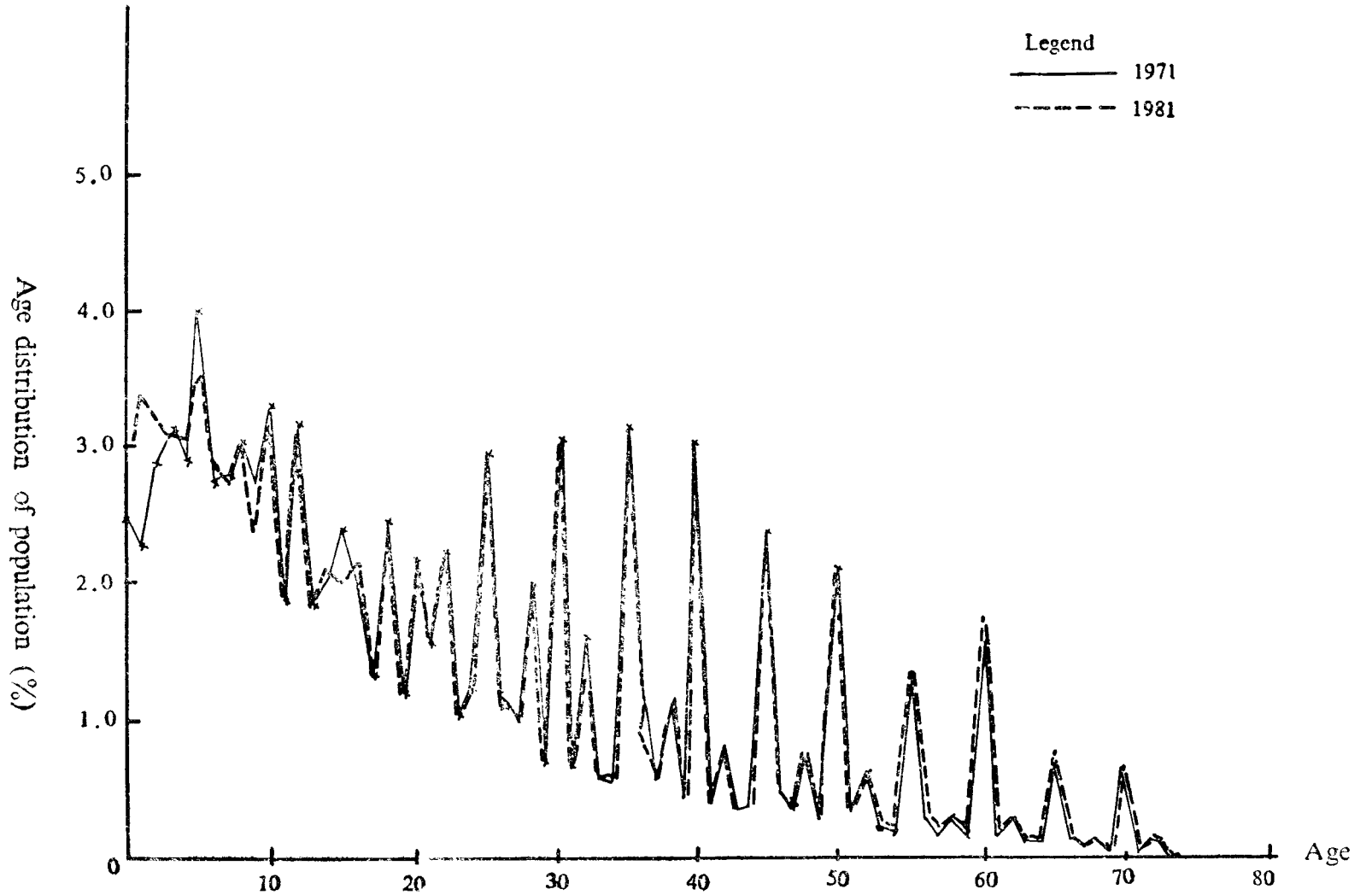


Figure 3.4 Single year age distribution of population (Male)

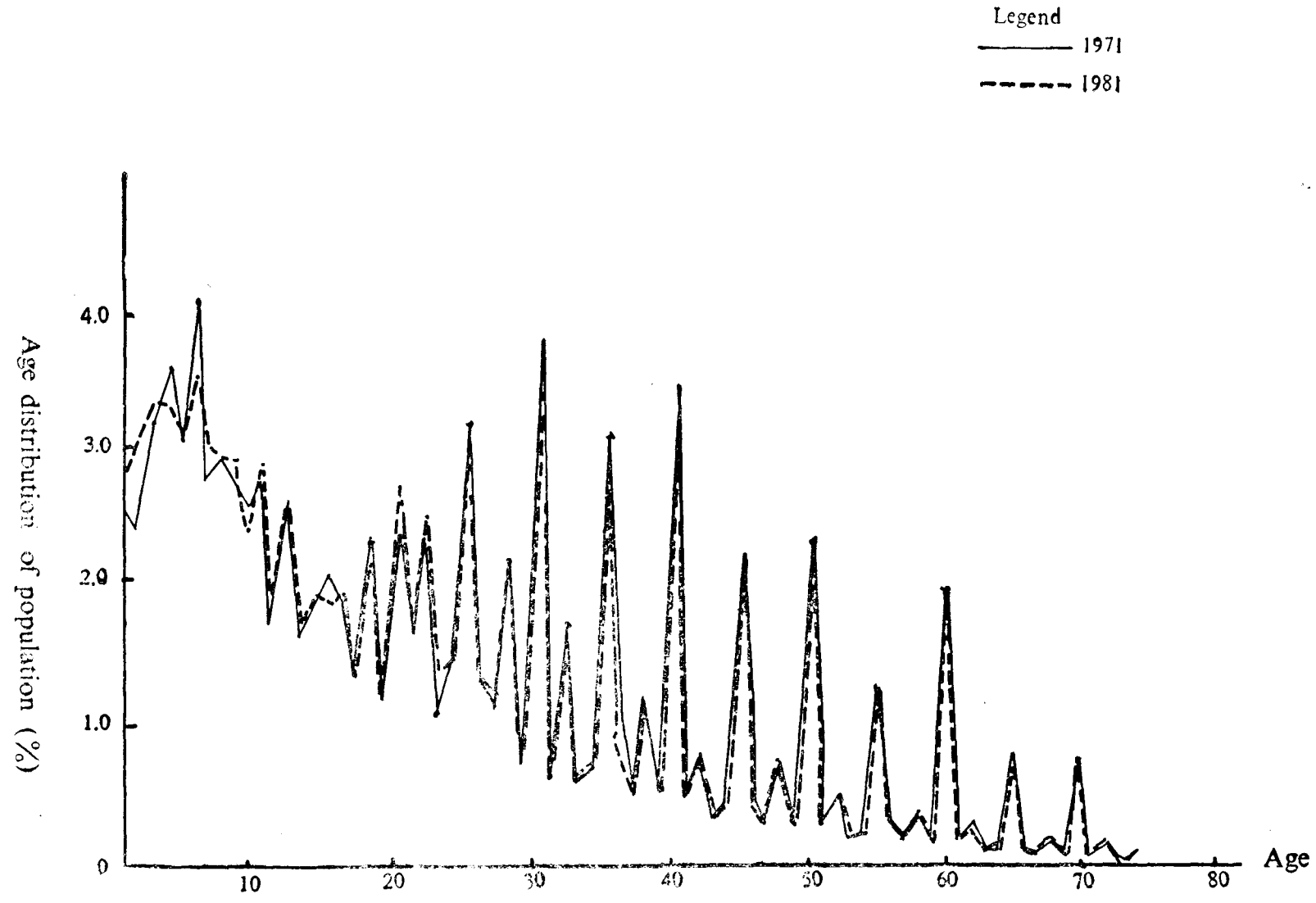


Figure 3.5 Single year age distribution of population (Female)

It may also be observed that the degree of age shifting is more pronounced between the ages 25 and 60 than in the preceding and succeeding ages of the above age bracket.

Whipple's Index is a test usually employed to measure age preferences for '0' and '5' as compared to other digits. Table 3.9 shows Whipple's Index for the census years 1971-81. The UN Demographic Year Book 1973 used this index to compare the accuracy of data from various countries. The rating of the quality of data for different values of Whipple's Index is given below:

Quality of Data	Value of Whipple's Index
1. Highly accurate data	less than 105
2. Fairly accurate data	105-109.9
3. Approximate data	110-124.9
4. Rough data	125-174.9
5. Very rough data	175 and more

**Table 3.9-Value of Whipple's Index, Nepal, Census years 1971/81**

Sex	Value of Whipple's Index	
	1971	1981
Male	240	248
Female	253	255
Total	247	252

According to this index, age data of Nepal is very rough<sup>6</sup> and there shows no improvement over the years.

Whipple's Index also suggests that age reporting for males appears to be slightly more accurate than for females in all censuses. This is also confirmed by Myers' Index<sup>7</sup>. The age misreporting examined by

<sup>6</sup> The age data of Bangladesh, India and Pakistan also falls in the same category as that of Nepal.

<sup>7</sup> Myers' Index is generally calculated for the population enumerated in the age group 10 to 69 years. This index reflects the preferences and dislikes for each of the digits from 0 to 9. It is computed through a blended sum where due weightage is given to all the digits. Ordinarily, almost equal sums are expected, for each digit for perfect age reporting. In other words, the percentage of the blended sum to the total should be close to 10 per cent. A deviation of the percentage of the blended sum from 10 per cent is due to errors in

Myers' Index also suggests no improvement in the quality of age data recorded in the censuses of Nepal over the years (see Table 3.10).

**Table 3.10-Myers' Index of digital preference for digits 0 to 9, censuses of 1961, 1971 and 1981**

Digit	1961 (1 per cent sample)		1971 Total population		1981 Total population	
	Males	Females	Males	Females	Males	Females
0	6.26	10.65	10.91	13.97	11.8	13.9
1	-2.33	2.22	-3.68	-3.96	-4.0	-4.3
2	2.53	2.14	1.25	0.79	0.7	0.7
3	-3.81	-4.66	-4.74	-4.96	-4.5	-4.6
4	-2.09	-2.88	-3.74	-3.65	-3.7	-3.7
5	6.06	5.84	9.89	9.23	10.1	9.6
6	-0.69	-1.73	-1.89	-2.70	-2.0	-2.7
7	-3.37	-4.29	-4.21	-4.65	-4.1	-4.6
8	1.75	1.81	1.27	1.23	0.7	0.9
9	-4.31	-5.06	-5.06	-5.30	-5.0	-5.3
Total	33.2	40.9	45.6	51.00	46.7	50.3

It may be further noted from the table 3.10 that in all censuses, there was as a tendency both among males and females to overstate their ages ending in digits 0 and 5 and understate their ages ending in digits 3,7 and 9. It is also interesting to note that a greater proportion of females than males tended to state their ages in digits ending in 0, while a higher proportion of males than females tended to state their ages in digits ending in 5. Among those who understate their ages in digits ending in 3,7 and 9, the proportion of females is higher than males.

age reporting. Positive deviations imply preferences and negative deviation imply dislikes (for details see, Myers, R. J. 1940. "Actuarial Society of America", *Transactions*, Vol. XLI, pp411-415).

These tests clearly show that the single year age data is subject to digit preference.

## 2. Five-year Distribution

The percentage distribution of the total male and female population of Nepal by five year age groups for the various census years from 1952/54 to 1981 are given in Table 3.11. Figure 3.6 shows the age pyramids of the population in 1971 and 1981.

It may be observed from Table 3.11 and Figure 3.6 that although the erratic nature of age distribution as revealed in the single year of age (see Table 3.8 and Figures 3.4 and 3.5) is somewhat removed when age data is classified into five year age groups, but one still traces the evidence of under-enumeration and/or age shifting from the five year age distribution.

In a normal population, that is one not disturbed by heavy migratory movements or violent changes in birth or death rates, the age distribution tends to be a smooth one in the sense that the proportion of persons in each successive age-groups is less than in the previous one. In the light of these expectations, it will be interesting to examine the age distribution of Nepal's population as disclosed by successive censuses. The data for the years 1952/54 to 1981 show that there have been fluctuations in the age distribution in that the proportion of people in certain age-groups has been more than in the preceding groups. For instance, an examination of the age data from the censuses shows an excess of persons in the age group 5-9 over the preceding age - group 0 - 4. This finding is

**Table 3.11-Percentage distribution of population by five year age-groups and sex, Nepal, Census years 1952/54-1981**

Age	1952/54		1961		1971		1981	
	Male	Female	Male	Female	Male	Female	Male	Female
0-4	13.33	13.12	14.24	14.18	13.59	14.70	15.47	15.34
5-9	14.31	13.46	14.82	13.98	15.23	14.95	14.52	14.65
10-14	12.26	10.45	12.16	10.39	12.09	10.35	11.95	10.75
15-19	9.89	9.38	8.80	8.37	9.41	8.71	9.04	8.63
20-24	8.42	9.26	7.89	8.85	8.01	8.78	8.28	9.54
25-29	8.31	9.04	8.33	8.94	7.84	8.26	7.41	8.07
30-34	6.95	7.52	7.24	7.77	6.63	7.42	6.09	6.92
35-39	6.21	6.01	6.42	6.00	6.64	6.25	6.00	5.89
40-44	5.12	5.56	4.78	5.22	5.19	5.36	4.90	5.13
45-49	4.29	4.08	4.18	4.00	4.22	3.76	4.28	3.95
50-54	3.67	3.84	3.68	3.58	3.51	3.42	3.77	3.44
55-59	2.41	2.28	2.44	2.37	2.29	2.17	2.44	2.15
60-64	2.02	2.57	2.22	2.69	2.38	2.71	2.49	2.40
65-69	1.00	1.11	1.11	1.16	1.23	1.24	1.31	1.19
70-74	+1.48	+1.75	+1.74	+1.74	0.96	1.06	1.08	1.00
75+	-	-	-	-	0.78	0.86	0.97	0.95
Others	0.33	0.57	0.22	0.46	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.0	100.00

+ indicates 70 and above

Source : Central Bureau of Statistics, 1958-Population Census 1952/54, Table 2;

” ” ” 1968- ” 1961, Vol. III, Part II, Table 2;  
 ” ” ” 1975- ” 1971, Vol. I, Table 6;  
 ” ” ” 1984- ” 1981, Vol. II, Table 4.

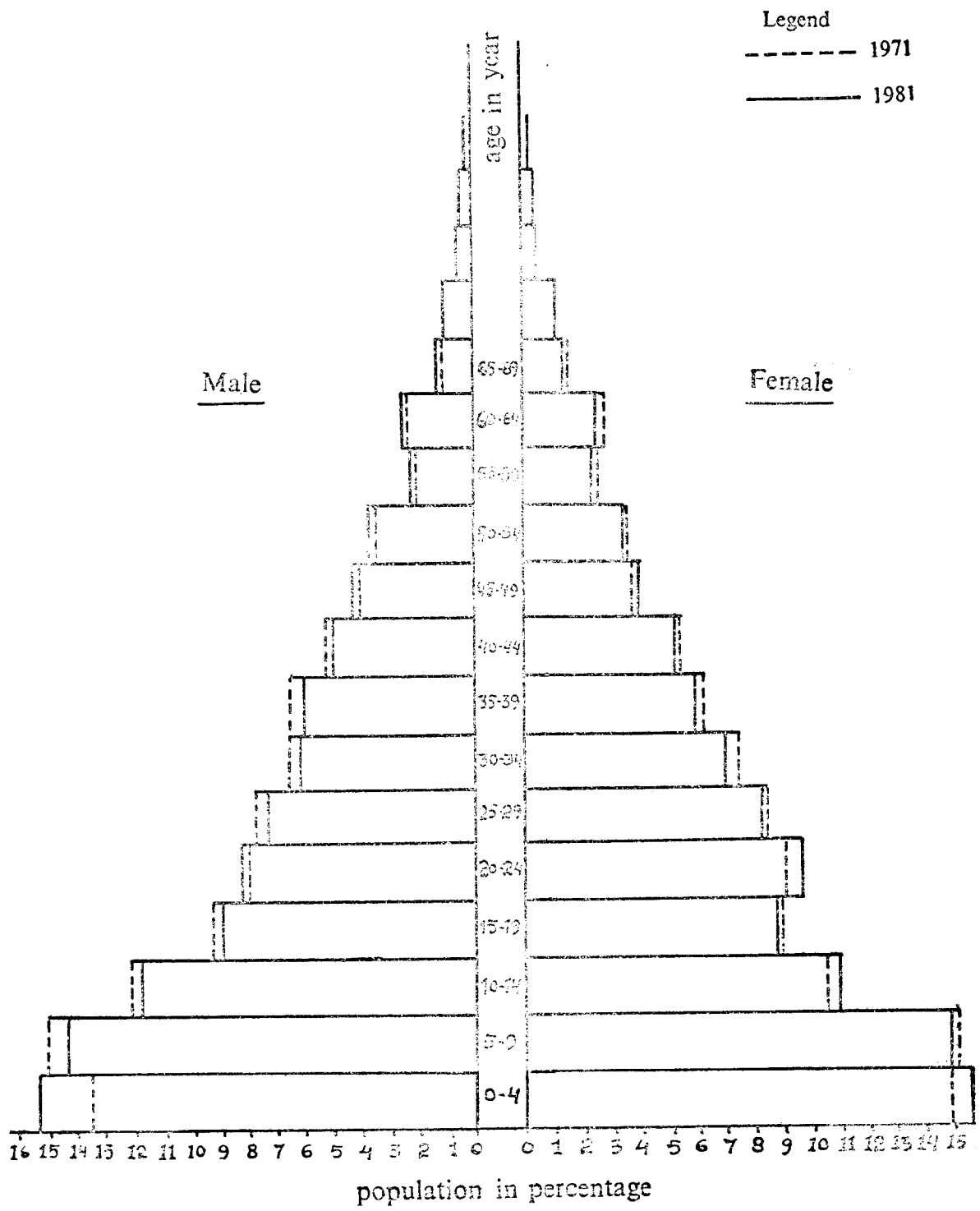


Figure 3.6 Population Pyramid of Nepal, 1971 and 1981

contrary to one's expectation. The number of persons in the age-group 0-4 can be lower than those in the age-group 5-9 only when there is evidence of a drastic fall in fertility and/or an increase in childhood mortality. But there exists no evidence of declining fertility and/or increasing childhood mortality in Nepal. The finding of a higher number of persons in the age-group 5-9 over those in the age-group 0-4 in the censuses held prior to 1981 was mostly due to the shifting of persons from lower ages to the exact age 5 and also to the under-enumeration of children particularly the newly born. However, for the first time in the 1981 census the ratio of persons in the age-group 0-4 to persons in the age-group 5-9 exceeded more than one, i.e. the number of persons enumerated in the age-group 0-4 exceeded those in the age-group 5-9. This finding is in conformity with one's expectation. This could also imply an improvement in census coverage over the years.

A glaring example of age-shifting could be found in the reporting of a higher proportion of females in the age-group 20-24 compared to the age-group 15-19 in all the censuses of Nepal conducted since 1952/54. This finding is also contrary to one's expectation. One would expect a systematic decline in number as well as in the proportion from the lower age-group to the higher age-group resulting the increase of mortality with age. An exception to this rule could arise from the history of differential mortality and migration by age cohort. But there is no evidence to show that the females in the age-group 15-19 were subject to a higher risk of mortality than those in the age-group 20-24. Similarly, we have no evidence to show that females in the age-group 20-24 have had differential history of immigration. In the absence of evidence of differential history of mortality and migration, the finding of higher pro-

portion of females in the age-group 20-24 compared to those in the age-group 15-19, may be attributed to upward shifting of the females from the latter to the former age group. This shifting is an example of biased estimate of age by the interviewers. The enumerators might have estimated the age of some young women on the basis of their marital status and number of children they have had. Under these criteria, women who were married and having children were considered of higher ages than those who were unmarried or married but have had no children. The women in the age-group 15-19 who are married and having children may themselves report their ages as 20-24 years to enhance their acceptability or position in the community. The practice of early marriage and having children at younger ages among the Nepalese women is very common. And this could lead to transfer of some women from the age-group 15-19 to the age-group 20-24.

The example of age-shifting can also be found at higher ages. For example, the proportion of people in the age-group 60-64 is found to be consistently higher than of the preceding age-group 55-59 years. At higher ages, people tend to exaggerate their ages as an attempt to elevate their social status. And this could result in shifting people from the age-group 55-59 to the age group 60-64.

In spite of the various limitations the census data nevertheless provides a fairly clear picture of the age-structure of Nepal's population over a period of years and the quality of Nepal's age data has been improving, at least when they are grouped in five years, with successive censuses, as borne out by the tests of age ratios and United Nations Age Accuracy Index.

### **3. Age Ratio**

In order to assess the magnitude of error in age-reporting, age ratios have been calcu-



lated. Age ratio is defined as a ratio of the population in a given age-group to one third of the sum of the population in the age-group itself and the immediate preceding and succeeding age-groups. If there were no extreme fluctuations in past births, deaths or migration, the three age-groups should form a nearly linear series and the age ratio should approximate to one. A very high positive or negative deviation from one implies inconsistency with the normal systematic decline in age-group proportions. The summation of all deviation divided by the number of age-groups indicate the overall accuracy of age reporting. The age ratio by five year age-groups and sex are presented in Table 3.12.

The age ratios are consistently found to be more than one for male and female children aged 5 - 9. This implies an over-enumeration of children in the age -group 5-9. The over

enumeration at age-group 5-9 was mostly due to the shifting of children aged 0-4 to age group 5-9.

Comparing the age ratios particularly those of females in the age-groups 10-14 and 15-19 with those of the ratios in the age-groups 20-24 and 25-29, we find the ratios of the former are consistently less than one, while the ratios of the latter exceeded more than one in all the censuses with the sole exception being the census of 1981. This finding implies under-reporting of females in the age-groups 10-14 and 15-19 and over reporting in the age-groups 20-24 and 25-29. This was the result of shifting the females from age groups 10-14 and 15-19 to age-groups 20-24 and 25-29. Using the criteria of being married and having children, enumerators may have estimated the age of some women. Women in the age - groups 10-14 and 15-19 who are

**Table 3.12-Age ratio by five year age-groups and sex, Nepal, Census years 1952/54-1981**

Age-group	1952/54		1961		1971		1981	
	Male	Female	Male	Female	Male	Female	Male	Female
5-9	1.12	1.14	1.12	1.14	1.19	1.19	1.06	1.12
10-14	1.01	0.92	1.03	0.93	0.98	0.87	1.01	0.92
15-19	0.96	0.95	0.88	0.87	0.94	0.91	0.89	0.85
20-24	0.92	1.01	0.92	1.02	0.93	1.03	1.01	1.14
25-29	1.08	1.08	1.10	1.08	1.07	1.02	1.03	0.98
30-34	0.96	1.00	0.98	1.04	0.92	1.02	0.91	0.99
35-39	1.03	0.92	1.07	0.92	1.12	0.98	1.09	0.98
40-44	0.98	1.10	0.90	1.04	0.96	1.07	0.95	1.04
45-49	0.98	0.87	0.99	0.88	0.97	0.86	0.98	0.92
50-54	1.10	1.21	1.11	1.23	1.08	1.16	1.12	1.13
55-59	0.85	0.71	0.82	0.72	0.78	0.71	0.99	0.74
60-64	1.19	1.51	1.25	1.53	1.35	1.59	1.32	1.43
Total	1.18	1.41	1.17	1.40	1.29	1.41	1.36	1.24

Source: Central Bureau of Statistics, 1958-Population Census 1952/54, Table 2;

„ „ 1968 „ „ 1961, Vol. III, Part II, Table 2;  
 „ „ 1975 „ „ 1971, Vol. I, Table 6;  
 „ „ 1984 „ „ 1981, Vol. II, Table 4.

married and having children may themselves report their ages in the higher age-groups, i.e. 20-24 and 25-29, in order to improve their position in the community. All these factors may together have caused a net upward transfer of women from age-groups 10-14 and 15-19 across age-groups 20-24 and 25-29.

Age ratios have been consistently found higher for males and females at age-group 60-64 compared to the corresponding ratios in the preceding age-group, i.e. 55-59. The age ratio is also found to be the highest in the age-group 60-64. This may be attributed to the following i) at higher ages people tend to exaggerate their age to enhance their respectability, and ii) recall lapse and illiteracy rises with age. These factors could also lead to age mis-reporting.

The overall quality of age data measured in terms of age-ratio shows an improvement for females while for males this was found to be deteriorating over the years.

#### 4. United Nations Age Accuracy Index

The accuracy of age distribution grouped in age intervals was also tested here by employing the age accuracy index developed by the United Nations Secretariat<sup>8</sup>. This requires computation of a sex ratio score which is the average, irrespective of sign, of successive difference in the sex ratios between one age group and the next b) age ratio score for each sex which is obtained by computing age ratios for each sex and averaging their deviation from 100 irrespective of sign. Age ratio is defined as the ratio of the population enumerated in quinquennial age groups per 100 average population in the adjacent age groups, c) *joint score* which is obtained as three times the sex ratio score added to the two age-ratio scores. The joint scores computed

for the quinquennial age distribution of the Nepal censuses of 1971 and 1981 are presented below:

United Nations Index	
Year	Index
1971	59
1981	47

There shows an improvement in the reporting of ages when grouped in five year age interval as indicated by the gradual decrease in the joint scores from 59 in 1971 to 47 in 1981.

#### 5. Age Smoothing

An attempt was made to smooth the age data of 1981 census by employing the Hill Technique<sup>9</sup>. The smoothed age distribution is presented in Table 3.13 and Figure 3.7 presents unadjusted (observed) and adjusted (smoothed) age data. It may be observed that the saw-tooth nature of the raw data is removed with smoothing. The use of the Hill Technique in levelling out the inconsistencies in the age-structure was satisfactory every where, except at ages between 20 and 29 for females. This was mostly due to extraordinary transfer of female population from age-groups 10-14 and 15-19 across ages 20-24 and 25-29.

#### 6. Age Mis-reporting : Sources of Error

Age misreporting may stem from various sources. Some of these are mentioned here: i) there is no effective vital registration system in the country. The majority of the people are illiterate and have no knowledge about their ages. Guesses regarding age are usually made either by respondents or interviewers by association with some known events or physical characteristics, ii) un-reported ages are sometimes estimated by the editors in the central office on the basis of some a priori

<sup>8</sup> United Nations, "Accuracy tests for census age distributions tabulated in five year and ten-year groups", *Population Bulletin* No. 2 (Sales No : 1952. XIII4), pp. 75-76.

<sup>9</sup> Hill, K. Zlotkin, H. and Durch, J. 1982. *Procedures for Reducing the Effects of Age Errors on Indirect Demographic Estimation Technique*, Chapel Hill: the University of North Carolina, USA.

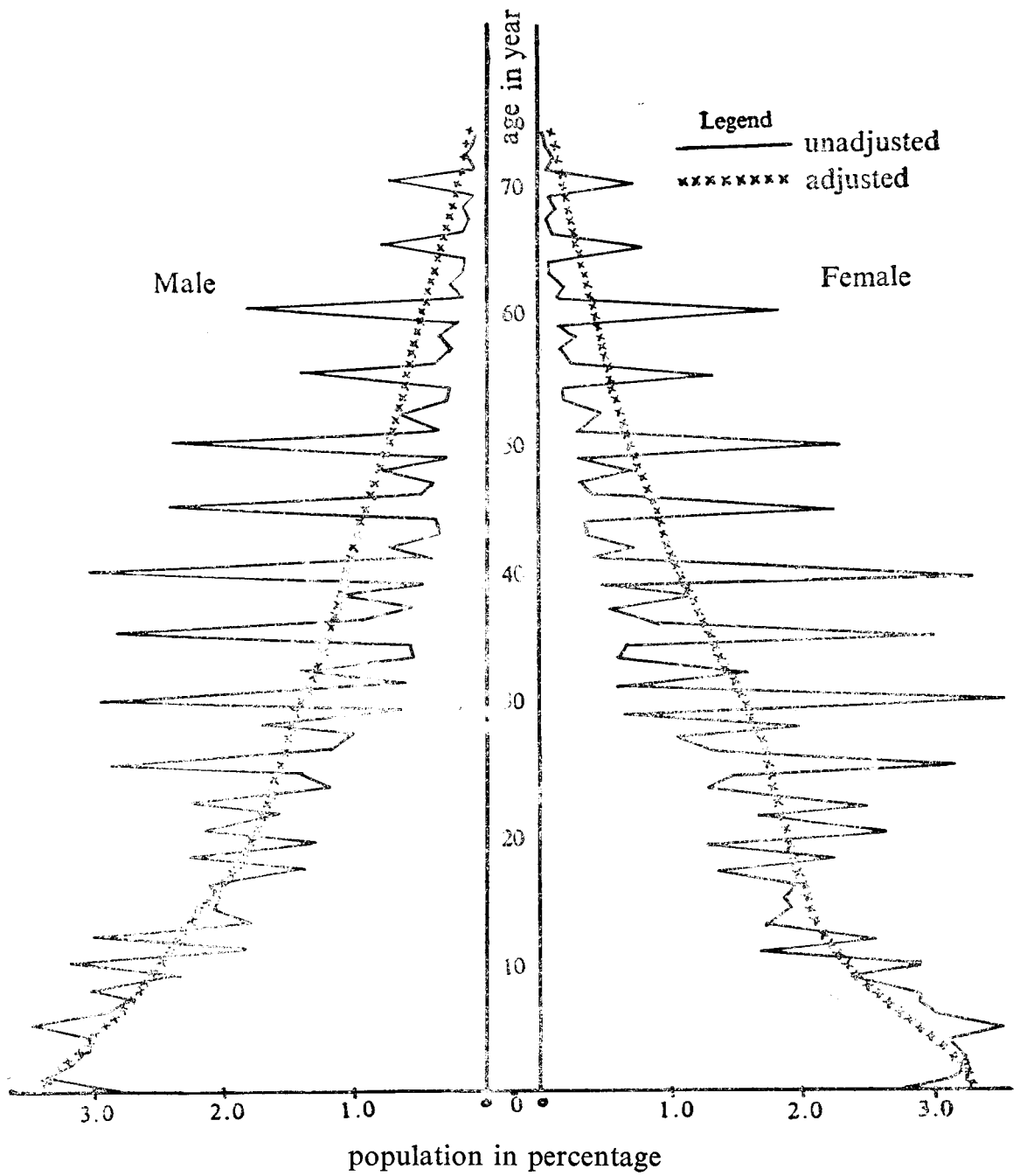


Figure 3.7 Percentage distribution of unadjusted and adjusted population, by single year of age 1981

**Table 3.13-Five and single year adjusted\* age distribution of population (in per cent) by sex for the census year 1981**

Age group		Male					Female					
X-{X+4)	Total	X	X+1	X+2	X+3	X+4	Total	X	X+1	X+2	X+3	X+4
0-4	16.44	3.53	3.40	3.28	3.17	3.06	16.15	3.46	3.34	3.23	3.12	3.00
5-9	13.79	2.95	2.85	2.76	2.66	2.57	13.37	2.89	2.78	2.67	2.57	2.16
10-14	11.61	2.49	2.40	2.32	2.24	2.16	11.07	2.37	2.27	2.20	2.14	2.09
15-19	9.73	2.08	2.01	1.94	1.88	1.82	9.85	2.04	2.01	1.97	1.93	1.90
20-24	8.39	1.77	1.72	1.67	1.63	1.60	9.05	1.87	1.84	1.81	1.78	1.75
25-29	7.44	1.56	1.53	1.49	1.45	1.41	8.33	1.73	1.71	1.68	1.63	1.58
30-34	6.52	1.38	1.34	1.30	1.27	1.23	7.12	1.53	1.48	1.42	1.37	1.32
35-39	5.70	1.20	1.17	1.14	1.11	1.08	5.90	1.28	1.22	1.18	1.13	1.09
40-44	4.94	1.04	1.02	0.99	0.96	0.93	4.87	1.05	1.01	0.97	0.94	0.90
45-49	4.18	0.90	0.87	0.83	0.81	0.77	3.94	0.86	0.82	0.79	0.75	0.72
50-54	3.42	0.74	0.71	0.68	0.66	0.63	3.11	0.68	0.65	0.62	0.59	0.57
55-59	2.70	0.60	0.57	0.54	0.51	0.48	2.46	0.54	0.52	0.49	0.47	0.44
60-64	2.02	0.46	0.43	0.40	0.38	0.35	1.87	0.42	0.40	0.37	0.35	0.33
65-69	1.38	0.33	0.30	0.27	0.25	0.23	1.28	0.30	0.28	0.26	0.23	0.21
70-74	0.79	0.20	0.18	0.16	0.14	0.11	0.72	0.19	0.17	0.14	0.12	0.10
75+	0.95						0.91					
Total	% 100.00						100.00					
	No. 7,695,336						7,327,503					

\*adjusted by Hill Technique.

Source: Central Bureau of Statistics, 1984-Population Census 1981, Vol. 11, Table 4 (for the base data).

assumptions. And this could lead to a biased estimate of age, iii) the ages of unmarried girls are usually underestimated because the chances of marriage of a girl diminish with the advancing age particularly in rural area. On the other hand, a girl though young but married and having children may be reported in the higher age group on the assumption that marriage and having children are positively associated with age, iv) at higher ages people tend to exaggerate their ages to enhance their respectability in the community. In some communities, people in the higher age-groups tend to believe that the disclosure of their exact age will lead to the shortening of life. As a result, they may be reluctant to divulge not only their ages but also the ages of their kith and kin, v) in the censuses, age is

calculated on the basis of exact age, i. e. age on the last birthday. The people of Nepal tend to report their current age rather than completed age. And this could lead to a biased estimate of age particularly the shifting of age from one category to the other.

### 7. Age Distribution: General Pattern

The percentage distribution of the population of Nepal by age and sex for the various census years from 1952/54 to 1981 is presented in Tables 3.11 and 3.14. The age structure of Nepal's population is typical of the patterns obtaining in many developing countries experiencing high birth rates and declining death rates. In these countries children under 15 years of age constitute about 40 per cent or more of the total population while

the range of this ratio in low birth-rate developed countries is about 20 to 30 per cent. Consequently the proportion of people in the working ages viz, 15 to 64 years, in most developing countries is around 55 per cent as compared with about 60 to 70 per cent in developed countries. Children (0 to 14 years) and youth (15 to 24 years) together form nearly 60 per cent of the total population of Nepal (see Table 3.14) in 1981.

One of the outstanding features of the Nepalese population that emerges from the examination of age distribution data in Table 3.14 is the nearly static age structure coexisting with a rapid increase in the size of the population. Even though the age distribution of the population of Nepal has been nearly static there were some small but notable changes. These changes, in a nutshell, are as follows: there has been a slow but steady increase in the proportion of children below 15 years and of elderly persons aged 60 years and above with a corresponding decline of the proportion of the population in the adolescent and adult ages particularly in the adult age group (25-59 years). The principal cause of

this rise in the proportion under age 15 was probably the decline in infant and child mortality and the increase in the proportionate share of those aged 60 years and above in the total population may be attributed to an increase in life expectancy associated with the overall improvement in the mortality situation of the country during the last three decades (1952/54-81).

### 8. Age Distribution by Rural/Urban Area

The percentage distribution of the total population by five-year age groups in the urban and rural areas for the census years 1961, 1971 and 1981, is given in Table 3.15. It will be seen that while in the rural areas children below 15 years form a higher proportion of the population, in the urban areas persons in the working age group particularly in the young adult ages (15-24) constitute a higher proportion. However, this disparity in age distribution between rural and urban areas has narrowed considerably over the years. The proportion of older people, i.e. aged 60 years and above, is higher in rural than in urban areas. Various reasons could be adduced to explain these rural/urban differences in age structure. The higher proportion of children in rural than in urban areas may result from higher fertility in the former. The finding of a higher proportion of young adults in the urban rather than in the rural population may be attributed to the exodus of people in the young adult ages from the former to the latter areas in search of jobs, pursuing education/training, etc. The higher proportion of older people in rural rather than in urban areas, may arise from stronger family ties in the former area. Furthermore, overcrowding and difficulty in finding proper accommodation in urban areas may also prevent migration from country to town and people leaving their families behind particularly the aged ones in rural areas. Neither may elderly people be willing to go to urban areas leaving behind their rural ancestral homes.

**Table 3.14-Percentage distribution of the total population by broad age-groups, Nepal, Census years 1952/54-81**

Age group	Year			
	1952/54	1961	1971	1981
0-14	38.44	39.87	40.46	41.35
15-24	18.48	16.96	17.45	17.70
25-59	37.65	37.64	36.47	35.21
60+	4.98	5.19	5.62	5.74
Not stated	0.45	0.34	—	—
Total	100.00	100.00	100.00	100.0

Source: Central Bureau of Statistics, 1958-Population Census 1952/54, Vol. 1, Part II, Table 2, p. 60; Central Bureau of Statistics, 1977-The Analysis of the Population Statistics of Nepal, Table 3.1, and Table 3.3; Central Bureau of Statistics, 1984-Population Census 1981, Vol. 1, Part I, Table 5, p. 299.

**Table 3.15-Percentage distribution of total urban/rural population by five year age groups, Nepal, Census years 1961-1981**

Age group	1961		1971		1981	
	Urban	Rural	Urban	Rural	Urban	Rural
0-4	12.98	14.31	12.71	14.21	14.23	15.49
5-9	12.00	14.54	13.37	15.16	13.34	14.66
10-14	10.55	11.33	11.19	11.23	11.55	11.35
15-19	9.74	8.57	10.55	9.00	10.18	8.75
20-24	10.48	8.33	10.33	8.31	10.34	8.79
25-29	9.09	8.65	8.78	8.02	8.42	7.69
30-34	7.73	7.52	7.17	7.01	6.84	6.47
35-39	6.20	6.23	6.26	6.45	6.03	5.94
40-44	5.44	5.00	5.23	5.28	4.80	5.03
45-49	4.21	4.10	3.74	4.00	3.87	4.14
50-54	3.94	3.79	3.45	3.47	3.24	3.63
55-59	2.41	2.41	2.10	2.23	2.05	2.32
60-64	2.43	2.47	2.26	2.56	2.06	2.47
65+	2.80	2.75	2.86	3.07	3.05	3.27
Total	% 100 No. 336,222	100 9,076,774	100 461,938	100 11,094,045	100 956,721	100 14,066,118

Source: Central Bureau of Statistics, 1968-Population Census 1961, Vol. III, Part II, Table 2, p. 1;

„ 1975 „ 1971, Vol. V, pp. 39-01 to 39-30;

„ 1984 „ 1981, Vol. I, Part I, Table 5, p. 299 & Vol. III, Table 5, p.76.

## 9. The Pattern of Age Structure in Rural/Urban, Geographic Zones and Development Regions

Tables 3.16, 3.17 and 3.18 show the -percentage distribution of the enumerated population in broad age groups for the census years, particularly for 1971 and 1981, by rural/ urban residence, geographic zones and development regions. It may be observed that in respect of the broad age group 0-14, most of the regions conform to the all-Nepal trend i.e. the proportion of the population in this age-group has increased between the intercensal periods. However, no significant changes in the proportion of this age group could be traced in the Mountain and Hill zones and also the Eastern and Central Development regions. The significant increase in the proportion of this age group (0-14 years) was noticed in the Terai zone and in the Far-western, Mid-

western and Western Development regions.

The percentage of the population in the adolescent and adult ages particularly in the adult ages (25-29 years) declined for the majority of the regions, a finding in conformity with the national pattern. The percentage of the population in the old age group (60 years and above) has increased in all the geographic zones and development regions, excepting the urban areas and the Mid-western Development region (see Tables 3.16-3.18). The increase in the proportion of the population in the old age group in the majority of development - regions and geographical zones shows an overall improvement in mortality conditions. This has also been reflected in the index of aging which has recorded an, increase in 1981 in most of the ecological zones and development regions (see Table 3.22).

**Table 3.16-Percentage distribution of total urban/rural population by broad age groups, Nepal, Census years 1961-1981.**

Age group	1961		1971		1981		
	Urban	Rural	Urban	Rural	Urban	Rural	
0-14	35.53	40.18	37.27	40.60	39.12	41.50	
15-24	20.22	16.90	20.88	17.31	20.52	17.54	
25-59	39.02	37.70	36.73	36.46	35.25	35.22	
60+	5.23	5.22	5.12	5.63	5.11	5.74	
Total	%	100.00	100.00	100.00	100.00	100.00	100.00
	No.	336,222	9076,774	461,938	11,094,045	956,721	14,066,118

Source: Central Bureau of Statistics, 1968-Population Census 1961, Vol. 111, Part II, Table 2, p. 1;

„ „ 1975- „ „ 1971, Vol. V, pp. 39-01-39-30;

„ „ 1984- „ „ 1981, Vol. I, Part I, Table 5, Vol. III, Table 5.

**Table 3.17-Percentage distribution of total population by geographical zones, Nepal, Census years 1952/54-81**

Age group	Mountain				Hill				Terai			
	1952/54*	1961	1971	1981	1952/54**	1961**	1971	1981	1952/54	1961	1971	1981
0-14	39.48	40.35	39.11	38.86	41.15	41.80	40.66	40.79	36.14	38.97	40.52	42.47
15-24	19.45	18.16	18.13	18.32	19.39	18.23	18.21	18.42	16.38	14.40	16.22	16.86
25-59	35.43	35.68	36.69	36.61	35.06	35.49	35.14	34.73	43.78	42.52	38.30	35.46
60+	5.64	5.81	6.07	6.21	4.40	4.48	5.99	6.06	3.70	4.11	4.96	5.21
Total	100	100	100	100	100	100	100	100	100	100	100	100

\* *Pahad* (Hill-Mountain).

\*\* *Bhitri Madhes* (Hill + Terai)

Source: Central Bureau of Statistics, 1958-Population Census 1952/54, Vol. 11, Part 1, Table 1;

„ 1968 „ „ 1961, Vol. III, Part I, Table 1;

„ 1975 „ „ 1971, Vol. I, Table 1;

„ 1984 „ „ 1981, Vol. II, Table 5.

**Table 3.18-Percentage distribution of total population by development regions, Nepal, Census years 1971-81**

Age group	E. D. R.		C. D. R.		W. D. R.		M. W. D. R.		F. W. D. R.	
	1971	1981	1971	1981	1971	1981	1971	1981	1971	1981
0-14	41.93	41.81	39.79	40.67	39.82	40.92	41.26	42.67	39.16	41.65
15-24	17.51	18.76	17.07	17.61	17.54	17.39	18.02	17.48	17.76	16.49
25-59	35.19	34.02	37.46	35.87	36.14	35.07	36.08	35.25	37.78	36.36
60+	5.37	5.41	5.68	5.85	6.50	6.52	4.64	4.60	5.30	5.50
%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total No.	2,797,500	3,708,923	3,865,753	4,909,357	2,446,430	3,128,859	1,488,006	1,955,611	9,582,94	1,320,089

Note: E. D. R.=Eastern Development Region; C. D. R.=Central Development Region; W. D. R. = Western Development Region; M. W. D. R. = Mid-western Development Region and F. W. D. R. =Far-western Development Region.

Source : Central Bureau of Statistics, 1975-Population Census 1971, Vol. I, Table 6;

„ „ 1984- „ 1981, Vol. I, Part I, Table 5.

## 10. Distribution by Broad Age-groups

The percentage distribution of the total population by broad age-groups as well as dependency ratios for Nepal since 1952/54 are given in Table 3.19. It will be noted from the table that the proportion of the population in the younger and older age groups increased although slowly with a consequent decline in the proportion of the population in the middle age (15-59) group. As a result the overall dependency ratio has been increasing over the years. It shows that Nepal suffers from a heavy burden of dependency particularly at young ages. Today roughly about 100 persons in the productive ages have to support 89 dependents in terms of food, clothing, health, education and the like. This is in contrast to the situation in the developed countries where there are only about 45 to 65 dependents per 100 persons in the productive group.

It must, however, be noted that the true dependency load (ratio of non-workers to workers) in the population in Nepal is very much higher than is indicated by the

conventional dependency ratio because not all persons in the working age groups are actually at work. For example, in 1981 thirty two per cent of the population in the age group 15-59 were economically inactive. If these persons were excluded from the productive ages (15-59 years) and added to the dependent age groups, the dependency ratio will increase by 101 per cent from 89 to 179 dependents per 100 workers.

The increase in the overall dependency ratio for the country is also observed for the rural and urban areas (see Table 3.20) and for all geographical zones and development regions except for the Eastern Development regions and the Mountain zone (see Table 3.21 and Table 3.22). The overall dependency ratio in the Eastern Development region and in the Mountain zone declined slightly due mostly to the reduction in the young dependency ratios in these areas.

Although the overall dependency has increased in the majority of zones and regions during the last intercensal period this was

**Table 3.19-Percentage distribution of the total population by broad age groups and dependency ratios, Census years 1952/54-1981**

Census year	Percentage distribution by age group			Total	Dependency ratio		
	0-14	15-59	60+		Young <sup>a</sup>	Old <sup>b</sup>	Overall <sup>c</sup>
1952/54	38.62	56.38	4.99	100.00	68.49	8.87	77.36
1961	40.00	54.77	5.22	100.00	73.04	9.52	82.56
1971	40.45	53.94	5.61	100.00	75.00	10.41	85.41
1981	41.35	52.94	5.71	100.00	78.10	10.78	88.88

$$\text{a. Young dependency ratio} = \frac{\text{Percentage of population aged 0-14}}{\text{Percentage of population aged 15-59}} \times 100$$

$$\text{b. Old dependency ratio} = \frac{\text{Percentage of population aged 60 and over}}{\text{Percentage of Population aged 15-59}} \times 100$$

$$\text{c. Overall dependency ratio} = \text{Young dependency ratio} + \text{old dependency ratio.}$$

Source: Central Bureau of Statistics, 1958 Population Census - 1952/54, Table 2;  
 " " " 1968- " " 1961, Vol. III, Part I, Table 1;  
 " " " 1975- " " 1971, Vol. I, Table 1;  
 " " " 1984- " " 1981, Vol. I, Part I, Table 5.



**Table 3.20 Dependency Ratio and index of aging for urban / rural area, Nepal, Census Years 1961 - 81**

Year	Dependency ratio (in per cent)						Index of aging*	
	Urban			Rural			Urban	Rural
	Young <sup>a</sup>	Old <sup>b</sup>	Total <sup>c</sup>	Young <sup>a</sup>	Old <sup>b</sup>	Total <sup>c</sup>		
1961	59.98	8.83	68.81	73.56	9.56	83.12	14.72	12.99
1971	64.69	8.89	73.58	75.51	10.47	85.98	13.74	13.87
1981	70.15	9.16	79.31	78.66	10.88	89.54	13.06	13.83

Percentage of population aged 60 and over

\*  $\frac{\text{Percentage of population aged 60 and over}}{\text{Percentage of population aged 0-14}} \times 100$

Percentage of population aged 0-14

Note: a, b, c are the same as are those in Table 3.19.

Source: Computed from data mentioned in the source of Table 3.16.

**Table 3.21-Dependency ratio and index of aging for ecological zones, Nepal, Census years 1952/54-81**

Year	Dependency ratio (in per cent)									Index of aging*		
	Mountain			Hill			Terai			Mountain	Hill	Terai
	Young <sup>a</sup>	Old <sup>b</sup>	Total <sup>c</sup>	Young <sup>a</sup>	Old <sup>b</sup>	Total <sup>c</sup>	Young <sup>a</sup>	Old <sup>b</sup>	Total <sup>c</sup>			
1952/54	71.94	10.28	82.22**	75.57	8.08	83.65 <sup>+</sup>	60.07	6.15	66.22	14.26**	10.69	10.23
1961	74.94	10.79	85.73**	77.81	8.34	86.15 <sup>+</sup>	68.46	7.22	75.68	14.40**	10.72	10.55
1971	71.34	11.07	82.41	76.21	11.23	87.44	74.32	9.10	83.42	15.52	14.73	12.24
1981	70.74	11.31	82.05	76.75	11.40	88.15	81.17	9.96	91.13	15.98	14.86	12.27

\*Same as are those in footnote \* of Table 3.20. \*\**Pahad* (Hill + Mountain)+ *Bhitri Madhes* (Hill+Terai).

Note : a, b, c are the same as are those in Table 3.19.

Source: Calculated from data mentioned in the source of Table 3.17.

**Table 3.22-Dependency ratio and index of aging for development regions, Nepal, Census years 1971-81**

Development regions	Dependency ratio (in per cent)						Index of aging*	
	1971			1981			1971	1981
	Young	Old	Total	Young	Old	Total		
Eastern	79.56	10.14	89.75	79.22	10.25	89.47	12.81	12.94
Central	72.97	10.42	83.39	76.05	10.94	86.99	14.27	14.38
Western	74.18	12.11	86.29	78.00	12.62	90.62	16.32	16.18
Mid-western	76.27	8.58	84.85	80.92	8.72	89.64	11.25	10.78
Far-western	70.51	9.54	80.05	78.81	10.41	89.22	13.53	13.21

\*Same as are those in footnote \* of Table 3.20.

Note : Young, Old and Total (overall) are the same as are those in Table 3.19.

Source : Computed from data mentioned in the source of Table 3.18.

more marked in the Far-western Development region and the Terai than in other regions.

### 11. Index of Aging and Median Age

In order to examine whether the population of Nepal is growing 'young' or 'old', two indices, viz, the index of aging and the median age of the population, have been computed for all census years from 1952/54 to 1981. The index of aging and the median age for these years are given in Table 3.23.

Year	Index of Aging	Median Age (in Years)		
		Male	Female	Total
1952/54	12.92	20.1	21.9	21.1
1961	13.05	19.9	21.7	20.9
1971	13.86	19.8	20.7	20.3
1981	13.81	19.5	20.3	19.9

\* Same as in those in footnote\*of Table 3.20

Source:- Calculated from data mentioned in the source of Table 3.19

It may be observed from Table 3.23 that the index of aging has remained more or less unchanged until 1951 and then it increased marginally by one percentage point during the intercensal period 1961 and 1971. However, between 1971 and 1981, the value of the index of aging remained virtually unchanged at the 1971 level. The slight increase in the value of the index of aging between 1952/54-61 and 1971-81 possibly reflects the effect of decline in mortality during the last two decades.

The index of aging showed a steady decline in urban areas from 14.72 per cent in 1961 to 13.06 per cent in 1981, while in rural areas the index of aging increased from 12.99 per cent in 1961 to 13.87 per cent in 1971 and thereafter, declined marginally to only 13.83 per cent in 1981 (see Table 3.20). The consistent decline in the value of the

index of aging in urban area is due to increase in the proportion of children below 15 years resulting from persistent decline in infant mortality over the years without a corresponding increase in the proportion of people at higher ages i.e. 60 years and above (see Table 3.16).

The pattern of improvement in the index of aging in the Hill, Mountain and Terai is almost the same as that of the country (see Table 3.21). The index of aging for each of the zone increased steadily during last three decades 1952/54-81 particularly during the period 1961 and 1971. When one considered the index of aging for the development regions this was found to be improving for the Eastern and Central Development region, while this was declining, though marginally, for the remaining three development regions, during last decade 1971-81 (see Table 3.22).

It will also be seen from Table 3.23 that the median age of the total population in 1952/54 was 21.1. It decreased gradually to 19.9 in 1981. This meant that exactly half of the population of Nepal was below 19.9 years of age at the time of the 1981 census. This indicated that the population of Nepal is becoming 'young'. The reduction in the median age of the Nepalese population is largely due to the decline in mortality particularly infant and childhood mortality. The reduction in median age is noticed for both males and females. The median age for male has decreased from 20.1 years in 1952/54 to 19.5 years in 1981 while for females, this was reduced from 21.9 years in 1952/54 to 20.3 years in 1981. It should be further pointed out here that the median age for males has always been lower than that for females due perhaps to higher chances of survival of males than females at the younger ages. However, this gender gap has been narrowing over the years, indicating perhaps an improvement in female life expectancy.