

CHAPTER XII TRENDS AND DIFFERENTIALS IN FERTILITY IN NEPAL

INTRODUCTION

The subject of human fertility covers a wide range of areas, reflecting the complexity of this aspect of human behaviour. It is influenced by a host of biological, sociological, and economic factors. The influence of all of these factors on fertility have not been examined for Nepal due to paucity of relevant and reliable data. It is also pertinent to point out that long-term trends in fertility are not determined by these factors independently, but by the process of society, of which these factors only form a part.

The age-old tradition of the Hindu culture of Nepal has always been pronatalist; a large number of children is a symbol of well being, both socially and economically. This is evident from the popular saying, which goes, "may your progeny fill the hills and mountains". The urge to get married is universal and it is a disgrace for a couple, particularly the wife, not to have children. High fertility is desired because by producing children, preferably sons, a woman raises her status in the family, avoids the chances of having co-wife, makes herself socially eligible to inherit some property from the family and above all, wins the support and affection of her husband and the other family members, especially the ever dominant mother-in-law.

High fertility, combined with declining mortality, accelerated the growth of Nepal's population from 1.6 per cent during the period 1952/54-61 to 2.6 per cent during the last decade, 1971-81. Since the desirable way to reduce the rate of population growth is by curtailing fertility, the Government of Nepal has

endorsed family planning programmes since 1965. However, to chalk out appropriate policies to induce fertility decline, there is a need to understand the complex processes of fertility behavior. To facilitate this understanding, several fertility determinant studies were conducted in Nepal in recent years. Also, the addition of fertility related questions to periodic population censuses /surveys have made it possible to study fertility levels and trends. Nevertheless, reliable data on fertility and its determinants are not adequately available to carry out an in depth analysis of the subject in Nepal.

Sources and Quality of Data

The principal sources of fertility data in Nepal are periodic censuses and occasional sample surveys. Although population counts began in Nepal in the early part of this century, the first four counts of 1911,1920,1931 and 1941 contain virtually no information on population characteristics¹. No direct questions on reproductive behaviour were asked in the 1952/54 census². The last three censuses of 1961, 1971 and 1981 collected and processed data on children born in the year

¹ The 1952/54 Census Report gives population totals for various districts of Nepal for 1911,1920,1930,1941 and 1952/54 but the boundaries and coverage of the component parts of the various censuses were uncertain

² Department of Statistics, 1958. Population census of Nepal 1952/54 vol. I Part II (in Nepal), Table 2, Kathmandu.

prior to the “census day” by age of mother³. In addition, fertility rates were estimated by applying indirect techniques to the age distribution data collected by the censuses.

During the 1970s a number of fertility and family planning sample surveys⁴ were carried out in Nepal which contained a wealth of information on fertility along with various socio-economic characteristics of Nepal’s population. Additionally, fertility data were also available from the Vital Registration System, which began registering vital events like births, deaths, marriages, etc from April 1978, but the data generated by the system are not of much value because of incomplete coverage⁵

As in many developing countries, the population data in Nepal are incomplete and defective. The quality of the census data for the years 1952/54, 1961 and 1971, particularly those of age distribution, have been described as quite unreliable⁶. The quality of the age data in the 1981 census has been found to be no better⁷. The problem of data quality and

reliability is so serious that even the data collected by the sample surveys, such as the Nepal Fertility Survey 1976, Nepal Contraceptive Prevalence Survey 1981, etc. are not free of various types of response errors which have compelled the researchers to apply indirect techniques to arrive at plausible estimates of demographic parameters.⁸

Other factors that have contributed to the problem of data comparability over time are frequent changes of district as well as other factors in this respect are changes from one census to another in the definition and classification of certain population characteristics such as economic activity, labour force, occupation, literacy, urban centers, etc⁹. Therefore, the analysis and inferences that follow in this paper based on such data warrant careful evaluation.

Levels and Trends in Fertility 1952/54-81

One of the main factors contributing to population change is the birth rate, perhaps the most important contributor to population growth in most developing countries. Most nations in the developing world have given very high priority to birth control programmes, involving a large share of their scarce development expenditure. Therefore, a critical assessment of fertility levels and trends is called for to measure the effectiveness of birth control and other related programmes. To facilitate this process of evaluation, one has to know the levels and trends of crude

³ Central Bureau of Statistics (CBS), 1967-69 and 1975. Reports on 1961 Census of Population, Vol. III, Part I-VII (in Nepali). Population Census 1971, Vol-IV, Kathmandu.

⁴ Some of the surveys that can be mentioned here are: CBS, The Demographic Sample Surveys of Nepal (three reports for 1974/75, 1976 and 1977/78); Family Planning / Maternal and Child Health Project 1977, Nepal Fertility Survey 1976, Kathmandu; FP/MCH and Westinghouse Health Systems 1983, Nepal Contraceptive Prevalence Survey Report, 1981, Kathmandu; New Era Fertility and Mortality Rates in Nepal 1986, Kathmandu, June 1986.

⁵ National Commission on population 1984. Report on the Improvement and Strengthening of Vital Registration System (in Nepali), Task Force on Vital Registration System (Singh Durbar, Kathmandu).

⁶ U.S. Bureau of the Census, 1979. NEPAL, Country Demographic Profile, Department of Commerce.

⁷ Karki, Y.B. , 1985 “The Organisation and Quality of the 1981 Census of Nepal”, paper Presented to “Data Users Seminar on Intercensal Changes of

Some Key Census Variables”, Nepal 1952/54-81. Kathmandu.

⁸ Goldman, N. , Coale, A.J. and wenstein, M.1979 The Quality of Data in the Nepal Fertility Survey. Scientific Report No.6 (World Fertility Survey, London).

⁹ Central Bureau of Statistics (CBS), 1985 Intercensal Changes of some Key Census Variables: Nepal 1952/54-81, Kathmandu

birth rate, age-specific and total fertility rates.

Crude Birth Rate

The data available on fertility prior to 1974 were inadequate for estimating levels and trends. Nevertheless, some researchers¹⁰ had attempted to estimate fertility level prevailing in the 1950s and the 1960s. Their analyses were based on the census distribution

Table 12.1 – Estimated Crude Birth Rates, 1952/54-81

Period	Birth per 1000 population	Source
1951-61	48.0	U.S. Dept. of Commerce (1979) ^a
1961	47.0	Krotki and Thakur (1971) ^b
1961-66	44.6	U.S. Dept. of Commerce (1979) ^a
1966-71	43.4	U.S. Dept. of Commerce (1979) ^a
1971	42.8	Karki, Y.B. (1982) ^d
1974-75	44.7	C.B.S. (1982) ^d
1976	46.8	C.B.S. (1982) ^d
1977-78	42.6	C.B.S. (1982) ^d
1981	44.9	Karki, Y.B. (1982) ^c
1981	44.0	C.B.S. (1985) ^e

a. U.S. Department of Commerce, Bureau of the Census 1979. *Nepal Country Demographic Profile*: Washington D.C.

b. Krotki, K. J. and Thakur, H. N. 1971. "Estimates of Population Size and Growth from the 1952/54 and 1961 Censuses of the Kingdom of Nepal", *Population Studies* 25 (1) pp. 81-103.

c. Karki, Y.B. 1984. "Estimates of Total Fertility Rates for Nepal and its Geographical Sub-divisions and Administrative Zones 1971 and 1981", Occasional Monograph, National Commission on Population: Kathmandu.

d. Central Bureau of Statistics, His Majesty's Government of Nepal. Demographic Sample Surveys of 1974-75, 1976 and 1977-78. *Statistically Pocket Book of Nepal*, 1982, p.29: Kathmandu.

e. Central Bureau of Statistics, His Majesty's Government of Nepal, 1985. *Intercensal Changes of Some Key Census Variables, Nepal 1952/54-1981*. Kathmandu.

¹⁰. U.S. Bureau of Census (1979) and Krotki & Thakur (1971) did attempt to estimate fertility level for the 1950s and the 1960s using census age distributions.

of population by age and sex. According to an estimate prepared by the U.S. Bureau of the census (1979), the crude birth rate (CBR) for the period 1951-61 was 48.0 per thousand population. Similarly, CBRs were estimated for the 1961-66 and 1966-71 periods. Krotki and Thakur (1971) also estimated CBR of 47 for the 1952/54-61 period. The CBRs for the second half of 1970s and the early 1980s are available from a number of sources. Table 12.1 presents CBRs estimated for different periods.

The crude birth rates given in Table 12.1 were derived by applying different methods of estimation to either census or survey data. This may partly account for different estimates of CBRs for the same period/year. For example, in order to estimate CBR for 1971, the U.S. Bureau of the Census (1979) smoothed the age distribution, adjusted under-enumeration of the 0-4 age group, and then reverse survived the smoothed and adjusted population, which resulted in CBR of 43.4 per thousand population. Karki's (1984) estimates of CBR for 1971 and 1981 were derived from TFR estimates based on P/F ratio method. The estimate of crude birth rate for 1981 by CBS was derived by applying stable population technique to the 1981 census age distribution of population. These estimates, therefore, are not strictly comparable. In spite of the limitations of comparability, one could still conclude that fertility as reflected in the CBR remained very high, although a small but declining trend has shown over the years.

Age-specific and Total Fertility Rates

Although the crude birth rate (CBR) is the most simple and perhaps the most widely quoted measure of fertility, it is not a very refined measure of fertility. Among the various limitations of the measure, the most crucial one is its vulnerability on the age distribution of a population. Changes in crude

birth rate may result simply from changes in the age distribution, without reflecting any real change in fertility. Therefore, to measure the fertility trend over a period of time, it is appropriate to use those measures, which are standardized for age. These measures include age-specific fertility rate, total fertility rate (TFR), gross reproduction rate (GRR), and net reproduction rate (NRR). For practical purposes age-specific and total fertility rates are more commonly used than the other age-standardized rates and therefore, these two rates for Nepal are examined.

Data required to calculate age-specific fertility rates were available from censuses and sample survey. Most of these data are, however, inadequate and therefore, some indirect techniques of estimation were applied to arrive at these rates. Although the 1961 census provides information on children ever born by mother's age¹¹, data on children born in the year prior to the 1961 census were

not available by age of mother, so the Brass fertility technique.¹² can not be applied to estimate age specific fertility rates. But Brass's technique was applied to the 1971 and 1981 census data to estimate age-specific fertility rates. Age-specific fertility rates are also available from several sample surveys, these rates along with the rates estimated from census data are given in Table 12.2.

It may be observed that the age pattern of fertility indicated by sample survey data is distinctly different from that of the pattern resulting from census data. The fertility rate among young women of 15-19 age group estimated from the census data is consistently

¹¹. Central Bureau of Statistics (CBS), 1967-69. Report on 1961 Census Of Population, Vol.III, parts II –VII (in Nepali), Kathmandu.

¹². Brass, W. and Coale, A.J. 1968. "methods of Analysis and Estimation", pp. 88-142 in the Demography of Tropical Africa, W. Brass et. al.(ed), Princeton University Press, Princeton.

Table 12.2- Age-specific fertility rates (per 1000 women): Nepal 1971-81

Age Group	a	b	b	c	b	a	d
	1971	1974-75	1976	1976	1977-78	1981	1981
15-19	94	116	141	145	130	94	81
20-24	240	270	305	290	294	238	241
25-29	262	297	284	295	294	268	252
30-34	225	260	252	269	252	245	232
35-39	169	169	170	169	180	203	197
40-44	95	89	95	75	72	140	145
45-49	81	50	34	23	24	91	111
Total							
Fertility Rate (1000)	5830	6255	6405	6330	6230	6395	6295

a. Same as in 'c' of Table 12.1

b. Same as in 'd' of Table 12.1

c. Goldman, N. Et. Al. 1979. *The Quality of Data in the Nepal Fertility Survey*. Scientific Report No. 6, World Fertility Survey: London.

d. Central Bureau of Statistics, 1985. *Intercensal Changes of Some Key Census Variables Nepal 1952/54-1981*, pp. 78-91. These age-specific fertility rates were based on average number of births during the year preceding the census day and the children ever born to women in the reproductive ages (15-49), employing Brass Technique. The age data used here are those adjusted for age distortion.

found to be lower than the corresponding rate estimated from the survey data. This could be attributed to under-enumeration of young women in 15-19 age group in all the censuses of Nepal (see chapter III: Age and sex composition of the Population). It may also be noted from table 12.2 that fertility rates for older women are higher in the census than in the surveys. This may also result from age exaggeration on the part of older women in a census undertaking. In the censuses older men and women were found to exaggerate their ages. Data collected by the survey were considered to be more reliable than these collected by the censuses in developing countries. Nevertheless, the data, irrespective of source, clearly shows that Nepalese women in their twenties are most fertile.

Figure 12.1 shows the age pattern of fertility for Nepal from 1971 to 1981. The age-specific fertility curves consistently show broad peaks starting from early 20s to late 30s during the last decade, indicating not only the high level of fertility prevailing in Nepal but also its persistence over the years.

Total Fertility Rate (TFR)¹³.

The estimates of total fertility rates by year and source are provided in table 12.3.

It may be observed that all the estimates except for the one by (CPS (1983)¹⁴, give a

¹³. Total fertility rate indicates number of children a women is likely to produce at the end of her reproductive period given the current age schedule of fertility.

¹⁴. The total fertility rate for currently married women obtained directly from data collected by Nepal contraceptive Prevalence Survey of 1981 was 5.9 The finding of somewhat lower marital fertility rate obtained by NCPS is misleading. This was mostly due to under-reporting of the recent births which was estimated to be 28 per cent (see Tuladhar, J.M., 1984. The Persistence of High Fertility in Nepal. A Thesis submitted for the degree of Doctor of Philosophy in the Australian National University).

Table 12.3 Estimates of total Fertility rate, Nepal 1971-81

Source	Year	Total fertility rate
C.B.S. (1982) ^a	1974-75	6.26
C.B.S. (1982) ^a	1976	6.41
Goldman (1979) ^b	1976	6.33
C.B.S. (1982) ^a	1977-78	6.23
C.P.S. (1983) ^c	1981	5.30
Karki (1984) ^d	1981	6.39
C.B.S. (1985) ^e	1981	6.30

a. Same as in 'd' of Table 12.1.

b. Same as in 'c' of Table 12.2

c. Family Planning /Maternal and Child Health Project and Westinghouse Health Systems, 1983. *Nepal Contraceptive Prevalence Survey Report, 1981*, Kathmandu.

d. Same as in 'c' of Table 12.1.

e. Same as in 'd' of Table 12.2.

TFR of 6 or higher and there shows no time trend in this measure of fertility. In other words, the total fertility rate has been persistently high over the years. From the above findings one may conclude that given the current age schedule of fertility, a Nepalese woman, on average, is likely to produce 6 children or more by the end of her reproductive period.

Age-specific Marital Fertility Rate (ASMR)

In Nepalese society where marriage is universal there should, in reality, be no difference between age-specific marital fertility and age-specific fertility rates. On the same ground, the Total Fertility Rate (TFR) should not be greatly different from the Marital Total Fertility Rate (MTFR). The age-specific marital fertility rates (ASMR) and Marital Total fertility Rate, for various years are presented in table 12.4.

As expected, the pattern of age-specific marital fertility shown in Table 12.4 is similar to that of age-specific fertility for all women given in table 12.2. Age-specific marital fertility also portrays a broad peak fertility

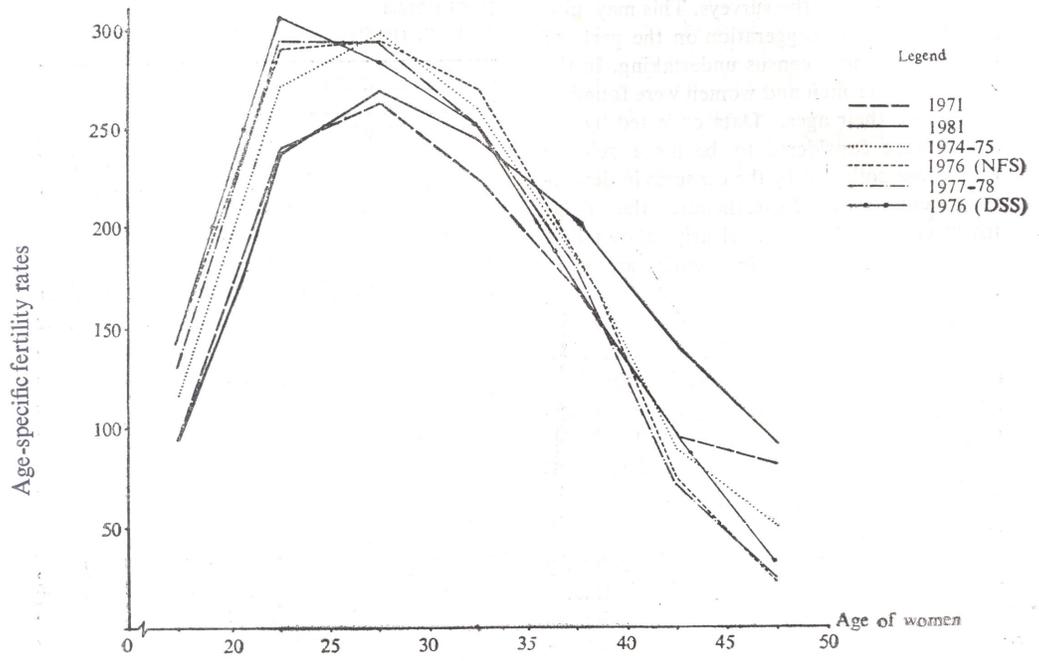


Figure 12.1 Comparison of fertility curves

Table 12.4- age specific marital fertility rates per 1000 ever-married women, Nepal : 1976-1984

Age Group	1976 ^a	1981 ^b	1984 ^b
15-19	138	150	204
20-24	306	270	385
25-29	314	260	302
30-34	261	202	236
35-39	226	169	161
40-44	93	73	84
45-49	33	48	27
Marital total fertility rate	6855	5865	6860

a. Family Planning/Maternal and Child Health Project 1977. Nepal Fertility Survey, 1976, First Report, World Fertility Survey, Nepal Project: Kathmandu.

b. Same as in 'c' of Table 12.3

c. New Era, 1985. Fertility and Mortality Rates in Nepal, Kathmandu, Nepal.

pattern with high fertility in the twenties. The 1981 and 1984 surveys display the highest age-specific marital fertility concentrated in the 20-24 age group but the 1976 survey shows a slightly late peak fertility pattern, with the highest concentration in the 25-29 years age group. Age-specific fertility rates based on both census and survey data shown in Table 12.2 also indicate peak fertility for the 25-29 age group. Since the proportion of women ever-married in the age-group 25-29 approaches nearly one hundred per cent, the peak fertility observed in this age (25-29) group in the 1976 Survey appears more plausible. The estimates of age-specific fertility rates derived from the contraceptive Prevalence Survey of 1981 are too low compared to the rates estimated from the Nepal Fertility survey of 1976 and the Fertility and Mortality Survey of 1984. This was mostly due to under reporting of births in 1981 CPS survey, as indicated earlier. The findings of relatively higher fertility rates for the 15-19 and 20-24 age groups in the Fertility

and Mortality survey of 1984 may be attributed to high non-interview rates for women in the age-groups 15-19 and 20-24 in the 1984 survey. The non-interview rates were estimated to be 42 and 26 per cent among the sampled ever-married women of 15-19 and 20-24 age groups. As a result, the number of women in these age-groups was smaller, resulting in relatively high age-specific marital fertility rate. Given the problems of data quality in both the 1981 and 1984 surveys, the age pattern of marital fertility rates and the total marital fertility rate given by the 1976 Nepal Fertility Survey, remain the best means of understanding the level and pattern of marital fertility in Nepal.

Cumulative and Completed Fertility

Besides age-specific rates based on the births occurring during the twelve months preceding a survey or a census, the fertility level and trend can also be estimated from data on the number of children ever born alive by age of women. This measure is known by many names: life time fertility, parity, cumulative fertility and completed fertility. The number of children ever born by age of women as collected by the various censuses and surveys is given in Table 12.5.

The number of children ever born by women's ages as reported in the 1961 census seems quite low; by the time women were 45-49 years of age the completed fertility was less than 5 births per woman. This indicates under-reporting of births.

Similar information was collected by the 1971 census as well but the mean was collected by the 1971 census as well but the mean number of children ever born by age of women seems even more under reported in 1971. The completed fertility in 1971 is less than four live births. Comparison of data on children ever born in 1971 with the 1961 data clearly indicates under-reporting of births by women aged 40 and over. The women aged 35-39 in 1961 had born, on average, 4.18 live births,

whereas the same women when they became 45-49 in 1971 reported only 3.97 live births, which clearly indicates that under-reporting of children ever born increases with the age of the mother, resulting mainly from recall lapse. Data on life-time fertility are also available from the 1981 census round but unfortunately, the number of children reported to be ever born in the 1981 census appears to be the worst of all the three censuses. The completed fertility implied by the 1981 census is only 3.58 live births per woman. Such a low level of fertility is non, at all, consistent with the prevailing low age at marriage and low level of current use of contraception.¹⁵

Data on Children ever born collected by the nationally representative sample survey of 1976 (Nepal Fertility Survey 1976) and the New Era Survey of 1984 (Nepal Fertility and Mortality Survey, 1984) are also presented in Table 12.5. It may be observed that the completed fertility implied by the 1976 survey is 5.8 live births and that by the 1984 survey is 5.5 live births. Except for young women, all other age groups show higher fertility than those revealed by the census data. This may be attributed to better coverage of cumulative fertility in the surveys than in the censuses. This is also to be expected since surveys are relatively small operations compared to those of the censuses. Therefore, better quality enumerators and more care and supervision can be ensured in the former than in the latter. As a result, the quality of data collected by the survey is expected to be better than that of the census.

¹⁵ The singulate mean age at marriage for female was estimated at 17.2 years in 1981 (see Chapter V: Nuptiality Trends, Differentials and Determinants). And only 8.2 per cent of currently married women were reported to be practicing contraception in 1981 (see, FP/MCH, Nepal Contraceptive Prevalence Survey 1981).

Table 12.5 Reported Number O children ever born per woman: 1961-1984

Age group	1961 ¹	1971 ²	1976 ⁴	1981 ³	1984 ⁵
15-19	0.23	0.16	0.18	0.24	0.16*
20-24	1.32	1.02	1.34	1.01	1.10
25-29	2.45	2.13	2.85	1.97	2.50
30-34	3.74	3.04	4.05	2.80	3.57
35-39	4.18	3.67	5.08	3.31	4.62
40-44	4.75	3.93	5.50	3.57	5.02
45-49	4.93	3.97	5.77	3.58	5.50

1. Central Bureau of Statistics, His Majesty's Government, National Planning Commission, Reports on 1961 Census of Population, Vol. III, Parts I-VII, Kathmandu.
2. Central Bureau of Statistics, Population Census 1971, Vol. IV.
3. Central Bureau of Statistics, Population Census 1981, Vol. III.
4. Hobcraft, et. Al. 1982. "Advances in the P/F Ratio Methods for the Analysis of Birth Histories" *Population Studies*, 36 (2).
5. Same as in 'c' of Table 12.4.

* Since the survey data did not have information on proportions ever-married by age, the 1981 census proportions were used to estimate all women form ever married women. The number of all women thus estimated was used as denominator to calculate children ever born per women.

Differential Fertility

The overall fertility level of a country is indicated by summary measures like crude birth rate, total fertility rate, etc. but such a measure conceals the variation between the regions and various groups of people in the country. For example, the TFR for all U.S. women in 1940 was only 3.0 but when the women were dichotomized into Hutterites and others, the TFR for the former groups was a little over 9.0 while for the rest of the women the TFR was only 2.3.¹⁶ The study of fertility differentials is, therefore, an

¹⁶ Palmore, James A. and Robert W. Gardner, 1983. *Measuring Mortality, Fertility and Natural Increase*, East-West Population Institute, East-West center, Honolulu.

important area which deserves special attention. Understanding differential fertility helps to identify the group, areas or sectors in a country which may need special attention with respect to birth control and other development programmes. Here we bring into focus differential fertility by residential status, level of education, religion and ethnicity.

Rural/Urban Residence

Urban living is a frequently mentioned correlate of reduced fertility in developing countries. Studies in India¹⁷, Bangladesh¹⁸, And in Latin American Countries¹⁹ show urban fertility to be generally lower than rural. In case of Nepal the studies examining the urban-rural fertility differentials have shown lower fertility rates for urban than for rural areas. The total fertility rates estimated by different methods using data from different sources consistently show lower fertility for urban dwellers than the rural populace (see Table 12.6). The demographic sample survey of 1974-75, 1976 and 1977-78 show urban fertility to be lower than rural fertility by about 40 per cent. However, this difference was reduced to only 10 per cent in 1981. These figures, *prima facie*, show the narrowing of rural-urban fertility differences over the years. These figures, *prima facie*, show the narrowing of rural-urban fertility differences over the years. This may be attributed to the increasing exodus of people from rural to urban areas in recent years. It shows that living in an urban area is not necessarily a sufficient condition for the reduction of fertility. In the third world, including

Nepal, fast urbanization is actually a clear manifestation of the exodus of rural populations to urban centers and these recent migrants still hold rural values and attitudes which are conducive to high fertility. Perhaps in the case of Nepal a seemingly narrowing rural-urban gap in fertility is an indication of rural migrants settling in urban areas. In some countries of Africa, Urban fertility has been reported to be actually higher than rural fertility²⁰. After reviewing the effect of urbanization on fertility in developing countries, Cassen²¹ concluded, “as long as urban growth in the third world is dominated by rural migrants and cities remain seats of extensive deprivation, the fertility-reducing effect of urbanization is

Table 12.6-Total fertility rates per woman in rural and urban areas, Nepal 1974-1981

Year	Rural	Urban	Urban fertility as a percentage of rural fertility
1974/75 ^a	6.33	3.75	59
1976 ^a	6.48	4.20	65
1977-78 ^a	6.31	3.84	61
1979 ^b	6.45	4.30	67
1981 ^c	6.44	5.78	90

- a. CBS, *The Demographic Sample Surveys of Nepal* (Three reports for 1974-75, 1976 and 1977-78), same as in ‘d’ of Table 12.1.
- b. Karki (1982), TFRs were calculated from rural (Gorkha districts) and urban (Pokhara town) surveys carried out in 1979 by the author for the study entitled “*Fertility and the Value of Children: A Study of Rural and Urban Populations in Nepal*”, Ph. D. Theses submitted to the London School of Economics and Political Science.
- c. Same as in ‘c’ of Table 12.1

¹⁷ Office of Registrar General, 1973. All India Survey of Family Planning Practices (Boroda, India: Operation Research Group)

¹⁸ Ministry of Overseas Development, 1977. Report on the 1974 Bangladesh Retrospective Survey of fertility and Mortality (London)

¹⁹ United Nations, 1973. *The Determinants and Consequences of Population Change*, (New York).

²⁰ Okonjo, C., et. al. 1973. ‘Fertility levels and Differentials in Africa’, in IUSSP, International Population Conference, 3 Vols. (Liege: International union for the Scientific Study of Population).

²¹ Cassen, R.H., 1976. ‘Population and development: A survey’, World development Vol. IV, Nos. 10/11 pp. 785-830 (Pergamon Press-Great Britain).

likely to remain fairly modest”.

Ecological Zones and Development Regions

Nepal is a small country with about 147, 181 sq. kms. Land mass but ecologically the country can be divided into three distinct physiographic regions: High Mountain Region (about 4,800 m.) Hill region (300m. to 4800m.) and Terai or plain region (below 300 m.) These regions run parallel from east to west.

The country is also divided into 5 development regions²² and they stretch from north to South. Each development region comprises some part of each ecological belt and therefore, the whole country can be categorized into 15 ecological- development regions.

Because of the fact that Nepal is still a rural society (only about 7 per cent of the total population were urban in 1981)²³ substantial fertility differentials cannot be expected between the various ecological development regions. Nevertheless, the existing socio-economic, geo-physical and cultural environment should have some effect on the fertility behaviour of the population of these zones/regions. Estimates of total fertility rates (TFR) and total marital fertility rates (TMFR) for ecological zones and development regions based on census and survey data are presented in Table 12.7.

It may be observed that all the estimates, particularly those based on census data, show higher total fertility rate in the Hill zone, followed by the Mountain and Terai. That the Hill women have higher fertility compared to their

²² The development regions are known as Eastern, Central, Western, Mid-western and Far-western development regions.

²³ Karki, Y.B., 1985. Country population profile/Nepal, off-farm Employment Generation Working paper, No.2, International Centre for Integrated Mountain Development- ICIMOD, (Kathmandu).

counterparts in the Mountain and Terai is also supported by survey data. Tuladhar, et. al. (1982) using data on children ever born to currently married women, collected from two districts each from the Hill and the Terai zones of Nepal during the 1975-78 period, reported mean number of children ever born of 6.1 and 5.4 for the Hill and the Terai women aged 40-44 respectively. However, the difference in fertility between the mountain and Terai reduced drastically during the last decade 1971-81. In 1981, the total fertility rates for the Mountain and Terai were almost the same.

The rank-order of the geographic zones based on total fertility rate is reversed when the marital total fertility rate is employed. The estimates of total marital fertility rates based on 1976 and 1984 survey data consistently show that the fertility of the Terai is higher than that of the Hill and Mountain²⁴. This could be attributed, among other things, to lower age at marriage and higher proportion marrying in the former than in the latter areas (*see Chapter V: Nuptiality Trends, Differentials and Determinants*).

The estimates of Total Fertility Rates for the ecological belts of each development region shows that the Terai belt has experienced a very high fertility increase during the

²⁴ The Total Fertility Rate (TFR) estimated from maternity history data of Nepal Fertility Survey of 1976, by Banister and Thapa (1981) for the period 1971-75, gave a slightly opposite picture; it showed a lower fertility for the Terai women than for the Mountain and Hill women (see Banister, J. and Shyam, T., 1981. The population dynamics of Nepal, Papers of the East-west population institute, No.78, East-west center, Honolulu, Hawaii). However, the TFR estimated from maternal histories are likely to be less reliable than those estimated from the census data, because the vital events based on maternal histories are subject to greater degree of recall lapse. In this situation, the census estimates of TFR give “nearer the truth” picture of regional fertility differentials, although they are also subject to errors due to methodological problems.

Table 12.7- Total fertility rates and total marital fertility rates for ecological zones and development regions of Nepal:1971-1984

Zone/Region	1981 TFR1	1971 TFR2	1971-75 TFR3	1976 TMFR4	1981 TFR2	1984 TMFR5
Mountain	5.88	5.99	5.93	6.62	6.23	} 6.87
Hill	6.15	6.08	5.98	6.62	6.53	
Terai	5.87	5.34	6.22	6.86	6.18	
Eastern Development Region	6.58	6.00	-	-	6.93	7.56
Mountain Zone of EDR		6.33	-	-	6.64	-
Hill Zone of EDR		6.33	-	-	6.96	-
Terai Zone of EDR		5.59	-	-	6.70	-
Central Development Region	5.73	5.55	-	-	5.98	6.69
Mountain Zone of CDR		5.63	-	-	6.87	-
Hill Zone of CDR		6.19	-	-	6.43	-
Terai Zone of CDR		4.89	-	-	5.38	-
Western Development Region	5.88	5.84	-	-	6.21	6.13
Mountain Zone of WDR		5.03	-	-	4.22	-
Hill Zone of WDR		5.90	-	-	6.22	-
Terai Zone of WDR		5.34	-	-	6.15	-
Mid-western Development Region	6.48	6.54	-	-	6.92	6.30
Mountain Zone of MWDR		6.29	-	-	6.05	-
Hill Zone of MWDR		6.59	-	-	7.16	-
Terai Zone of MWDR		6.38	-	-	6.92	-
Far-western Development Region	5.73	5.50	-	-	6.18	7.99
Mountain Zone of FWDR		5.88	-	-	5.42	-
Hill Zone of FWDR		5.08	-	-	6.18	-
Terai Zone of FWDR		5.52	-	-	7.49	-

1. Same as in 'e' of Table 12.1

2. Same as in 'c' of Table 12.1

3. Banister, J. and Shyam, T., 1981. The population Dynamics of Nepal, Papers of the East-west Population Institute, No. 78, East-west Centre: Honolulu, Hawaii.

4. Same as in 'a' of Table 12.4

5. Same as in 'c' of Table 12.4

last intercensal period . The fertility of the hill belt has also experienced a rise during the last decade, but the extent of increase was not as high as it was in the Terai Zone. On the other hand, the fertility of the Mountain belt of the three development regions (Western, Mid – western and Far – western) declined between 1971 and 1981 but this was most likely due to heavy emigration from this zone rather than the use of modern contraceptives.

Education

One of the fertility depressant factors has been found to be the level of education. The level of education is found to be negatively correlated with fertility in international and inter-regional comparisons of aggregate fertility. Larger negative effect of education on fertility, for example, has been reported particularly for mothers, although husband's education has also been found affecting fertility in the expected direction in many

countries of Asia and the Pacific, including Nepal²⁵. But in these countries, except south Korea, there are only small or no differences in the fertility of women with ‘no’ and those with “primary” education, and a substantial negative effect is apparent only at the highest educational level, i.e. more than primary level.²⁶.

While education is generally negatively related to fertility level, it is not clear why it is so. Quite possibly the most powerful effect of education, is its role in bringing fertility within the sphere of conscious choice by affecting traditional values and attitudes, relating the individual to a culture in which personal choice rather than unseen forces govern events. The measurement of this changes parents perceptions of the advantages of smaller or larger families in many ways. They may acquire social and economic aspirations for their children which cannot be satisfied for a large number of children. Education may also alter the status of women and thereby reduce their fertility. Furthermore, education may affect both attitudes towards contraception and the ability to understand and make use of a particular contraceptive method.

Unfortunately, there is virtually no study on Nepalese population which looks into why and how education can alter fertility level. There are, however, some studies dealing with education and fertility in Nepal, but their

results are contradictory. Karki (1982)²⁷ using data from some rural and urban areas found a negative correlation between education and fertility variables (see Table 12.8).

Table 12.8 Correlation of fertility variables with education variables 'Gorkha district 1979'

	Ideal family size^a	Living children	Desired family size^b
Wife			
Education	-0.04	-0.04	-0.04
Literacy	0.06	-0.08*	-0.10**
Husband			
Education	-0.15*	-0.03	-0.06
Literacy	-0.04	-0.01	-0.02

*, ** Significant at 0.05 and 0.01 levels respectively.

a. The ideal family size is the number of children the respondent would have if he/she were to start family life all over again.

b. Desired family size is the number of living children current pregnancy plus the number of additional children wanted.

Source: Karki, (1982). Same as in '2' of Table 12.6

Tuladhar, et. al. (1982) study based on data collected from two districts each from the Hill and the Terai regions of Nepal during the 1975-78 period, show that mean number of children even born decline with increasing level of husband's education in the hills. The largest difference occurs among women aged 25 years and older whose husbands had received a 'middle' level education; they have 0.5 fewer births than those whose husbands had received 'no education' (see Table 12.8).

Compared to the findings for Hill women, the fertility of Terai women showed an increase with husband's education. This is particularly

²⁵ Rodriguez G. and Cleland J., 1980. 'Socioeconomic Determinants of Marital Fertility in Twenty Countries: A multivariate Analysis', World Fertility Survey Conference, Vol. 2 (London).

²⁶ United Nations, 1980. 'selected Factors Affecting Fertility and Fertility Preference in Developing Countries: Evidence from the Fifteen WFS country Reports' in WFS conference, Vol. 2(London), pp. 162-165.

²⁷ Karki, Y.B., 1982. Fertility and the value of Children: A study of Rural and Urban Populations in Nepal. Unpublished ph. D. Thesis, London School of Economics and political Science (London).

Table 12.9- Mean number of children ever born to currently married women by age and husband's education in the Hill and Terai areas, 1975-1978

Age of women	Education (Husband)					
	Hill			Terai		
	No formal education	Primary (1-5 grade)	Middle+(6 grade and above)	No formal education	Primary (1-5 grade)	Middle+(6 grade and above)
15-24	1.0 (765)	0.9 (872)	0.8 (644)	1.1 (1436)	1.1 (475)	1.0 (365)
25-34	3.3 (1090)	3.1 (1118)	2.8 (350)	3.1 (1633)	3.5 (511)	3.7 (230)
35-44	5.4 (959)	5.2 (808)	4.9 (87)	5.0 (1242)	5.1 (313)	5.6 (77)
Total	3.4 (2814)	3.0 (2798)	1.8 (1081)	3.0 (4311)	3.0 (1299)	2.4 (672)

Note: Figures in parenthesis denote number of women.

Source: Tuladhar, J.M. *et al.* (1982). "Differential Fertility in Rural Nepal, *Population Studies*, 36(1) pp.81-85

so for women aged 25 years and older whose husbands had received the highest education and who had 0.6 more births than those whose husbands had received 'no education'.

These studies, although not directly concerned with examining the relationship between education and fertility have shown some correlation of education with fertility. But the findings of these studies are not consistent-husband's education is inversely related to fertility in the Hill, while this is positively associated with fertility in the Terai. Further research is, therefore, required to examine the dynamics of the relationship between education and fertility.

Religion

Religion has been identified as an important factor influencing fertility in both developed and developing countries. David Goldberg (1965) reported 0.6 more live births occurring to catholic couples compared to their Protestant counterparts in the United States in 1962²⁸. Similarly, studies on Indian

Populations have shown the existence of differential fertility among the various religious groups. For example, a survey conducted in 1972 has shown that the standardized general marital fertility rates for Hindus, Muslims and Christians in rural areas were 213.0, 244.9 and 189.0 respectively. The corresponding rates for the urban areas were 188.1, 210.7 and 189.4²⁹. In pre-partition India the fertility among Muslims was about 15 per cent higher than that among Hindus³⁰. However, Chaudhury argued that Hindu Muslim Differential fertility observed in the Indian subcontinent was mostly due to the differences in socio-economic status of the two religious communities. And he has shown by utilizing data from the 1976 Fertility survey that the higher fertility for Muslims than Hindus existing at the bivariate level not only changes completely but is also reversed when allowance is made for the effect of socioeconomic factors. It shows that Hindu-Muslim differential fertility is not due to differences in the religions but due to differences

²⁸ Goldberg, David 1965. 'Fertility and Fertility differentials: some Observations on Recent Changes in the United states' in Mindel C. Shops and Jeanne Clare Ridley (eds.) , *Public Health and Population Change*, pp. 119-142(University of Pittsburgh press).

²⁹ Office of the Registrar General, 1976. *Fertility Differentials in India, 1972* (New Delhi, India).

³⁰ Rele, J.R., 1982. 'Trends and Differentials in Fertility', *Population of India, Country Monograph Series No. 10* (United Nations, New York).

in socio – economic status³¹.

The population of Nepal is predominantly Hindu. According to the 1981 population census of Nepal 89.5 per cent of the total population is Hindu, 5.3 per cent Buddhists, 2.6 percent Muslims and 2.6 per cent is comprised of Christians and others³². Data on fertility by religious groups are, however, not available in Nepal except for a partial reference given by the Nepal Fertility Survey of 1976. According to that survey the mean number of children ever born to ever-married women in the reproductive age group (15-49), was 4.4 for Hindus, 4.3 for Buddhists and 4.3 for Muslims³³. This apparently shows that there is virtually no differential fertility in Nepal according to religious groups. However from the above findings, it is difficult to conclude whether or not fertility differentials really exist for religious groups in Nepal, because the number of cases involved in the above study for Muslims and Buddhists were very few. Any meaningful study of differential fertility by religious groups will require a large sample to ensure sufficient representation of the various minority religious groups.

Ethnicity

Just as the physical features of Nepal vary from one area to the other, the population is also divided into many types of ethnic groups. People of different ethnic backgrounds have their daily life, including their reproductive behaviour. In this situation it would seem that fertility

behaviour would also vary between different ethnic groups, but the relationship between ethnicity and fertility has hardly been explored in Nepal, except for partial treatment in a study by Karki³⁴. Karki examined the relationship between ethnicity and fertility by employing data from rural areas of Nepal. His study on the whole supports the assumption that the higher the ethnic status the lower the fertility. However this study could be considered at best a partial attempt, it is not only based on fewer cases but also explored the relationship between ethnicity and fertility only at the bivariate level and therefore, the effect of other important variables related to both ethnicity and fertility have not been taken into account. In order to examine the independent effect of ethnicity on fertility we need to control those variables which are related to both ethnicity and fertility and for broader applicability of the findings the sample of the study should also be larger.

Conclusions and Policy Implications

Nepal is still a “traditional” society. It is changing only slowly. The people remain rooted to the land and agriculture is almost everyone’s principal occupation. The production of goods from wood, metal, leather and cloth is in the hands of individual artisans and craftsman. There are only a few cottage industries and entrepreneurs, but no large industries and no vast systems of distribution and consumptions of manufactured products. Water and muscle are the sources of power used to operate the few machines that exist. In terms of social organization, people are tied to each other through family kinship, or through deeply established beliefs, customs, and traditions that guide their behaviour in almost all aspects of social life. In Nepalese society children are

³¹ Chaudhury, R.H., 1984. “Hindu-Muslim Differential fertility: How Much Religious and How Much socio?”, *Social Action*, Vol. 34 (July-September).

³² Central Bureau of Statistics, 1984. *Population Census 1981*. Vol. III (Kathmandu).

³³ Family Planning /Maternal and Child Health Project, 1977. *Nepal Fertility Survey, 1976*. First Report. World Fertility Survey, Kathmandu.

³⁴ Karki, op.cit.

valuable both economically and socially and therefore, fertility is found to be persistently high.

Except for urban-rural differences of fertility caused by changing outlook of the urbanites, any apparent fertility difference between ethnic groups geographic zones are most likely due to variation in age, old customs and value systems operating in a certain group or community influencing fertility behaviour. But how these values exactly influence the fertility behaviour, needs careful examination. One important indirect test in this direction would be to explore the relationship between ethnicity and fertility with appropriate data collected in a scientific manner.

Similarly, education and fertility is another area which requires an in depth study. The analysis presented in this paper does show some signs of negative influence of education on fertility but the data are not sufficiently large to arrive at any firm conclusion. And also there is a need to identify the mechanisms through which education influences fertility behaviour. The identification of these mechanisms is necessary to select appropriate policy interventions. Although religion has been reported to have influenced the fertility level in many societies, it is perhaps not an important factor in the Nepalese context. As nearly 90 per cent of the total population are Hindus.