The Onset of Fertility Decline in Nepal: A Reinterpretation

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Abstract

This paper investigates fertility in Nepal using the measures of parity progression proposed by Brass and Juarez (1983) to detect the onset of fertility decline. The analysis is based largely on the 1991 Nepal Fertility, Family Planning and Health Survey. Evaluation of the birth history data collected in this survey indicates that they are sufficiently reliable to determine fertility trends. The sample size allows analysis at sub-national level. Supporting evidence as to the pattern of decline is provided by the 1991 Census and by earlier surveys.

A rapid fall in fertility occurred in Nepal in the 1980s. By 1991, total fertility had fallen from at least 6 children to a little under 5. A small part of this decline is probably a temporary period effect, stemming from a rise in women's ages at marriage. Most of the decline can be explained by limitation of family size. Parity progression ratios from the third birth onwards all decrease consistently from cohort to cohort. Measures of parity progression calculated from the 1991 data agree well with those calculated for equivalent cohorts using the 1976 Nepal Fertility Survey data. They indicate that progression between middle-order births probably began to decrease as long ago as the early 1970s.

When looking at differentials in fertility levels and trends it is clear that fertility has fallen throughout Nepal. Analysis of the regional pattern of decline reveals a complex pattern. Broadly speaking, fertility decline has been more dramatic in the eastern half of Nepal, and also stronger in the Terai and hills than in the mountain. Fertility has fallen furthest in the urban areas and among women who ever attended school.

The middle-order parity progression ratios of younger women have fallen dramatically. This development is likely to presage a steep decline in fertility in Nepal during the 1990s. The paper concludes with a short discussion of the implications of its findings for the interpretation of fertility transition in Nepal. It suggests that substantial demand to limit family size is well-established in Nepal. Fertility declined as access to modern methods of contraception spread.

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1. INTRODUCTION

Secular reductions in fertility are now a well-established feature of the demography of South Asia. Fertility began to decrease in parts of India in the 1960s (Preston and Mari Bhat, 1984; Rele, 1987). By the late 1970s, a downward trend was apparent throughout nearly all the country. In Bangladesh, the onset of fertility decline dates back to the end of the 1970s (Cleland *et al*., 1994). Moreover, while claims that fertility is falling in Pakistan have repeatedly been discredited (Retherford *et al.*, 1987), detailed analysis of the most recent surveys suggests that some decline in fertility has now occurred (Juarez and Sathar, forthcoming).

Until the late 1980s, most experts were in agreement that no reduction in fertility had occurred in Nepal. The 1986 Nepal Fertility and Family Planning Survey (NFFPS) showed that current use of a modern method of contraception by non-pregnant married women had risen to 15 per cent. Some analysts felt that the results of the survey provided evidence of the onset of fertility decline (Tuladhar, 1989). Others who examined the data were more sceptical and argued that fertility remained persistently high (Nepal, 1987; Shah and Cleland, 1993). The results of the 1991 Nepal Fertility, Family Planning and Health Survey (NFFPHS - Nepal, 1993) revealed that the contraceptive prevalence rate had risen to 24 per cent, however, and suggested that total fertility had fallen by perhaps as much as one child per woman. For example, total fertility in 1991 has been estimated to be 5.3 children per woman (Karki, 1992), 5.7 (Joshi, 1993) and 5.6 (Chhetry, 1995). In response, a new consensus has emerged that the onset of fertility decline in Nepal occurred in the 1980s (see, for example, Nepal, 1995). Recent United Nations' population forecasts incorporate this view (UN, 1995).

In this paper we attempt to rewrite the fertility history of Nepal. We believe that fertility in Nepal has fallen further than most previous analysts have concluded. More controversially, based on a detailed analysis of the 1991 NFFPHS supported by evidence from other inquiries, we argue that fertility decline dates back not to the mid-1980s but to the beginning of the 1970s. The paper discusses the implications of this suggestion for efforts to explain fertility change in Nepal and for the prediction of future fertility trends. For the benefit of readers who are not familiar with the demography of Nepal, the paper commences with a short description of some salient facts about the country. It then discusses briefly fertility estimates from other censuses and surveys conducted during the last two decades before focusing on the analysis of the 1991 NFFPHS data.

Nepal is one of the world's poorest countries. It has a predominantly agricultural economy with less than 10 per cent of the population living in urban areas (World Bank, 1993). Depending on how much allowance is made for an undercount in the Census, the population in 1991 was a little over or under 19 million (Karki, 1995). In recent decades, it has been growing at nearly 2½ per cent a year. The population is differentiated by ethnicity, language, religion, and caste. While Nepali is the mother tongue of about half the population, ten other languages are spoken by at least 250,000 of the country's inhabitants (Kumar, 1995). Hindus comprise about 86 per cent of the population, Buddhists 8 per cent, and Muslims 4 per cent.

Nepal is divided into three contrasting ecological zones. The Mountain zone is lightly settled and is home to only 8 per cent of the population (Singh, 1995). The Hill zone lies between 5000 and 15,000 feet in altitude. It incorporates a number of fertile and densely-settled valleys, most notably Kathmandu Valley, and is home to about 45 per cent of the country's population. The Terai zone is a low altitude and fertile region. Formerly, it was densely forested and malarious. Since 1951, however, there has been large-scale migration into the area, which is now the most densely settled part of Nepal with about 47 per cent of the national population. For administrative purposes, the 75 districts are divided into five development regions. These divide the country from east to west, cross-cutting the ecological zones.

Despite its poverty, Nepal has achieved some success in improving the education and health of the population. School enrolments have risen rapidly during the last few decades and nearly all boys and the majority of girls now attend primary school (Manandhar, 1995). On the other hand, less than a fifth of children in the relevant age group attend secondary school. While the level of mortality is still high, the under-five mortality rate has probably fallen from over 250 per 1000 in the 1960s to about 120 per 1000 in the early 1990s (Nepal, 1996).

2. DEMOGRAPHIC DATA ON NEPAL

The 1991 NFFPHS is the main source of data analysed here to assess recent trends in fertility. This survey used a modified version of the Demographic and Health Surveys (DHS) Model B questionnaire (Nepal, 1993). A household survey was conducted to identify all ever-married women aged 15 to 49 years who were eligible to answer the individual questionnaire, that is women who had started living with their husbands and slept in the sample household the night before the interview. A total of 25,384 questionnaires with full reproductive histories were completed. This sample is large enough to allow analysis at sub-national level.

Nepal has completed four other national, single-round demographic surveys: the Nepal Fertility Survey (NFS) in 1976, the Nepal Contraceptive Prevalence Survey (NCPS) in 1981, the Nepal Fertility and Family Planning Survey (NFFPS) in 1986, and the Nepal Family Health Survey (NFHS) in 1996. Only preliminary results are available from the last of these surveys, which was undertaken within the DHS programme (Nepal, 1996). As the 1976 NFS (Nepal, 1977) was part of the World Fertility Survey programme, its methods and coverage were comparable with those of the 1991 and 1996 surveys. In contrast, the two surveys in the 1980s interviewed only currently married women. The 1981 NCPS did not include a full birth history and the 1986 NFFPS (Nepal, 1987) used male interviewers. This may have resulted in more serious underreporting of births than in the more recent surveys, although the 1976 NFS enumerators were also men.

Table 1. Average parity by age of women, 1971 - 1991.

Age	1971 Census	1976 survey	1981 Census	1986 survey	1991 Census	1991 survey
15-19	0.160	0.200	0.222	0.174	0.158	0.148
20-24	1.025	1.348	1.031	1.350	1.121	1.280
25-29	2.135	2.853	1.990	2.703	2.317	2.721
30-34	3.051	4.047	2.796	3.740	3.249	3.912
35-39	3.688	5.083	3.309	4.502	3.929	4.860
40-44	3.950	5.536	3.569	4.613	4.315	5.455
45-49	3.977	5.767	3.582	4.679	4.388	5.880

We commence by examining the most simple measure of fertility, average parities by age of women according to the three censuses and four single-round surveys since the beginning of the 1970s. The mean parities in Table 1 reveal more about data quality than about fertility trends. Parity has been underreported to a greater extent in the censuses than the surveys that included full birth histories. This is probably because all the censuses had high levels of proxy reporting: the fertility questions were often answered by the head of household rather than the women concerned.

Figure 1 shows the reported parity distributions of women aged 45-49 years. This age group has almost completed childbearing. It compares the 1981 and 1991 Census data with those on women interviewed in the 1991 survey. The mode of the parity distribution obtained from the survey data is six children, whereas the census-based distributions have a mode of four children. The most conspicuous features of the latter, however, are the high proportions of women at parity zero: 22 per cent of women were recorded as childless in 1981 and 14 per cent in 1991, compared with 2.5 per cent in the 1991 survey. The high levels of childlessness reported in the censuses are implausible as marriage is universal in Nepal and there is no other evidence of a high prevalence of primary sterility in the country.

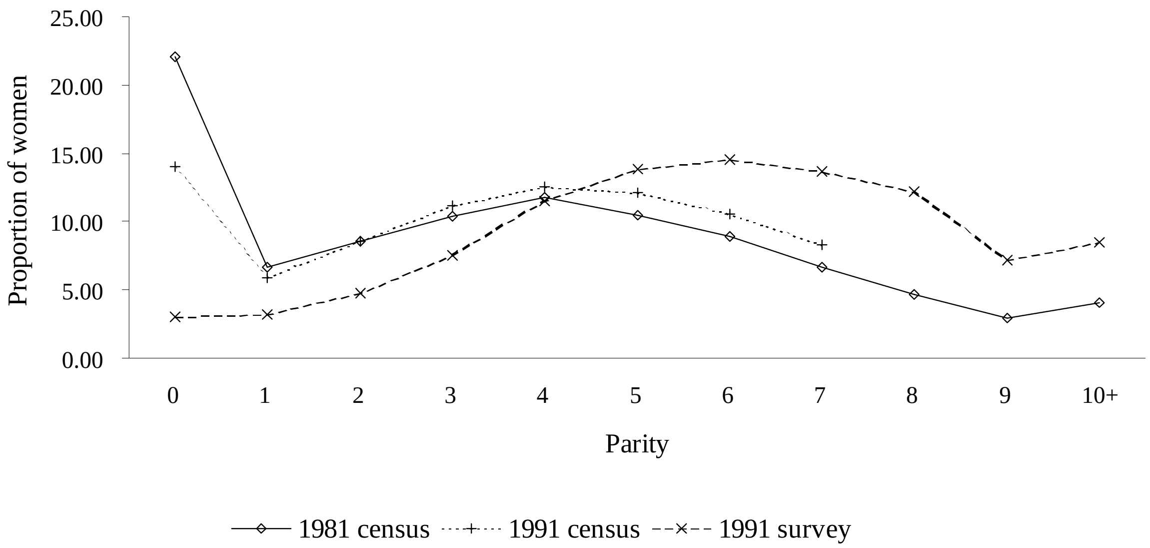

Figure 1. Parity distribution of women aged 45-49 Nepal, 1981 and 1991 Census, 1991 survey

The 1986 survey also yielded relatively poor quality fertility data. Comparison of the results with those from the 1976 survey for the same cohorts reveals that women aged 35-39 in 1976 reported 5.1 children in the first survey but only 4.7 children ten years later. Omission of births on this scale again suggests that little is to be gained from detailed analysis of the fertility data collected in 1986. Data quality in the 1976 NFS has been discussed at length by Goldman *et al*. (1979). They conclude that omission and misdating of births have an increasingly serious effect on fertility estimates for five and more years before the survey but argue that recent events were reported fairly accurately in the NFS.

Comparisons of the mean children ever born according to the 1991 survey and Census from the 20-24 year age group onward, emphasize that underreporting of life-time fertility in the Census increases with the age of the women. What is surprising is that, on average, 15-19 year old women reported fewer children in the 1991 survey than in the 1991 Census. Moreover, according to the Census, 47 per cent of women aged 15-19 years had married, compared with only 33 per cent of such women according to the 1991 survey. The proportions of women ever-married in older cohorts are similar in the two sources.

The discrepancies between the two 1991 inquiries for the youngest age group are difficult to explain. In part, they may reflect the use of different definitions of marriage. In the individual survey interview, women who reported that they were ever married were asked about both their ages at first marriage and when they started to live with their husband (Nepal, 1993). Among certain sub-groups in Nepal, girls marry very young but often remain in the parental home for a few years before going to live with their husbands. In this analysis, only women who had moved in with their husbands are categorized as married.

Differences in the definition of marriage, however, cannot explain why teenage women reported more live births in the Census than the NFFPHS. The explanation might be displacement of women aged 15-19 years into the age group 10-14 years during the household interviews that preceded interviews with eligible women. As the same interviewer was responsible for completion of both the household and individual questionnaires, she could reduce her workload by misreporting women’s ages in the household questionnaire in order to exclude them from the age range eligible for in-depth interview (Nepal, 1993). In contrast, fertility data were collected from all ever-married women in the Census: age was not a criterion of eligibility. Rutstein and Bicego (1990) propose the evaluation of age-group ratios and sex ratios for the age groups immediately above and below the age eligibility boundaries to ascertain whether systematic exclusion of eligible women has occurred. The age-group ratio is the number of women in the index age group divided by half of the sum of the two immediate adjacent age groups, multiplied by 100. The sex ratio is the number of men for every 100 women in the same age group. Table 2 presents these ratios for both the Census and survey data.

If women were shifted outside the eligible ages in the NFFPHS, this should be reflected in low age-group ratios for the age groups 15-19 and 45-49 years and relatively high ratios for the age groups 10-14 and 50-54. In addition, the sex ratios for these age groups should vary in the opposite direction. In Nepal the sex ratios are also distorted by a long tradition of male out-migration (Karki, 1995). Thus, when the ratios calculated for the two sources are contrasted, there is evidence of pronounced out-transference of both young and middle-aged women in the 1991 survey. Thus, fertility-related out-transference of young women could explain the lower fertility and proportions married reported for the 15-19 year old age group in the survey compared with the Census. Moreover, the age-group ratio of 93 for the 15-19 year old women in the Census is accompanied by a relative high age-group ratio of 105 for the 20-24 year old women. This could reflect misclassification of high-parity teenagers as 20 or more years, implying that the actual fertility of teenage women was even higher than the Census data indicate.

Table 2. Age-group and sex ratios in the *de facto* household population, 1991.

Age group	1991 NFFPHS survey		1991 Census	
	Age group ratio (women)	Sex ratio	Age group ratio (women)	Sex ratio
0-4		104		103
5-9	105	106	112	104
10-14	109	103	98	108
15-19	89	92	93	96
20-24	101	81	105	85
25-29	99	82	100	89
30-34	96	86	97	92
35-39	104	89	99	101
40-44	96	94	99	95
45-49	89	102	99	104
50-54	125	85	101	106
55-59	84	106	85	116

To summarize the findings of this section, the 1991 survey data seem more complete than those from the 1991 Census. However there seems to be a downward bias in the estimate of the mean parity of the first age group in the 1991 survey. Although the parity distribution of women reported in the 1991 Census differs from the equivalent distribution reported in the 1991 survey, studying trends in parity-specific measures across cohorts from both sources may prove useful. The most appropriate baseline with which to compare the data collected in the 1990s is the 1976 NFS. Because the earlier censuses and 1981 and 1986 surveys collected poorer quality data than the inquiries in the mid-1970s and 1990s, estimates based on them are more likely to obscure than elucidate fertility trends.

3. TRENDS IN TOTAL FERTILITY

P/F ratio methods provide a useful tool for comparison of information on the age pattern of fertility derived from reports of recent births, F, with information on the lifetime fertility, P (UN, 1983). The pattern by age of the ratios enables one both to detect if fertility has been changing and to assess the quality of the data on lifetime and current fertility. If the fertility has been constant, one can use information on the parities of women in their twenties to adjust the current fertility data for underreporting or overreporting of births in the last year. If fertility has been falling, however, these parities reflect the higher fertility of the past few years and so such adjustments produce overestimates of current fertility.

Table 3. P/F ratios and estimates of total fertility based on births in the last year.

Age	1976 NFS	1986 NFFPS	1991 NFFPHS	1991 Census
15-19	0.86	1.10	1.12	2.72
20-24	0.98	1.12	1.08	2.33
25-29	0.95	1.07	1.07	2.19
30-34	0.92	1.04	1.09	2.13
35-39	0.93	0.98	1.11	2.08
40-44	0.93	0.93	1.13	2.07
45-49	0.94	0.93	1.14	2.06
Unadjusted TFR	6.33	5.12	5.09	2.22
Adjusted TFR	6.21	5.72	5.48	5.17

Table 3 shows the P/F ratios derived from data collected in 1976, 1986 and 1991, unadjusted total fertility rates based on births in the year before the inquiry, and total fertility rates obtained by multiplying up by the P/F ratio for women aged 20-24. There seems little wrong with the current fertility data collected in 1976. The unadjusted total fertility rate is similar to that of 6.26 yielded by the multiround Demographic Sample Survey conducted in 1974-5 (Bourini, 1976). The fertility rates reported in 1986 seem somewhat too low. Nevertheless, even the adjusted total fertility rate is more than half a child smaller than that for 10 years earlier. Fertility fell in the 1976-86 decade. This implies that using the P/F ratios to produce an adjusted rate will overstate fertility. Thus, it is unlikely that total fertility at this time was more than 5.5 children per woman.

The rise in the P/F ratios with age apparent in the 1991 survey data represents strong evidence that fertility is falling. The adjusted rates are certainly too high. In addition, the P/F ratio for the 20-24 year olds in the 1991 survey may be inflated by parity-related age misstatement. In the 1991 Census, current fertility was underreported by over 50 per cent. The question used was ‘During the last 12 months how many children were borne alive by the woman?’. This question tends to be subject to larger reference-period errors than a question about the date of the last live birth (Karki, 1995). If fertility is declining, an adjustment factor of 2.3 is probably too large but the adjustment of such incomplete data is an imprecise process anyway. Nevertheless, the adjusted rate agrees fairly well with those obtained from the survey in the same year. Considering the two 1991 inquiries together, it is likely that the total fertility rate was about 5 children per woman not 5.5 or more.

While inconclusive, the P/F analysis suggests that reporting of current fertility in the 1976 and 1991 surveys was fairly accurate. Fertility may have been declining continuously in Nepal since the 1970s. The full birth history data collected in 1976 and 1991 are a further source of evidence as to trends in fertility. P/F ratio methods can also be used to evaluate these data (Hobcraft *et al*., 1982). In Table 4 we present age cohort-period fertility rates and the P/F ratios calculated by summing these rates down the diagonals and columns of the table. One striking feature of the 1976 data is the low P/F ratios for the two oldest cohorts, which suggest that these women may have omitted up to 7 per cent of their births. All the other P/F ratios fall in the range 0.96-1.03. Second, the fertility of women aged more than 30 years appears to have been slightly lower in the five years before the survey than previously. It is unclear from these data whether this apparent decline in the fertility of older women immediately before the survey could result from heaping of births in the period 5-9 years before the survey.

In 1991, the ratios for the most recent period are much higher than one and rise with age. As the ratios for the preceding periods are only slightly below one, exaggeration of the ages of young children could not account for all the apparent fall in fertility, part of which must be genuine. The ratios for cohorts of women in their forties tend to be higher than 15 years earlier. Nevertheless, if one compares the information that they supply about their early fertility with the information collected from the same cohorts of women in 1976, it becomes clear that they are omitting some births. In particular, while women born in 1941-51 reported slightly more births before age 20 in 1991 than in 1976, they reported fewer births in total before age 30 than were reported by the same cohorts 15 years earlier.

Evidence of omission and event displacement was found in an earlier study of the 1976 NFS birth history data (Goldman *et al*., 1979). This concluded that older women overstated the ages at which their early births occurred. The same pattern of errors becomes evident in the 1991 data if one looks at the age pattern of fertility of different cohorts in more detail. Figure 2 presents data on fertility by age for different cohorts in 1991. Focusing on the four oldest cohorts, the distributions shift to the right for older cohorts. This pattern is inconsistent with what one would expect in a population where ages at marriage have risen. Thus, older women have moved the dates at which their children were born toward the time of the survey. The picture is complicated because the curve for the 40-44 cohort is shifted particularly far to the right: they report that their births occurred a year later on average than women in adjacent cohorts. This probably results from age misreporting. If women in their late thirties tend to be ascribed an age of 40 years or more, and they likewise displace the births of their children nearer to the survey, then their births will seem to have occurred at even higher ages than in adjacent cohorts. It remains unclear, however, why age exaggeration should be most severe around 40 years of age when age heaping on 45 years is equally marked.

Table 4. Cohort-period fertility rates and P/F ratios, 1976 and 1991 surveys.

	Years prior to survey						
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34
Cohort-period fertility rates - 1976 NFS							
15-19	0.037	0.043	0.048	0.043	0.046	0.031	0.029
20-24	0.223	0.225	0.210	0.194	0.181	0.174	
25-29	0.296	0.285	0.283	0.270	0.267		
30-34	0.271	0.280	0.267	0.259			
35-39	0.213	0.224	0.221				
40-44	0.129	0.151					
45-49	0.053						
P/F ratios - 1976 NFS							
20-24	1.03	1.02	0.98	1.01	0.94	0.99	
25-29	1.02	0.97	0.97	0.95	0.95		
30-34	0.98	0.96	0.93	0.95			
35-39	0.98	0.92	0.92				
40-44	0.94	0.91					
45-49	0.94						
Cohort-period fertility rates - 1991 NFFPHS							
15-19	0.029	0.055	0.056	0.051	0.049	0.040	0.045
20-24	0.201	0.244	0.241	0.212	0.207	0.183	
25-29	0.244	0.293	0.311	0.282	0.281		
30-34	0.197	0.257	0.282	0.270			
35-39	0.142	0.197	0.230				
40-44	0.083	0.130					
45-49	0.036						
P/F ratios - 1991 NFFPHS							
20-24	1.11	1.00	0.98	1.00	0.96	1.02	
25-29	1.15	0.99	0.94	0.97	0.95		
30-34	1.17	0.98	0.91	0.96			
35-39	1.20	0.96	0.90				
40-44	1.22	0.97					
45-49	1.26						

Source: Estimates for 1976 are taken from Goldman and Hobcraft (1982).

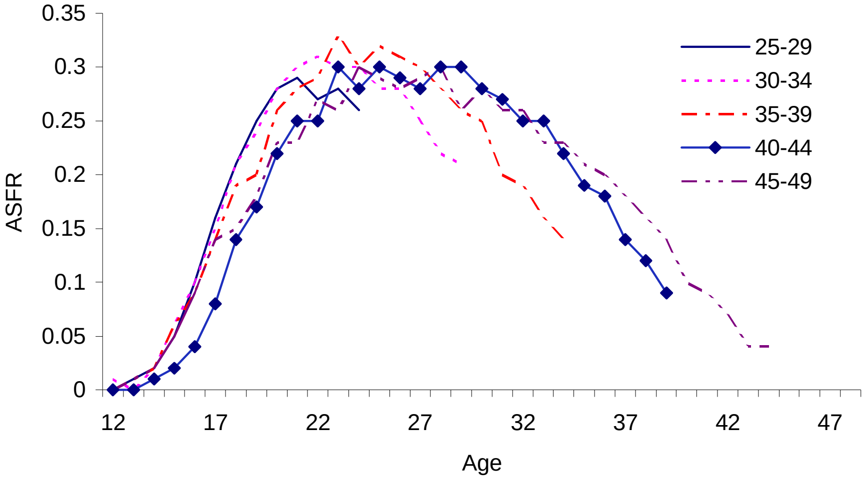

Figure 2. Age-specific fertility by birth cohort, 1991 survey.

When one examines age-specific measures of fertility, bunching of dates of birth several years before a survey produces an exaggerated impression of fertility decline in the recent past (Potter, 1977). While the amount of bias revealed by Figure 2 is fairly small, in combination with the omission of births by older women it makes it difficult to determine from Table 4 either when fertility decline began in Nepal or exactly how far it has progressed. To validate the *prima facie* evidence of fertility decline provided by the current fertility data, other ways of analysing the 1976 and 1991 birth histories are required. These should yield indicators of fertility that are both more sensitive to change and more robust to errors in the data. Such methods exist in the form of measures of parity progression.

4. TRENDS IN FAMILY FORMATION

Trends in total fertility reflect changes in both the pace and the quantum of reproduction. Aggregate measures of period fertility do not distinguish the impact of limitation of family sizes from the temporary impacts of changes in ages at marriage and the length of birth intervals. To detect a drop in family sizes resulting from the adoption of birth control, fertility is best examined using parity-specific measures. The truncated parity progression ratio approach (Brass and Juarez, 1983) uses life table estimates of parity progression to detect which cohorts have limited their family sizes and the parities at which stopping occurs.

The measure used is B_{60}, the proportion of women having a birth within 60 months of their previous birth. In societies with low rates of divorce and remarriage, few women have birth intervals that are longer than five years and B_{60} is only slightly less than the parity progression ratio (PPR). The truncation approach adjusts for bias introduced by selection for speed of reproduction in the younger cohorts. Indices of relative change are derived by comparing the B_{60}s for successive pairs of age cohorts after truncating the fertility experience of the older cohort by five years to render it comparable with the younger one. Adjusted B_{60}s are produced by multiplying the B_{60} of the oldest cohort by the index of relative change from 45-49 to 40-44 and repeating this multiplication process to produce a B_{60} for each younger age cohort. These adjusted indices are projected final values of B_{60} by the age group 45-49 years if the current pattern of progression by age continues to prevail.

A simpler measure of parity progression, P_n, the proportion of women with an *nth* birth who have gone on to another birth, can be adjusted by the same truncation procedure as for the B_{60}s. Unadjusted P_ns are dominated by bias due to censoring of young women at short open birth intervals. The adjusted P_ns may still be affected by censoring and changes in the distribution of birth intervals and the values for the younger cohorts should be treated with caution. In our analysis, however, they yield plausible and consistent trends.

Table 5 presents adjusted B_{60}s calculated from both the 1976 NFS and the 1991 NFFPHS. Figure 3 portrays trends in progression to parities one to eight, according to the adjusted B_{60}s and the adjusted P_ns calculated from both surveys. The indices are plotted against the mid-year of the birth cohort, so that cohorts aged 20 to 34 years in 1976 are lined up with the same women, aged 35 to 49 years in 1991. It is immediately obvious that, except for the transition to motherhood, the estimates of parity progression from the two surveys agree remarkably well and the B_{60}s and the P_ns suggest similar and consistent trends, especially for the 1991 survey.

Focusing first on the progression from union to first birth it appears that the proportion of women having a first birth within five years of marriage has risen from a very low level. In Nepal, B_{60} is a poor proxy for the first progression ratio because many marriage-to-first-birth intervals are longer than 60 months. In contrast, the P_n indices for women interviewed in 1991 and those for older women in 1976 indicate that a high and unchanging proportion of women have become mothers. Although marriage was defined as the start of cohabitation in the 1991 NFFPHS survey, nearly 25 per cent of intervals to the first birth are longer than 60 months.

Table 5. Adjusted B_{60}s and P_ns for Nepal, 1976 and 1991.

Age cohort	Parity Progression to: 1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Adjusted B_{60}s: 1976 NFS survey										
20-24	0.6738	0.8862	0.8991							
25-29	0.6670	0.8636	0.8449	0.7837	0.7435	0.8167				
30-34	0.6277	0.8696	0.8587	0.7974	0.7730	0.7299	0.6406	0.6892	0.5111	
35-39	0.6415	0.8712	0.8551	0.8183	0.7415	0.7865	0.6903	0.6942	0.6411	0.4434
40-44	0.5655	0.8531	0.8336	0.8309	0.7712	0.7814	0.7120	0.7126	0.6074	0.4196
45-49	0.5673	0.8215	0.8001	0.8006	0.7829	0.7844	0.7772	0.6857	0.5762	0.5926
Adjusted B_{60}s: 1991 NFFPHS survey										
20-24	0.8424	0.8562	0.7355	0.6186	0.5453					
25-29	0.7965	0.8857	0.7974	0.6528	0.5778	0.5257	0.5499			
30-34	0.7210	0.8939	0.8306	0.7488	0.6311	0.5783	0.4812	0.5321		
35-39	0.6551	0.8818	0.8655	0.7964	0.7006	0.6207	0.5860	0.5349	0.4280	0.5215
40-44	0.6136	0.8760	0.8508	0.8234	0.7392	0.6960	0.6212	0.5823	0.4723	0.4696
45-49	0.5280	0.8597	0.8464	0.8225	0.7797	0.7257	0.6915	0.6246	0.5372	0.5134
Adjusted P_ns: 1976 NFS survey										
20-24	1.0399	0.9738	0.9282							
25-29	1.0487	1.0151	0.9386	0.9297	0.9350					
30-34	1.0254	0.9671	0.9687	0.9111	0.9344	0.7676	0.6297			
35-39	0.9749	0.9532	0.9525	0.9219	0.8383	0.8759	0.7482	0.8090		
40-44	0.9608	0.9633	0.9270	0.9403	0.8119	0.8139	0.7776	0.7443	0.6329	
45-49	0.9583	0.9648	0.9142	0.8991	0.8642	0.8278	0.7993	0.7169	0.5732	0.5555
Adjusted P_ns: 1991 NFFPHS survey										
20-24	0.9791	0.8675	0.6947	0.6778						
25-29	0.9818	0.9699	0.8804	0.7401	0.6263	0.5772				
30-34	0.9825	0.9752	0.9303	0.8345	0.7201	0.6944	0.5504	0.5311		
35-39	0.9805	0.9700	0.9476	0.8777	0.7859	0.7310	0.6606	0.6268	0.5508	0.6333
40-44	0.9767	0.9647	0.9511	0.9128	0.8256	0.7732	0.6868	0.6423	0.5426	0.4936
45-49	0.9763	0.9667	0.9488	0.9158	0.8589	0.8026	0.7409	0.6718	0.5616	0.5435

Source: Estimates for 1976 are taken from Brass and Juarez (1983).

This proportion drops from 45 per cent for the oldest cohort to 10 per cent for the 20-24 year-old age group. This trend could stem in part from a rise in ages at marriage as fecundity is lower and foetal loss more common among very young women (Rindfuss and Morgan, 1983). However, the adjusted B_{60}s for progression to the first birth reported in 1991 are consistently lower than those reported by the same cohorts of women 15 years earlier. The discrepancy increases with the age of the cohort. Thus, at least part of the rise in the B_{60}s for union-to-first birth is spurious.

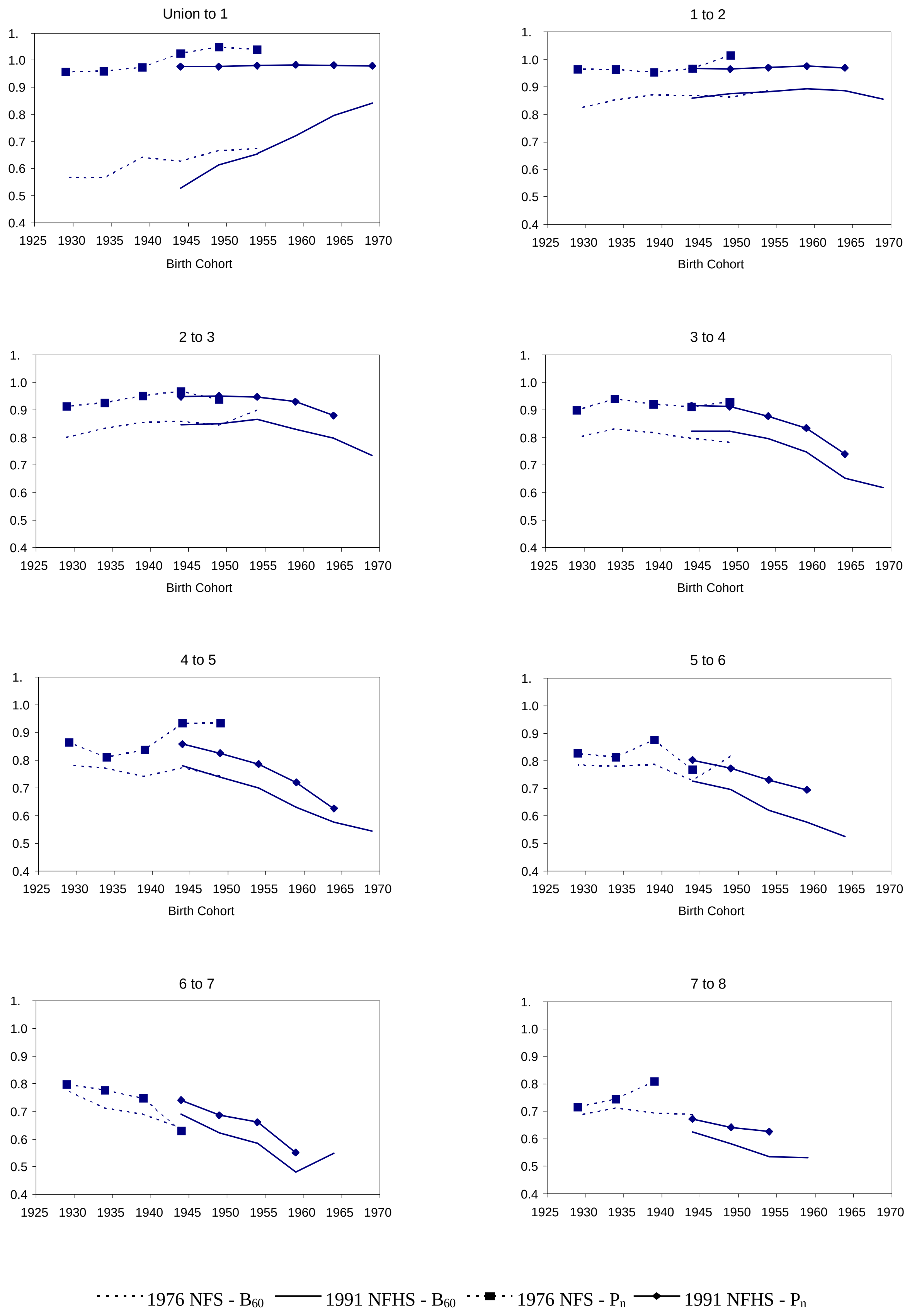

Figure 3. Parity progression according to birth cohort, 1976 and 1991 surveys.

Turning to progression to second and higher order births, a substantial trend toward lower progression for successively younger age cohorts is manifest in the 1991 data for third and higher-order births. The 1976 B_{60} estimates of progression to the seventh and perhaps fourth births show some sign of declining across cohorts. In addition, progression to the fifth birth for 25-29 year old age group and progression to the sixth birth for 30-34 year old age group fluctuate downward. Considered alone, such fluctuations would never be regarded as indicative of the onset of a decline. With the benefit of hindsight, however, these declines seem to have been real. The close agreement of the B_{60}s from the 1991 NFFPHS with those from the NFS suggests that the 1976 survey successfully picked up the initial stages of a decline in progression to births of order five to seven in the early 1970s. This decline continued in the late-1970s and 1980s and spread to progression to the fourth, eighth and then third birth.

Table 6. Trends in parity progression (adjusted B_{60}s) by time period.

Progression	Years preceding survey										
to:	0	2 ½	5	7½	10	12½	15	17½	20	22½	25
1976 NFS survey											
2nd	0.886	0.875	0.864	0.867	0.870	0.870	0.871	0.862	0.853	0.837	0.822
3rd	0.872	0.845	0.852	0.859	0.857	0.855	0.844	0.834	0.817	0.800	
4th	0.784	0.791	0.797	0.808	0.818	0.825	0.831	0.816	0.801		
5th	0.758	0.773	0.757	0.742	0.756	0.771	0.777	0.783			
6th	0.730	0.758	0.787	0.784	0.781	0.783	0.784				
7th	0.665	0.690	0.701	0.712	0.745	0.777					
8th	0.694	0.703	0.713	0.699	0.686						
9th	0.624	0.607	0.592	0.576							
10th	0.420	0.506	0.593								
1991 NFFPHS survey											
2nd	0.856	0.871	0.886	0.890	0.894	0.888	0.882	0.879	0.876	0.868	0.860
3rd	0.766	0.797	0.814	0.831	0.848	0.865	0.858	0.851	0.849	0.846	
4th	0.653	0.701	0.749	0.773	0.796	0.810	0.823	0.823	0.823		
5th	0.604	0.631	0.666	0.701	0.720	0.739	0.759	0.780			
6th	0.578	0.599	0.621	0.658	0.696	0.711	0.726				
7th	0.534	0.586	0.604	0.621	0.656	0.692					
8th	0.535	0.559	0.582	0.603	0.625						
9th	0.450	0.472	0.505	0.537							
10th	0.470	0.491	0.513								

An alternative tabulation of the parity progression estimates allows one to examine trends by time periods rather than cohorts. Brass *et al*. (1997) suggest that one can estimate the approximate time location of the B_{60}s by organizing the indices by diagonals of the age-cohort table. Table 6 presents these measures of parity progression for 2½ year intervals preceding the time of the survey. The B_{60} of the 20-24 age group indicates transition to the second birth at the time of the survey. Assuming birth intervals close to 2½ years, the corresponding transition for the 25-29 cohort will have occurred 5 years preceding the survey and the transition for the 30-34 cohort 10 years before the survey. Estimates of transition 2½, 7½, etc. years before the survey are obtained by interpolation. The 25-29 cohort is assumed to have been having its third births about 2½ years before the survey and the corresponding transition for the 30-34 cohort to have occurred around 7½ years before the survey. Values for 0, 5, etc. years before the survey can again be interpolated.

The consistency between the two surveys permits us to synthesize their results to produce a full set of estimates for 1971 to 1991. The B_{60}s for 1976 are obtained by averaging the progression ratios from the two surveys. The values for the early 1970s are taken from the 1976 survey. Table 7 shows the proportional reductions in parity progression during the twenty years up to 1991, indexed to a value of 1000 in 1971. It confirms that Nepalese women started to limit their families to sizes of five, six and seven children in the early 1970s. Indeed, progression to the seventh birth started to decline in the 1960s (see Table 6). The drop in progression to the fifth birth started in the late 1970s. By the 1980s the fertility decline was affecting transitions to third and fourth births. Progression from the first to second birth within five years rose in the 1970s but declined to its initial level in the 1980s (this trend, also evident in Figure 3, may be spurious and due to event displacement). Thus, there is neither a clearly cohort nor period pattern of decline across all parities. In the twenty years up to 1991, progression to third births has fallen by 10 per cent, progression to fourth and fifth births by about 20 per cent, and progression to sixth to eighth births by about 25 per cent. The extent of this decline suggests that a well-established and irrevocable fertility transition is underway in Nepal.

Table 7: Proportional reductions in parity progression in Nepal, 1971 - 1991.

Progression	Years preceding 1991 survey								
to:	0	2 ½	5	7½	10	12½	15	17½	20
2nd	991	1009	1026	1030	1035	1028	1024	1013	1000
3rd	900	936	956	975	996	1016	1016	992	1000
4th	819	879	939	969	999	1016	1008	991	1000
5th	798	833	879	925	951	976	1002	1021	1000
6th	735	762	789	837	885	904	925	964	1000
7th	761	836	861	886	936	986	949	985	1000
8th	751	784	817	847	877	925	974	987	1000

5. ALTERNATIVE ESTIMATES OF PARITY PROGRESSION

Projected parity progression ratios for cohorts with incomplete fertility can also be calculated from census data provided that the number of children born in the last year are tabulated by age of mother and birth order and the parity distribution is tabulated for each five-year age group. The P/F synthesis method (Brass, 1985) uses current age-order-specific fertility rates (AOSFRs) derived from the information on births in the last year to project the expected parity distribution the cohorts would achieve if they underwent the current AOSFRs until the end of their reproductive age. The additional proportion of women expected to reach parity *n* or more is added to the current proportion of women with *n* children or more derived from the parity distribution, to give the final proportion expected to be of parity *n* or more.

As mentioned before, current fertility estimates from the 1991 Census are affected severely by time reference errors and are implausibly low. This will bias the projected component of the calculated parity distribution, though part of this bias is cancelled out by taking the ratio of the projected proportion of women with *n*+1 births to the projected proportion with *n* births. However, the younger the cohort and the higher the parity, the larger the projected component is relative to the achieved component. Therefore, consistent underreporting of current fertility may still introduce a spurious downward trend in the projected parity progression ratios (Aoun and Airey, 1988). Only the parity progression ratios for cohorts and parities where the contribution of future fertility is quite small, that is low- and middle-order parities for women in their thirties and forties, should be considered reliable. The large sample size of the 1991 NFFPHS survey also allows the application of the P/F synthesis method. Underreporting of current fertility is not a major problem in this survey. To obtain more stable AOSFRs, these were calculated from births in the last five years.

The projected parity progression ratios derived from the 1991 Census and 1991 survey are presented in Table 8. Adjusted P_ns, adjusted B_{60}s, and adjusted B_{72}s (based on progression within six years of the preceding birth) are also presented so that they can be compared. Only the four oldest cohorts and progression up to parity six are considered: we concentrate our attention on the trends in the middle-order parity progression ratios as these are most indicative of adoption of family limitation on a considerable scale. Due to underreporting of parity, the Census data give parity progression ratios that are lower overall than the ones derived from the survey. The adjusted B_{60}s are also lower than the P_ns since they do not catch all births. To examine trends, therefore, the measures are expressed as relative indices with a base of 100 for the 45-49 cohort.

All our measures of parity progression give sensible and consistent estimates of trends in the build-up of families to different sizes. Each series of indices reveals the same pattern of spread of the onset of decline to progressively lower parities. In particular, the 1991 Census data support the findings from the 1991 survey. Some women aged 40-44 in 1991 started to limit their families at sizes of five and six children. Some women aged 35-39 chose to stop at four children and some of the 30-34 cohort stopped family building at three children.

Table 8. Relative changes in parity progression by birth order, 1991 survey and census.

	Parity Progression to:						Progression
Age cohort	1st	2nd	3rd	4th	5th	6th	from 1 to 6
P/F Synthesis - projected PPRs 1991 census							
30-34	104	102	98	91	87	88	69
35-39	104	102	101	96	93	92	85
40-44	102	101	101	100	98	97	97
45-49	100	100	100	100	100	100	100
P/F Synthesis - projected PPRs 1991 survey							
30-34	100	101	98	91	88	92	73
35-39	100	101	99	96	92	92	82
40-44	100	100	100	100	95	96	92
45-49	100	100	100	100	100	100	100
Adjusted P_n - 1991 survey							
30-34	101	101	98	91	84	87	65
35-39	100	100	100	96	92	91	80
40-44	100	100	100	100	96	96	92
45-49	100	100	100	100	100	100	100
Adjusted B_{60} - 1991 survey							
30-34	137	104	98	91	81	80	60
35-39	124	103	102	97	90	86	78
40-44	116	102	101	100	95	96	93
45-49	100	100	100	100	100	100	100
Adjusted B_{72} - 1991 survey							
30-34	130	104	97	91	81	84	63
35-39	121	102	101	96	89	87	77
40-44	113	101	100	100	95	96	93
45-49	100	100	100	100	100	100	100

To summarize trends in the quantum of reproduction, we use an index of progression from the first to the sixth birth. The index measures the proportion of mothers who attain a family size of six children or more. It is calculated simply by multiplying together progression to the second, third, fourth, fifth and sixth births. The first interval is not considered because of its unusual characteristics. These measures are presented in the last column of Table 8. Figure 4 depicts the relative change in the proportion of mothers attaining a family size of six or over, according to these five measures of parity progression. The decline in the proportion of mothers reaching a family size of at least six accelerated across the cohorts aged 30 to 49 in 1991. While the other measures yield slightly more conservative estimates of progression to the sixth birth than the adjusted B_{60}s, it is the consistency of the measures that is more impressive. The proportion of mothers who progress to have six children has declined by about 35 per cent across these four cohorts.

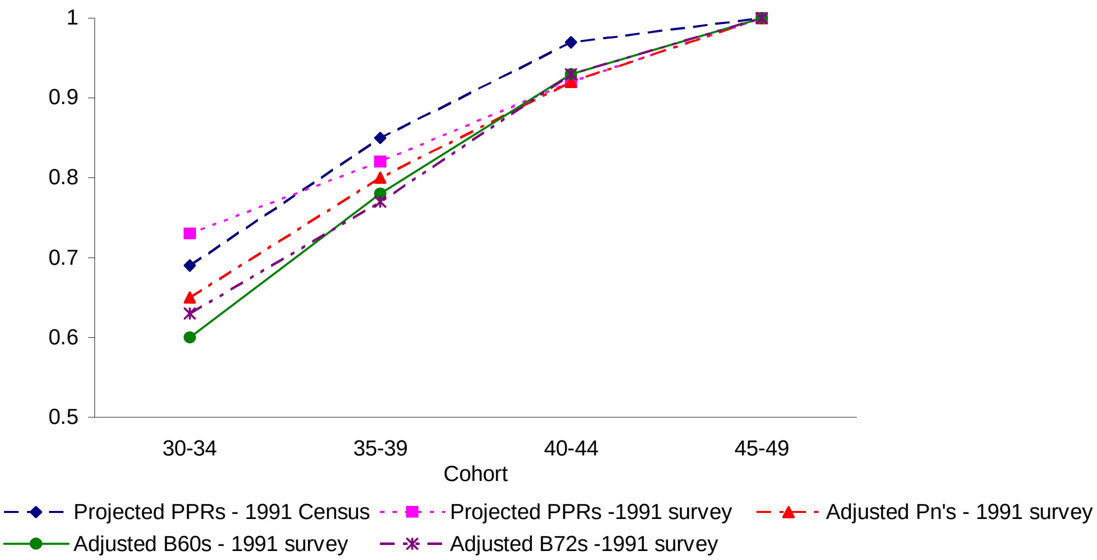

Figure 4. Progression from first to sixth birth according to different indices, 1991 survey.

6. AVERAGE COMPLETED FAMILY SIZE

One can calculate a projected order-standardized total fertility ratio for each age cohort by adjusting the B_{60}s by the ratio P_n/B_{60} for the oldest cohort to convert them into parity progression ratios (Aoun, 1989). Total fertility is then computed by reconstructing the equivalent parity distribution from the progression ratios and summing births per woman for each parity. Future progression to higher parities by younger woman is estimated from data on the last cohort that provides a stable estimate. If fertility is falling, this procedure yields a conservative estimate of total fertility since it assumes no further decline at higher parities. For transition to first birth we replace the B_{60}s by the P_ns, which indicate a constant and consistently high transition to first births. The resulting completed family sizes for ever-married women are shown in Table 9.

Table 9. Projected completed family size, 1991 survey.

Age cohort	Projected completed family size
20-24	4.05
25-29	4.36
30-34	4.89
35-39	5.39
40-44	5.69
45-49	5.97

This measure gives no additional information, but makes it easier to assess the magnitude of reduction that has occurred in fertility. This appears to be about one-third. However, the B_{60}s indicate a slightly greater fall in parity progression than the other indices presented in Figure 4. Bearing this in mind, we conclude that fertility in Nepal has fallen by at least one-quarter. Omission of births by women in their late forties implies that all the estimates of total fertility in Table 9 are a little low. The current fertility data collected in 1976 suggest that mothers aged 45-49 in 1991 may have had nearer 6.5 than 6.0 children. Allowing for all these considerations, women aged 20-24 years in 1991 will probably have about 4.6 children.

7. BIRTH INTERVALS

The median length of birth intervals is shown in Table 10. More than half the birth intervals are longer than 30 months for women of all parities. Birth intervals seem to be lengthening. Since the data on younger women are increasingly biased by the selection for speed of reproduction, indices of relative change - derived from comparing equally truncated pairs of cohorts - are presented as well. They confirm that there has been a rise in the median length of birth intervals. The interval to the first birth is again an exception: it has become much shorter. Moreover the interval between the first and the second birth has remained constant while the interval to the third birth first shrank and then lengthened. At higher parities, however, birth intervals are lengthening rapidly. This is consistent with the spacing of births by contraceptive means.

Table 10. Median duration, and relative change in birth intervals by order, 1991 survey.

	Interval to:								
Age	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Median duration (months)									
20-24	28.6	32.4	36.7	36.2	36.1				
25-29	29.5	29.3	32.7	35.7	38.1	35.9	33.6	36.8	
30-34	35.6	29.9	31.3	33.9	37.7	38.1	42.9	37.9	37.9
35-39	40.8	31.2	30.2	31.7	35.0	38.1	38.1	39.1	41.0
40-44	45.8	30.2	31.3	32.3	33.7	36.5	38.0	40.9	46.9
45-49	55.6	29.9	31.6	31.2	33.9	34.5	35.2	40.8	50.4
Indices of relative change									
20-4/25-9t	0.92	1.16	1.22	1.22	1.39				
25-9/30-4t	0.82	1.00	1.10	1.16	1.20	1.17	0.94	0.68	
30-4/35-9t	0.87	1.00	1.06	1.11	1.18	1.14	1.33	1.29	1.21
35-9/40-4t	0.89	1.00	0.97	1.00	1.07	1.12	1.11	1.12	1.16
40-4/45-9t	0.82	1.01	0.99	1.04	1.01	1.09	1.13	1.09	1.15

8. DIFFERENTIAL FERTILITY DECLINE

In order to assess whether the entire country is participating in the fertility decline, this section looks briefly at differential parity progression. The ecological and development regions are considered and we also examine urban-rural and educational differentials. The small size of the urban population and female population who have attended school limits the scope of the analysis. However, if we concentrate on progression to low- and middle-order parities, some clear trends are evident. As a proxy for the quantum of fertility, we use the condensed measure discussed already. This is the probability of progressing from the first to sixth birth. The trends in proportions of mothers attaining a family size of six or above have been calculated using both adjusted P_ns and B_{60}s. The two approaches give very similar results but the P_ns are somewhat more stable and are presented in Figure 5. This portrays the trend in progression from first to sixth birth by place of residence, school attendance, ecological zone and development region.

These indices of parity progression show that rural residents as well as urban residents, and the uneducated as well as those who have attended school, are contributing to the fertility decline. Residential and education differentials are similar in size and both appear to have widened slightly as fertility has fallen. (Too few school attendees exist in the oldest cohort to

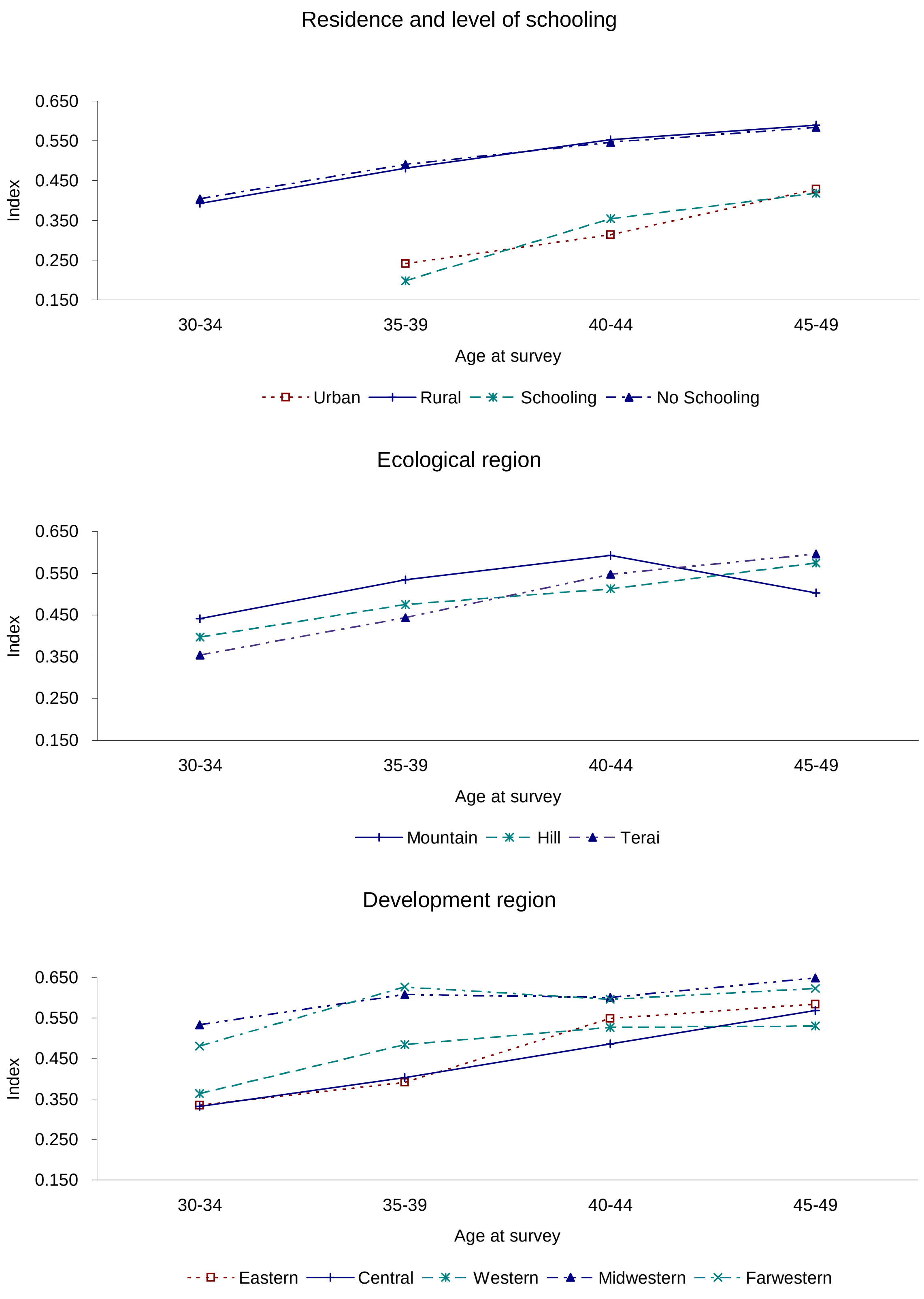

Figure 5. Differential progression from the first to sixth birth by cohort, 1991 survey.

derive estimates and not enough urban women in the 30-34 group have reached parities four and five to derive P_ns and B_{60}s).

The level and trend in fertility are similar in all three ecological zones. The low estimate for the oldest cohort in the Mountain region may suggest that omission of births is particularly common in this zone. For the other cohorts, progression is somewhat higher than in the Hills and Terai but a steady decline is underway. Whereas the fertility of 40-44 year old women fell by as much in the Hills as in the Terai, parity progression in younger cohorts has fallen slightly faster in the Terai. Finally, differentials in the quantum of fertility between the development regions have widened over time. Fertility decline seems to have begun first in the Eastern and Central regions and to have spread to the three Western regions only in the cohort aged 30-34 years in 1991.

9. DISCUSSION

The main aim of this paper has been to present a detailed justification of the assertion that fertility began to fall in Nepal at least 25 years ago. Our claim is based on measures of parity progression calculated by pairwise comparison of truncated and untruncated cohorts. These show consistent evidence of decline since the beginning of the 1970s. The first signs of family limitation appeared among women with five or six live births but this development spread rapidly to higher-order births and fifth births during the second half of the 1970s, and to fourth and then third births in the 1980s. Evidence that the decline in parity progression has come to affect all parts of the population, spreading between sub-groups in a plausible way, provides further support for our conclusion. While a small part of the reduction in total fertility may be a temporary period effect stemming from a rise in women's ages at marriage (Acharya, 1993), the drop in parity progression clearly indicates that quantum of fertility has been falling since the early 1970s.

Several biases can affect the adjusted B_{60} measures of parity progression. First, although in Nepal the increased use of contraception has led to longer median birth intervals, the number of intervals of more than five years is decreasing. This means that the B_{60}s for younger women are capturing an increasing proportion of all closed birth intervals (i.e. are becoming a better proxy of the PPR). When a higher proportion of younger women progress to the next birth within the 60 month window, compared with the truncated adjacent older cohort, the resulting index of relative change will be too high and the truncation approach will inflate the adjusted B_{60} for the younger cohort. This bias would effectively attenuate any decrease in parity progression.

Another bias, that acts in the opposite direction, arises from displacement of recent births back in time beyond the five year boundary. Since such event displacement raises the B_{60} for the truncated experience of the older cohort, the indices of change that result are too low. This bias may thus lead to an exaggeration of the decline in fertility. The two biases tend to cancel out and we do not believe that the latter effect could account for a significant part of the drop in family sizes in Nepal. The fertility data in Table 4 reveal little evidence of pronounced shifting of births across the five year boundary. Moreover, no systematic differences exist between the B_{60}s estimated for younger women in 1976 and those estimated for women 15 years older in 1991. The excellent agreement between the measures of parity progression calculated from the 1991 fertility survey and those derived from the 1976 fertility survey represents strong evidence that these indices are more-or-less accurate.

The failure of other analysts of Nepalese fertility to detect the early onset of fertility transition is rooted in the poor quality of the data on fertility collected in the censuses and in the national surveys conducted in the 1980s, in over-eagerness to adjust fertility rates upward using P/F ratios, and in over-reliance on conventional age-specific measures rather than the more robust parity-specific approach adopted here. Faced with ambiguous evidence and knowing that Nepal is one of the world's least developed countries with a low level of use of modern methods of contraception, analysts have tended to adopt a conservative interpretation of their results. Goldman *et al.* (1979) did point out that the fertility rates of women aged 30 to 44 appeared to have declined during the ten years prior to the 1976 NFS. In the absence of the confirmatory evidence from later surveys available to us, however, they attribute this to the displacement of dates of birth. Similarly, Brass and Juarez (1983), note some evidence of decline in the B_{60}s for younger cohorts obtained from the NFS data but, lacking the evidence that we have that this was the beginning of a long-term trend, ascribe this to instability in the estimates.

If the onset of the decline in marital fertility in Nepal dates back to the early 1970s, rather than to the mid-1980s, it preceded widespread provision of access to modern methods of contraception by the family planning services. The contraceptive prevalence rate among currently married women was just 4 per cent in 1976 (Nepal, 1993). At that time, only 21 per cent of women reported knowledge of even one method of contraception. By 1981, the contraceptive prevalence rate had only risen to 8 per cent. The increase in use of modern methods of contraception to 29 per cent of currently married non-pregnant women in 1996 (Nepal, 1996) indicates that the services provided by the family planning programme are now the main means by which couples limit their family sizes. Nevertheless, the initial drop in fertility in Nepal must be accounted for in other ways.

One factor contributing to the initial fall in fertility was an increase in the temporary separation of spouses. During the early 1970s, growth occurred in the seasonal migration of men to work in urban Nepal and India, in the developing Terai region, and on the construction of the Kathmandu-Pokhara and the East-West highways. Labour migration from the Hill zone was probably more common than migration from the Terai. This, as well as the more patriarchal culture of the Terai (Morgan and Niraula, 1995), may explain why the fertility decline began first in the Hill zone. On the other hand, despite the growing importance of spousal separation, it is clear that marital fertility in the 1970s was not determined solely by proximate behaviours directed at other ends. The 1976 NFS documents that the sex composition of couples' living children was associated with large differentials in marital fertility (Cleland *et al.*, 1983). This is unequivocal evidence that couples were controlling fertility within marriage at the time when fertility began to fall.

We believe that demand to limit family size is well established in Nepal. This accords with what women report in fertility surveys. By 1991, women aged less than 25 years had ideal family sizes of less than three children (Hayes, 1993). Even in 1976, women aged less than 30 years reported an ideal family size of about 3.7 children and older women one of about 4.3 children. Moreover, only just over a quarter of women favoured family sizes of five or more children. The overall impression gained from the series of family size preference measures considered in a comparative study of World Fertility Survey data for the 1970s is that those for Nepal are only slightly higher than those for Sri Lanka and Thailand (Lightbourne and MacDonald, 1982). They are lower than those for Bangladesh, Malaysia, Pakistan, and the Philippines. Thus, to at least some extent, small family size preferences in Nepal seem to predate both IEC programmes intended to promote birth control and any impact that the provision of services has had on the demand for children.

Many experts would accept that substantial latent demand to limit family size existed in many developing countries prior to the inception of State-sponsored family planning programmes. Moreover, the comparison of Nepal with countries other than its immediate neighbours reminds us that the fertility decline also occurred before the initiation of major government family planning programmes in many other parts of Asia. Fertility began to fall between the late-1950s and late-1960s in Taiwan, Malaysia, Korea, Sri Lanka, Thailand, and the Philippines. In each instance, an effective national family planning programme was not established until at least five years later. The population in Nepal was and remains poor, poorly educated, and largely rural compared with these middle-income Asian countries: equally its fertility transition began last. Moreover, fertility began to fall somewhat later in the 1970s in very poor Asian countries other than Nepal, most notably Bangladesh (Cleland *et al.*, 1994). Thus, the early onset of fertility transition in Nepal does not mark the country out as exceptional within Asia. Rather, the country lies at one end of the spectrum of experience observed across the continent.

It is difficult to establish so long after the event how Nepalese couples began to control their fertility in the 1970s without access to modern methods of contraception. However, the data do provide clues as to two factors that may have been of importance. First, the very long intervals between marriage and the birth of the first child in Nepal of older women must originate in low coital frequency within marriage. Recent evidence of low coital frequency early in marriage exists for some groups of the population (Fricke and Teachman, 1993). For Confucian populations, Rindfuss and Morgan (1983) have observed that, as marriages move away from the most traditional form of arranged marriage towards ones where the woman has greater individual choice of partner, the level of coital frequency increases. Similar developments may explain the decrease in the length of the union to first birth interval in Nepal. Women denied knowing about or practising abstinence in the 1976 survey. Nevertheless abstinence was common early in marriage. Thus, reducing coital frequency could have been one means by which parous women began to limit their fertility. Second, in 1976, while women who wanted another child breastfed their babies for 28 months on average, other women breastfed for 40 months (Smith and Ferry, 1984). This differential is accounted for only to a small extent by the differing parity distributions of the two groups of women. It appears that extended breastfeeding was being used to try to avoid conception. This fact probably reveals more about the strength of women's motivation to avoid childbearing than about how they did so but could have had some impact on fertility.

The early adoption of birth control in Nepal probably reflects a combination of factors rather than a single unique characteristic of the country (see also Dangol *et al.*, 1997). The desperate economic plight of the growing landless population in a society living in an evidently marginal environment may be one factor. Increasing poverty is not a factor among the urban and educated elites who led the decline but could be one reason for the rapid spread of fertility control into the rural population. Two triggers that were probably more important, however, are the decline from very high levels of infant and child mortality during the 1960s and the rapid growth in school enrollments. In addition, the fact that the sex composition of families influenced marital fertility at the onset of fertility decline suggests that the idea of managing biological and social reproduction was not innovatory in Nepal. Moreover, the scale of international labour migration from Nepal and the growth of a substantial tourist industry suggest that, by the 1970s, exposure of the Nepalese to the ideas that fertility could and should be limited was far more widespread than in most very poor countries. As a result, fertility decline in Nepal followed more rapidly on the heels of social, economic and other demographic changes than is usual.

According to the 1991 survey, the middle-order parity progression ratios of younger Nepalese women have fallen dramatically. Mothers aged 30-34 in 1991 were at least one-third less likely to progress to a sixth birth than were women aged 45-49. Moreover, progression to the third birth began to drop in the late 1980s. These results suggest that the preliminary NFHS estimate of total fertility for the mid-1990s of 4.6 children per woman (Nepal, 1996) is plausible and that the Government's 1992 objective to reduce total fertility to 4 children per woman by 2001 may be attainable. On the hand, according to the 1996 data, the mean parities of women aged less than 35 are, if anything, higher than those reported in 1991 (Nepal, 1996). This is not what one would expect if fertility has continued to decline. While a firm assessment of fertility trends in the 1990s must await publication and detailed analysis of these data, it seems certain that the fertility transition in Nepal is well-established.

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