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AGE PATTERNS OF WOMEN AT MARRIAGE, COHABITATION, AND FIRST BIRTH IN INDIA

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INTRODUCTION

In populations in which marriage is nearly universal and signals the onset of childbearing, age at marriage has a strong influence on a variety of demographic, social, and economic phenomena. For example, given a set of age-specific marital fertility rates, younger ages at marriage imply higher aggregate rates of fertility and higher rates of population growth. In addition, early marriage is typically associated with a lower rate of school attendance for males and females and with lower social status and a lower rate of labor force participation for females. There is also considerable evidence that these socioeconomic variables have a feedback effect that tends to reinforce the high rates of fertility and population growth (e.g., see Bulatao and Lee 1983).

India is an example of a nation whose population exhibits all of these characteristics to a considerable extent. First, marriage is nearly universal in India, with the average age at marriage below 18 for females and below 23 for males. Second, India's family planning efforts are modest, with official statistics for 1981 indicating that only 28 percent of married women aged 15–49 practiced some form of contraception, up from 12 percent in 1971. Third, according to the *World Development Report 1984* (World Bank 1984), the population of India is approximately 717 million (more than 15 percent of the total world population) and growing at an average annual rate of 2.3 percent (1960–1982).

Coupled with this profile of a large and growing population is a classic picture of a less developed nation. India's per capita income was estimated to be U.S.$180 in mid-1980, with over 40 percent of the population below the United Nations official poverty line. The literacy and labor force participation rates were both estimated to be about 50 percent for males, with the corresponding rates for females estimated at 28 and 25 percent, respectively. Finally, only 38 percent of males and 21 percent of females aged 12–17 were reported to be enrolled in school.[1]

Because of the critical linkages between the timing of marriage and the demographic, social, and economic variables mentioned above, age at marriage is an important indicator of population growth and development. As such, it is useful information for public policymakers interested in understanding the connections between India's population and development problems and in monitoring the progress made in combatting those problems. In addition, since age at marriage is closely related to completed family size, rate of population growth, and a variety of economic variables, knowledge of marriage patterns is useful for academic researchers and public policymakers who are interested in projecting rates of fertility, population growth, labor force participation, and the short-term prospects for development.

To date there have been several quantitative studies of age at marriage in India. Most notable are those of Agarwala (1962, 1972), Basavarajappa and Belvalgidad

(1967), Malaker (1972, 1973, 1975, 1978), and Talwar (1967). Unfortunately, all of these research efforts have been hampered by the variety of Indian marriage customs, a paucity of data, age misreporting, and recent changes in marriage patterns. These problems are not insignificant. First, Indian marriage customs vary widely by religion, caste, and geographic location. Marriage is traditionally (but less frequently in recent years) a two-stage process in which the marriage ceremony and cohabitation are separated by a considerable time interval whose length varies according to the age of the bride. Thus in Indian society, marriage has different implications with respect to the risk of conception than it does in Western society. Second, India is a nation in which large numbers of people do not know their exact age (more so for older than for younger people). This age reporting problem, which obviously complicates research on the age at marriage, is probably magnified by existing legislation that places a lower limit of 18 on the marriage age for women and 21 for men (raised from 15 and 18, respectively, in 1978), although the extent of compliance with this legislation is not known. Third, reliable data on age at marriage, with the exception of several recent sample surveys, are scarce. No statistics about current marriages are available on a national scale in India. As a result, demographers have been forced to rely almost exclusively on decennial census data for information on age at marriage. Such data are generally of poor quality—they do not include marriages by single years of age, and they are plagued by problems of incomparability. Finally, there is some evidence that the mean age at marriage is rising and that there is increasing dispersion in the age at marriage. Unfortunately, the usual time series measures of marriage rates and patterns (e.g., the period marriage rate and the period mean age at marriage) will not adequately reflect the magnitude or nature of these recent changes in cohort marriage patterns.

The main purpose of this paper is to examine the age patterns of women at marriage, cohabitation, and first birth, using survey data collected in the 1975 Bangalore Population Project. The data set includes information on five key variables: age at survey, age at menarche, age at marriage, age at cohabitation, and age at first birth. It also contains background information on religion, caste, urban or rural residence, and educational attainment. All of this information is available for a sample of ever-married women aged 15–49 in the project population; only information on current age and the background variables is available for never-married women of the same ages. The project population includes women in five urban and five rural districts in the state of Karnataka, located in south central India. The original project surveyed 5,200 households, although only approximately one-fourth of these, corresponding to one urban district and one rural district (both named Chitradurga), are available for analysis in this paper.[2]

The remainder of the paper is divided into four sections. The first provides a general discussion of Indian marriage customs, with attention to variations across religion, caste, and location and over time. Special emphasis is placed on describing the traditional two-stage marriage, in which the marriage ceremony and cohabitation are separated by a time interval whose length generally varies according to the age of the bride.

The next section uses the survey data for the Chitradurga rural and urban districts to provide a descriptive statistical analysis of age at menarche, marriage, cohabitation, and first birth. The focus is on discovering (a) regularities in these age patterns, (b) cross-cohort trends, and (c) rural–urban differences. This section also assesses whether the rising age at marriage in India is associated with the declining incidence of traditional marriages.

Following this is an analysis of the determinants of age at marriage, cohabitation,

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and first birth. This investigation uses the survey data to estimate some simple multiple regression models in which these ages are the dependent variables.

In the last section we summarize our statistical results. We also evaluate our findings in light of those obtained by Caldwell, Reddy, and Caldwell (1983) in their work on marriage change in South India. Finally, we discuss the implications of our findings for future research on marriage and fertility in India.

MARRIAGE CUSTOMS IN INDIA

As noted in the Introduction, Indian marriage customs are extremely diverse. They vary by religion, caste, geographic location, urban–rural residence, educational background, and income level; they also seem to be changing over time. In this section, we briefly describe some of the general features of Indian marriage customs as well as how those customs tend to differ along the various dimensions listed above.[3]

Traditionally, marriage has been among the most important events in family life in India. Its importance derives from religious, social, and economic factors. First, for Hindus marriage usually consists of a series of lengthy and expensive religious ceremonies that are considered to be part of a parent's dharma (similar to the Western concept of duty) as well as the children's. Indeed, the family unit provides the medium through which Hinduism is practiced. Marriage, the rite of entrance to a family, is therefore among the most sacred of all events in the life of a Hindu. Moreover, marriage allows women to bear children, in particular male children who can perform sacred rites for their parents after they die.[4]

Socially, marriage tends to confer added status on both parents and children because it signals the completion of a religious duty and suggests preservation of the family line. Because it is one of the most important rites of passage, marriage also adds to an individual's social status. In addition, it can sometimes lead to an increase in social status for women who marry men of higher caste (i.e., hypergamy), which the women assume. Marriage is clearly the major element in the preservation and change of caste linkages in India.

Marriage also has significant economic implications in Indian society. Traditionally, it is associated with a transfer of wealth from the bride's family to the groom's (i.e., a dowry), although after marriage it is the duty of the groom and his family to provide permanent financial support for the bride. Dowry sums seem to vary positively with the educational attainment and employment possibilities of the groom and with the financial and social status of his family. Although dowry is now illegal in India, it is still prevalent, largely because the law against it is so difficult to enforce.[5]

A particularly interesting feature of traditional marriage customs is the prevalence of childhood marriage, that is, the marriage of a girl before she reaches puberty. Such a marriage is always "arranged" by the girl's parents and does not signal the beginning of cohabitation or sexual relations. Instead, childhood marriage is better thought of as a contract that is closely akin to the Western concept of betrothal. A childhood marriage is only consummated after the bride reaches menarche, and often not until a substantial period of time after menarche. This practice has religious underpinnings, since purity at marriage is an essential element of Hinduism. In addition, low expectation of life places great pressure on parents to complete their dharmas by arranging their children's marriages at young ages. Some research on this subject even implies that childhood marriages are socially functional because they ease the transition of a woman from her father's home to the home of her husband and his parents.[6] Despite these supports, childhood marriage is a practice that is slowly dying. Among the reasons for its demise are its decreasing acceptabil-

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Table 1.—Median age at marriage and cohabitation, Indian women by religion and residence

Religion	Rural			Urban		
	Legal marriage	Cohabitation	Difference	Legal marriage	Cohabitation	Difference
Hindu	16.17	16.90	.73	16.85	17.23	.38
Muslim	16.43	16.78	.35	16.75	16.99	.24
Christian	18.70	18.76	.06	19.42	19.44	.02
Total	16.32	16.97	.65	16.93	17.26	.33

Source: Vital Statistics Division (1975)

ity to prospective grooms, its tendency to interrupt schooling, its illegality, and its decreasing urgency in view of the substantial increase in the expectation of life experienced in India during the past century.[7]

The distinction between marriage and cohabitation (i.e., effective marriage) is a critical element in what is often referred to as a "two-stage" marriage process. The two-stage process always operates in the case of childhood marriage, but it also operates quite often in marriages that take place after menarche. In these cases, consummation is delayed at least until the astrological signs for husband and wife are both auspicious (which usually takes a minimum of one to three months); in practice the delay seems to serve as a social device for monitoring and deterring the occurrence of sexual relations before marriage. Whether they are one- or two-stage in nature, the majority of non–childhood marriages also tend to be arranged by the families of the bride and groom. The degree of control exercised by the families, however, appears to be waning over time, and there has been a rise in the incidence of elopements and "love marriages," particularly in urban areas.

To illustrate the degree of cross-sectional and temporal variability in the marriage patterns of Indian women, we present tables 1–3. The figures are from the published results of a fertility survey involving a subsample of units contained in India's Sample Registration System. (See Vital Statistics Division 1975 for a discussion of this survey.) Table 1 shows median age at marriage as reported by ever-married women in 1972, classified by religion and rural–urban residence. The estimates indicate that the median age was 16.3 in rural areas and 16.9 in urban areas. Among Christian women, the median was substantially higher (by about 2.5 years) than it was among Hindu and Muslim women, whose median marriage ages were approximately the same. The differential for Christian women is not, however, particularly important, since Christians make up less than 3 percent of India's population.

Table 1 also presents the differences between median ages at marriage and cohabitation. Observe the extremely small difference for Christian women, who do not practice the two-stage marriage custom to any appreciable extent. Observe also the differences of one-fourth to three-fourths of a year for Hindu and Muslim women in rural areas. Finally, observe the smaller rural–urban differential in the age at cohabitation than in the age at marriage. Although this smaller differential may be explained by shorter intervals between marriage and cohabitation for urban women who practice the two-stage custom, it probably reflects the lesser prevalence of this custom among urban women too.

In addition to variations by rural–urban residence and, to a lesser extent, by religion, age at marriage also varies widely among states and union territories. For

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Table 2.—Median age at marriage, Indian women by state and residence

State and union territories	Rural	Urban	State and union territories	Rural	Urban
Madhya Pradesh	14.2	15.5	Chandigarh	16.8	17.9
Rajasthan	14.8	15.8	Tripura	17.0	16.4
Andhra Pradesh	14.9	14.9	Assam	17.0	17.6
Bihar	15.2	16.3	Andaman and Nicobar Islands	17.4	18.2
West Bengal	15.5	15.9	Pondicherry	17.5	16.9
Uttar Pradesh	15.6	17.0	Kerala	17.7	18.3
Maharashtra	16.0	17.0	Punjab	17.9	18.1
Delhi	16.0	17.5	Tamil Nadu	18.1	17.5
Dadra and Nagar Haveli	16.0	NA	Goa, Daman and Diu	18.4	19.4
Haryana	16.1	16.8	Meghalaya	18.5	NA
Lakshadweep	16.1	NA	Jammu and Kashmir	18.7	18.2
Gujarat	16.3	16.8	Manipur	19.1	19.3
Orissa	16.4	16.5	Arunachal Pradesh	19.1	NA
Karnataka	16.7	17.0			
Himachal Pradesh	16.8	17.3	Total	16.3	16.9

NA: Not available.

Source: Vital Statistics Division (1975)

example, table 2 shows that in rural areas, the median age ranged from 14.2 in Madhya Pradesh to 19.1 in Manipur and Arunachal Pradesh (both of which are predominantly Christian). Similarly, among the urban areas, the range was from 14.9 years in Andhra Pradesh to 19.4 in Goa, Daman, and Diu. Table 2 also shows that age at marriage is usually, though not uniformly, higher in urban than rural areas. In 20 of the 24 states and union territories for which data are available, the median is higher in the urban areas.

To round out this brief statistical portrait of age at marriage in India, table 3 presents median age at cohabitation by the time period in which cohabitation began. Since women who commenced cohabitation more recently are, roughly speaking, younger, table 3 indicates that age at cohabitation has increased across cohorts, with larger increases in urban areas (about 1.8 years) than in rural areas (about 0.75 years). When coupled with statistics reported in the 1941 and 1971 Censuses, which indicate that age at marriage increased by 2.4 years during that period (from 14.7 to

Table 3.—Median age at cohabitation by period in which cohabitation began, Indian women by residence

	Period in which cohabitation began					
Residence	Before 1947	1948-1952	1953-1957	1958-1962	1963-1967	1968-1972
Rural	16.62	16.89	16.86	17.10	17.34	17.36
Urban	16.69	17.04	17.06	17.32	17.73	18.52

Source: Vital Statistics Division (1975)

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17.1 years), the evidence in table 3 suggests that the average interval between marriage and cohabitation has declined, probably because fewer women follow the traditional two-stage procedure.

ANALYSIS OF SURVEY DATA FOR INDIVIDUAL WOMEN

The principal conclusions to be drawn from the previous section are that (1) the term "marriage" tends to have a different meaning in India than it does in Western cultures, (2) even within India marriage customs vary along a considerable number of dimensions (e.g., region, religion, urban–rural residence), and (3) Indian marriage customs have generally been changing over time. These features of the marriage institution complicate research on Indian marriage patterns by forcing researchers to reckon with a number of potentially confounding factors. First, changes over time rule out the possibility of using cross-sectional or vital registration data on marriages occurring within a single year to identify underlying cohort marriage patterns, for example, the mean age at marriage and the proportion of women who ever marry. Second, the existence of significant spatial differences renders an all-India analysis of age at marriage (using Census or national sample survey data) rather inappropriate, since a single Indian marriage pattern does not exist. Third, the prevalence of the two-stage process suggests that age at marriage may not be a particularly meaningful variable to analyze, since it does not always signal the exposure of a woman to the risk of conception. For example, although Indian census data reveal an increase in age at marriage across cohorts,[8] this increase may not be associated with a similar change in age at cohabitation. These data patterns would be consistent with a decline in the prevalence of two-stage marriages or a reduction in the waiting time between marriage and cohabitation for women who engage in two-stage marriages. Either of these trends suggests that the rise in age at marriage may not indicate reduced periods of exposure to the risk of conception.

In this section we adopt a simple approach to dealing with these problems. First, we analyze data separately for different cohorts of women to allow for and identify trends over time (i.e., across cohorts). Second, we sacrifice the possibility of reaching all-India conclusions by focusing on data for women residing in a narrow geographic area within the state of Karnataka, located in south central India.[9] Third, we do not limit ourselves to analyzing the timing and incidence of marriage; instead, we also focus on age at cohabitation, age at first birth, and the one- or two-stage nature of the marriage process.

Before considering the substantive results, we would also like to mention a series of other research problems that, although not specific to the Indian context, typically arise in the analysis of survey data on marriage and fertility, especially for developing countries. These problems include nonrepresentative samples, age misreporting, and statistical biases associated with the analysis of data for young cohorts (i.e., censoring bias) and for ever-married women (i.e., truncation bias). We believe, however, that these problems are relatively minor in our analysis for the following reasons: (1) The sample design was carefully developed and implemented as a collaborative effort involving an extremely well-qualified group of demographers and statisticians from India and the World Bank. (2) Data were actually collected for 99 percent of all households chosen for the sample, with 88 percent of those households providing complete fertility and marital history data for their ever-married female members aged 15–49. (3) Nearly all of the surveys were administered to household heads in their native tongue, with great effort taken to collect accurate age data.[10] (4) The data set contains detailed information for ever-married women and also contains some information for never-married women in the surveyed

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households. And (5) the analysis will focus largely on cohorts who had passed through their prime marriageable years by the time of the survey.

With the stage set in this manner, we may now proceed with the analysis of the survey data. Table 4 presents descriptive statistics for women in the rural and urban districts, broken down by age at the time of the survey (i.e., by birth cohort). Cohort groupings were chosen to ensure that the statistics are based on reasonable numbers of women. Two sets of statistics are presented, proportions and means. First, we report proportions ever married, proportions of the ever married who have borne at least one child, proportions of the ever married who were married before menarche (i.e., childhood marriages), and proportions of the ever married who had a two-stage marriage. Second, we report the mean age at menarche, marriage, cohabitation, and first birth for ever-married women aged 15–49 at the time of the survey.

Table 4 reveals many interesting aspects of Indian marriage patterns. First, the statistics indicate that marriage has been absolutely universal in both the rural and the urban districts; none of the women over age 25 in the rural sample or over age 30 in the urban sample are single (only 3 of 155 urban women over age 25 are single). In both samples many women below age 25 are single; but this is not necessarily an indication that marriage is losing its universality, since many and perhaps all of those women will ultimately marry.

Second, the proportions of women who are mothers indicate that the rate of permanent childlessness is extremely low in both districts—from 3 to 6 percent—and probably represents sterility and not voluntary childlessness. Moreover, there is no evidence of a trend across cohorts, suggesting that motherhood, like marriage, has been and continues to be almost universal in both the rural and the urban districts.

Third, the data show significant rural–urban differences in age at marriage, with the mean for urban women about 1.75 years higher than that for rural women. The data also provide some evidence of an upward trend in the timing of marriage in the rural district between the cohorts aged 45–49 and 25–29 although the increase in age at marriage is rather small (i.e., about one-half year). There is, however, some evidence that the mean age at marriage is increasing more rapidly for the two youngest cohorts. Unfortunately, the data do not permit us to assess the magnitude of this trend, since we do not know the ages at which the single women in the 15- to 19- and 20- to 24-year-old cohorts will marry (of those that do). Nonetheless, we can be fairly confident that there will be an upward trend, since at the time of the survey, most of the unmarried women in those cohorts were older than the mean ages reported in the table (therefore, they will contribute to an increase in the mean if they marry).

Fourth, the data provide evidence of longer intervals between marriage and cohabitation for rural women than for urban women, suggesting that either the two-stage marriage process is less prevalent in the urban district or the intervals are shorter. The former supposition may be confirmed by noting the substantial differences in the prevalence of the two-stage process in the rural and urban districts (about 55 percent and 34 percent, respectively, for women over age 25). The data also confirm the latter supposition, since the average number of months between marriage and cohabitation for women having two-stage marriages was 11.2 months in the rural district and 7.2 months in the urban district (for women aged 25–49).

The data also reveal a decline in the incidence of two-stage marriages in the rural district. As a result the gap between the mean age at marriage and at cohabitation is narrowing across rural cohorts, from roughly 0.7 to 0.3 years. Also contributing to this narrowing is the decline in the average interval between marriage and cohabitation for those women who had a two-stage marriage. For example, the average

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Table 4.—Descriptive statistics on marriage and motherhood, women aged 15–49, Chitradurga rural and urban districts, 1975

Residence and cohort[a]	Number of cases	Proportion				Mean age of ever-married women at:			
		Ever married	Mothers[b]	Childhood marriage	Two-stage marriage	Menarche	Marriage	Cohabitation	First birth
Rural district									
15-19	246	.37	.57	.04	.37	13.74 (1.11)	15.13 (1.49)	15.24 (1.28)	16.55 (1.06)
20-24	218	.91	.92	.07	.43	13.60 (1.30)	15.63 (1.99)	15.75 (1.86)	17.57 (1.95)
25-29	218	1.00	.97	.13	.48	13.50 (1.24)	14.92 (2.15)	15.26 (1.80)	17.43 (2.24)
30-34	180	1.00	.96	.16	.52	13.57 (1.35)	14.86 (2.07)	15.15 (1.78)	17.72 (2.20)
35-39	133	1.00	.96	.17	.51	13.57 (1.24)	14.57 (2.27)	15.12 (1.61)	17.65 (2.46)
40-44	94	1.00	.97	.23	.65	13.43 (1.14)	14.49 (2.25)	15.00 (1.53)	17.29 (2.02)
45-49	64	1.00	.95	.26	.59	13.79 (1.49)	14.55 (2.62)	15.27 (1.77)	17.66 (2.75)
Urban district									
15-24	75	.70	.54	.07	.27	13.89 (1.51)	16.56 (2.36)	16.63 (2.31)	18.19 (2.28)
25-49	155	.98	.94	.09	.34	13.99 (1.29)	16.06 (2.73)	16.24 (2.46)	18.43 (2.97)

Note; Standard deviations shown in parentheses.

[a] Age in 1975.
[b] Proportion of mothers among ever-married women with birth history available.

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interval was 9.2 months for rural women aged 25–34 and 14.0 months for those aged 35–49. Both patterns are consistent with the observed decline across cohorts in the incidence of childhood marriages. Indeed, childhood marriages appear to be all but eliminated, since only one woman below age 15 in the rural district was reported to be married. It is interesting to note, however, that, historically speaking, childhood marriage was primarily a rural district phenomenon.

Fifth, the mean age at cohabitation shows little evidence of increasing across cohorts. It does, however, show a negative rural–urban gap and some evidence of a more rapid increase for the youngest cohorts. To some extent, one woud expect these patterns of age at cohabitation to be reflected in patterns of age at first birth (perhaps even amplified). This is certainly true of the rural–urban differences and of the relatively rapid rise in age at first birth that appears likely for the youngest cohorts. In addition, the mean age at first birth shows no evidence of increasing for the younger cohorts, providing further confirmation that the slight rise in age at marriage is not resulting in decreased periods of exposure to the risk of conception. It should be stressed, however, that the rise in age at marriage would probably be too small to have a significant fertility-reduction effect even if it were translated into rising age at cohabitation.[11]

The final point to note about table 4 is the stability of the mean age at menarche across cohorts. The mean is slightly higher in the urban than in the rural district, although the difference is not statistically significant. The level of the mean for both districts, however, is much higher than it is in developed countries (where it typically falls between 11 and 12 years); this difference is most likely due to the relatively poor nutrition levels in India.

In view of the general stability of age at menarche, marriage, cohabitation, and first birth for all but the youngest cohorts (i.e., women below age 25), it seems sensible to group the data for those 25 years or over and plot the distribution of these events by age. This will enable us to assess whether the structure of these distributions is similar to those of Western populations, for which empirically regular structures have been identified and researched (see Coale 1971; Bloom 1982a,b). These plots are presented in figures 1 and 2 for the rural and urban districts, respectively.

To a large extent, figures 1 and 2 reveal the types of age patterns one would expect, given the statistics reported in table 4 and given some knowledge of marriage and fertility patterns in Western populations. First, the age at menarche distributions appear symmetric, with little dispersion about their means. Second, the marriage distributions are considerably more dispersed than the menarche distributions, and they appear reasonably smooth (especially given the small sample sizes on which they are based). In addition, the rural distribution of age at marriage appears slightly skewed to the left because of the incidence of childhood marriage, whereas the urban distribution appears slightly skewed to the right. Both distributions appear considerably more symmetric, however, than the standard pattern of age at marriage identified by Coale (1971). That standard pattern is thought to arise from a marriage process in which women reach marriageable age according to a symmetric, normal distribution and experience a series of exponential delays before they actually marry, with the addition of those delays giving the standard marriage distribution its skewed-right appearance. The marriage pattern in Chitradurga is consistent with this model to the extent that most women are "married" either just before or very soon after they become marriageable (i.e., the delays are small, since parents experience a loss of face if they delay the marriage of their daughters after they reach marriageable age). The skewed Western marriage model, however, would probably not fit very

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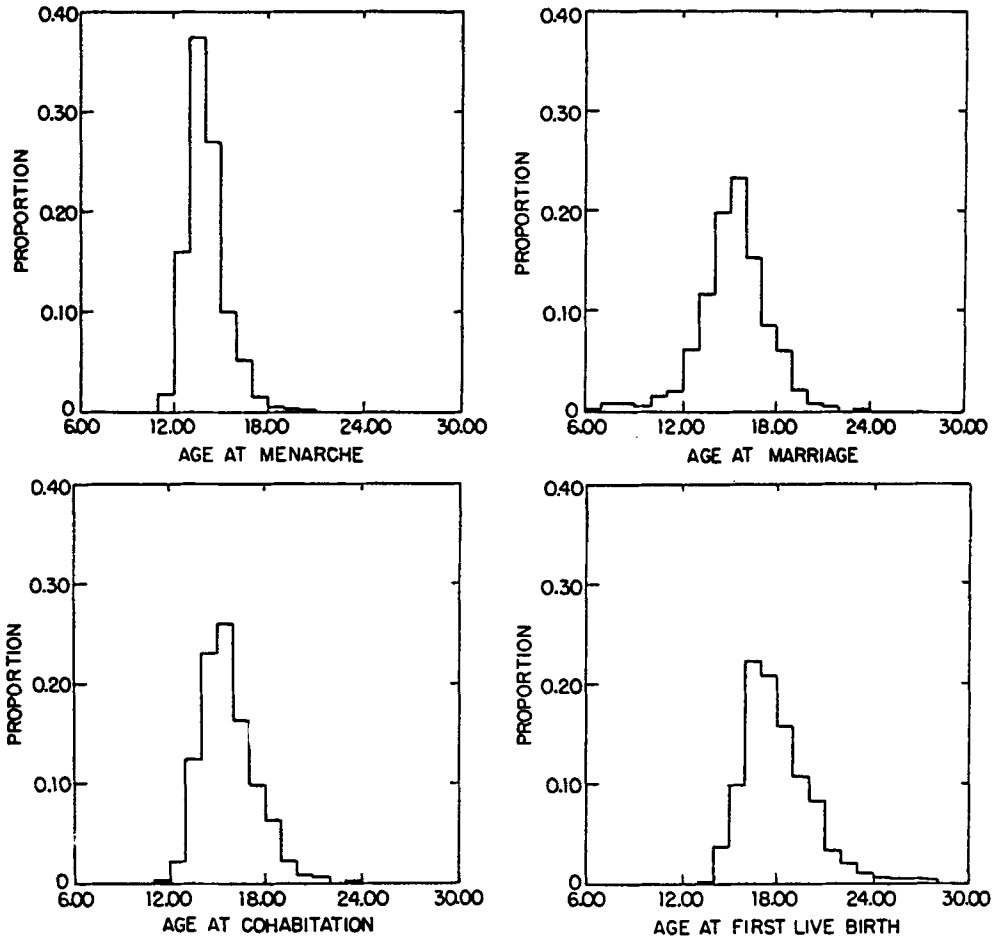

Figure 1.—Distribution of ages at menarche, marriage, cohabitation, and first birth, women aged 25–49, rural districts

well the symmetric marriage data shown here. This finding highlights the potential importance of taking careful account of a society's customs in an analysis of its demographic data.[12]

Third, in contrast to the marriage distributions, the cohabitation distributions are considerably more skewed to the right for both the rural and the urban women. Indeed, these distributions would undoubtedly conform closely to the Western marriage model (i.e., a smooth, unimodal, right-skewed distribution). Since cohabitation corresponds most closely to the Western concept of marriage, this finding suggests that Coale's marriage model might be applied more meaningfully to Indian data on age at cohabitation than to data on age at marriage.

Fourth, the first-birth distributions are also regular in both the urban and rural districts. They are fairly smooth and skewed to the right. Thus it appears that they would be well fit by model distributions used to analyze first-birth distributions in Western populations. In addition, it might be useful to develop a model for the waiting time between cohabitation and first birth, which could be used to infer age at

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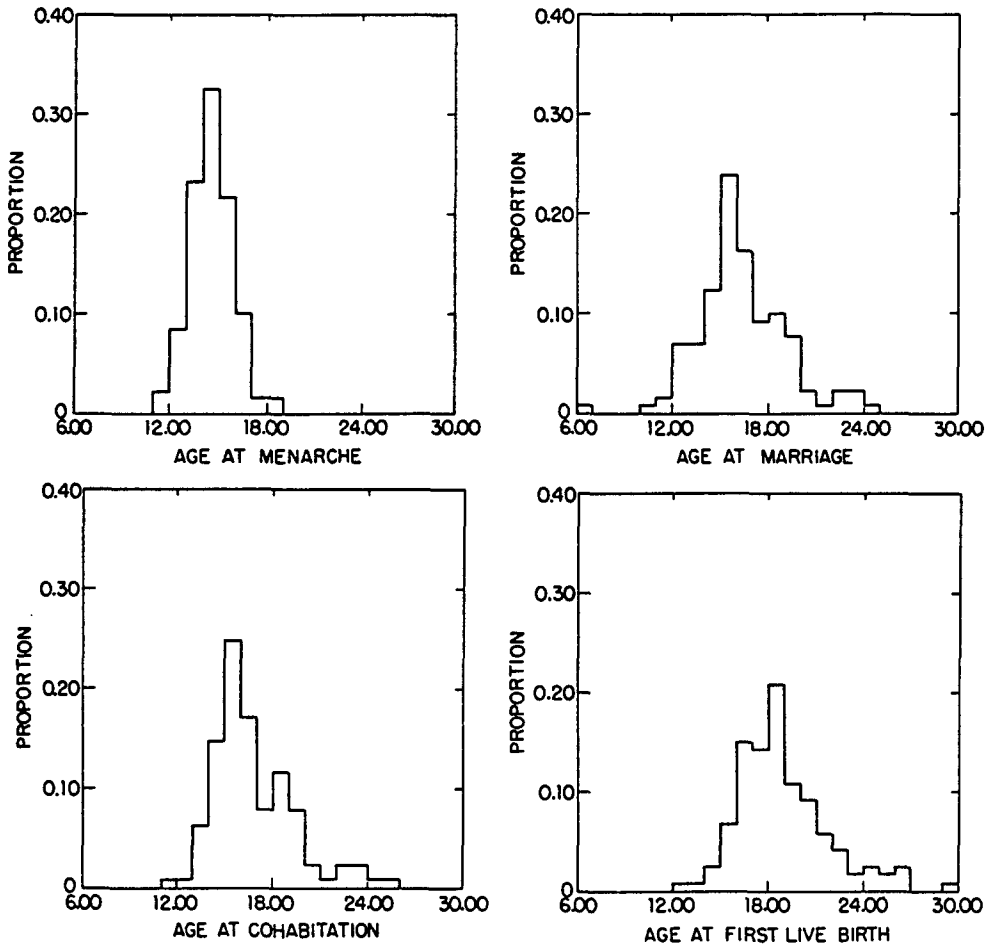

Figure 2.—Distribution of ages at menarche, marriage, cohabitation, and first birth, women aged 25–49, urban districts

cohabitation (which is usually not available in Indian survey data) from data on age at first birth (which usually is).

Finally, it is worth noting that the urban marriage, cohabitation, and first-birth distributions appear to be more dispersed than the rural distributions. This observation suggests that in addition to higher mean ages in the urban district, urban women exhibit greater heterogeneity in their marriage and motherhood patterns. Exploring the nature of this heterogeneity is one goal of the following section.

DETERMINANTS OF AGE AT MARRIAGE, COHABITATION, AND FIRST BIRTH

In an attempt to analyze the determinants of marriage and first-birth timing, we have estimated a set of simple multiple regression models. Six models are fit, for rural and urban district women separately, treating age at marriage, cohabitation, and first birth as the dependent variables. In all cases the independent variables are the same: Hindu (1 = Hindu women; 0 = Muslims, Christians, and others); High Caste (1 = Brahmins, Vyayas, Lingayatas, Vokkaligas, Reddys, or Kapus; 0 =

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Table 5.—Determinants[a] of age at marriage, cohabitation, and first birth, women aged 25–49, Chitradurga rural and urban districts, 1975

Residence and dependent variable	Constant	Independent variable: Hindu	High caste	Education[b]	Education[c]	R^2	N
Rural							
Age at:							
Marriage	14.32	.13	.33	.56*	1.65*	.03	447
Cohabitation	14.82	.14	.34*	.31	1.14*	.03	447
First birth	17.00	.50	.55*	.00	.95	.02	428
Urban							
Age at:							
Marriage	15.68	-1.21*	.53	1.28*	3.09*	.23	85
Cohabitation	15.70	-.71	.12	1.24*	3.02*	.25	85
First birth	18.57	-1.56*	.51	1.24*	1.77*	.10	82

[a] Ordinary least squares (OLS) estimates
[b] 1 if literate with schooling less than high school, 0 otherwise
[c] 1 if schooling greater than or equal to high school, 0 otherwise

* Indicates that the coefficient is significantly different from zero, 5 percent level, one-tail test.

scheduled castes, scheduled tribes, and other low castes); Education1 (1 if literate with schooling less than high school; 0 otherwise); and Education2 (1 if schooling is greater than or equal to high school; 0 otherwise).

Although the regression models estimated are not based on a theoretical model of marriage and fertility timing, they are useful to the extent that they provide a multivariate description of the data (e.g., the correlation between caste and age at marriage holding education fixed). The estimates, which are reported in table 5, reveal a number of interesting patterns. First, the R^2 values are extremely low for the rural women, suggesting that religion, caste, and education explain very little variation in the three age variables. Nevertheless, the results indicate that more-educated women tend to delay their marriage and cohabitation, relative to less-educated women. In addition, the length of the delay is less for age at cohabitation than for age at marriage, probably because traditional two-stage marriages are less prevalent among more-educated women. Education does not, however, distinguish rural women in terms of the ages at which they become mothers. There is also some evidence that high-caste women become mothers later than low-caste women, although the effect is small (about one-half year).

Second, the models have substantially more explanatory power when fit to the data for urban women, as evidenced by the higher R^2 values. This indicates that observed characteristics differentiate the urban women much more than the rural women in terms of their marriage and fertility timing. In particular, educational attainment seems to vary positively with age at marriage, cohabitation, and first birth, with the magnitude of the effects quite substantial. The urban district results also suggest that Hindus marry and bear children at younger ages than non-Hindus, but that caste has little effect on marriage and fertility timing (i.e., intercaste differences seem to be overridden by intrareligion similarities). These regression

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results therefore suggest that norms about marriage and fertility are less universally adhered to in the urban district than in the rural district.

Third, the results in table 5 are interesting because the absence of substantial timing differentials by religion, caste, and education (in the rural district) seems inconsistent with the results of other studies that used aggregate data for a cross-section of villages or states and found evidence that these variables have considerable explanatory power (see Reddy and Gopal 1978 for one such study, using census data for different districts in Karnataka). Taken together, the results of this micro analysis and these earlier macro studies suggest that socioeconomic-based differentials that exist *across* local communities do not exist to the same extent *within* communities. If this result is indeed correct, it implies that the marriage and fertility patterns of individuals are determined largely by community norms, which are determined by the aggregate of the social and economic characteristics of the community's population. This view contrasts with an alternative, but more common, view in which the marriage and fertility patterns of individuals are directly influenced by their own social and economic characteristics. Although our data do not permit further investigation of this hypothesis, it could be an important focus of further research aimed at understanding the individual determinants of demographic events and the social dynamics of demographic change.[13]

SUMMARY AND CONCLUSIONS

The purpose of this paper has been to examine the age patterns of Indian women at marriage, cohabitation, and first birth. This task is complicated by features of the Indian marriage institution that differentiate it from the institution of marriage in Western cultures. It is also complicated by the diversity of Indian marriage customs and by the possibility that Indian marriage patterns have changed over time. Nevertheless, our analysis of survey data for two districts in south central India support the following conclusions: (1) Marriage and childbearing have been and continue to be universal. (2) The timing of marriage and childbearing, which showed only a small increase over a fairly long period of time, appears more recently to be undergoing some changes in the direction of longer delays. (3) The significant rural–urban differences in marriage and fertility timing are at least partly the result of the greater impact of education on age at marriage, cohabitation, and first birth in urban areas than in rural areas. (4) Observed characteristics such as religion and education explain more variation in women's marriage and fertility timing in urban areas than in rural areas (i.e., education seems to generate new social norms that tend to displace norms derived from tradition). (5) The incidence of childhood marriages and two-stage marriages has been on the decline, causing the small but noticeable rise in age at marriage to exceed somewhat the increase in age at cohabitation. (6) Age patterns of marriage in India do not closely resemble Western patterns, although age patterns of cohabitation and first birth do. And (7) socioeconomic variables appear to explain less variation in marriage and fertility timing within local communities than across communities.

Most important, the results highlight the need for more recent and richer data on marriage and fertility behavior in India. In particular, they strongly suggest that marriage patterns in India are now in the midst of major changes. This conclusion is similar to that reached by Caldwell, Reddy, and Caldwell (1983), who adopted a more qualitative approach to analyzing marriage change than ours, but whose observations are also more recent than ours. Through the collection and analysis of more recent and geographically widespread data, we can begin to assess more fully the nature and magnitude of the demographic changes under way and speculate on

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their implications for population growth, economic development, and the formulation of public policy in India. It also appears that the inclusion of more detailed attitudinal and background questions in retrospective surveys is essential if we hope to develop a reasonably complete understanding of marriage and fertility patterns in India. As the regression results presented in table 5 make clear, information about caste, religion, and urban–rural residence do not contribute very much to the explanation of those patterns within two local communities.

In conclusion, then, we hope that this paper stimulates other researchers to carry our investigation further. Changes in cohabitation and first-birth timing will undoubtedly become an important element of fertility decline in India, and further research on this topic is much needed.

NOTES

[1] These statistics were derived from data reported in the 1982 and 1984 *World Development Reports* (World Bank 1982, 1984) and the *World Tables* (World Bank 1983). The female labor force participation rates should be interpreted cautiously, given the well-known problems measuring women's economic activity levels in countries in which women work predominantly in agriculture (see Dixon 1982).

[2] Limitations on our research budget prevented us from coding, keypunching, and analyzing all of the household surveys.

[3] See Kapadia (1965) for a more comprehensive discussion of Indian marriage customs. See Dyson and Moore (1983) for a general treatment of regional variations in Indian demography and culture.

[4] We discuss Hindu marriage customs because they are most relevant to the empirical analysis below. However, the institution of marriage also has great religious significance for Muslims and Christians in India.

[5] See Rajaraman (1983) for a thoughtful analysis of the institution of dowry in India.

[6] For example, see Kapadia (1965, especially Chap. 7).

[7] Life expectancy at birth for females was reported to be 25.6 years during the decade 1872–1881 and 45.6 years during the period 1961–1971 (Agarwala 1972:131).

[8] For example, Agarwala (1972:92, table 6.3) indicates that the mean age at marriage increased from 14.4 years to 17.2 years between 1931–1941 and 1961–1971.

[9] On an aggregate basis, the sample districts covered in this study are statistically similar to the rest of India in many ways. For example, the 1975 crude birth rates in the Chitradurga rural and urban districts were 40.4 and 34.0, respectively, compared with an estimate of 39.1 for all India in 1976 (see Bhat, Preston, and Dyson 1984:129). Evidence of modest fertility declines in the two districts, presented in Srinivasan, Reddy, and Raju (1977), also corresponds fairly closely to estimates for the rest of India presented in Bhat, Preston, and Dyson (1984:129). In addition, the sample districts are roughly comparable to other rural and urban areas in India in terms of literacy rates, household size, religious composition, and household income. Finally, the sample districts have a diverse caste composition, as does the rest of India, although the percentage of Lingayats (a reform Hindu caste) in these districts (about 25 percent) exceeds that in the rest of India (which may be significant, since Lingayats have distinctive marriage customs that encourage cross-cousin marriage but oppose the practice of dowry). Thus although the two districts studied should not be viewed as representative of all India, we also point out that they are not fundamentally dissimilar from the rest of India (i.e., they are certainly not statistical outliers).

[10] Perhaps the most serious problem plaguing the analysis of demographic data from India is age misreporting. Although we cannot be precise about the extent to which this problem affects our data, we have reason to believe that our data suffer from this problem less than most other data sets from India. First, the age distribution of women in our data set looks sensible. Second, the age patterns of the demographic events we are studying are in accordance with a series of a priori expectations that are based on our knowledge of the age patterns of those events in other similar and dissimilar populations in which age misreporting is believed to be less severe. Third, unusual care was taken in the design and implementation of the Bangalore Population Survey to ensure the consistency and accuracy of the data. (For a detailed description of the methodology used in data collection, see Srinivasan, Reddy, and Raju 1977.)

[11] Rising age at cohabitation can also have a net positive effect on total fertility if it leads to a significant decline in female sterility associated with early childbearing.

[12] Nevertheless, in contrast to our results for India, Chowdhury (1983) found that marriage models based on Western marriage patterns do provide a good fit to marriage data in neighboring Bangladesh. In addition, Smith, Shahidullah, and Alcantara (1982) reached a similar conclusion in a broader analysis of marriage patterns in 10 World Fertility Survey countries in Asia and the Pacific.

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[13] To explore this hypothesis further, it would be most useful to have microdata for women living in communities with different aggregate characteristics. Regression models could then be fit with both individual and community-wide characteristics as right-hand side variables. For an interesting and related analysis that focuses on cross-national variability in age at first birth, see Mason and Entwisle (1985).

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