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Impact of Education on Age at Marriage

IN recent years there has been considerable discussion on the effect of education on fertility in developing countries, where education, in general, is found to be a very important factor behind variation in fertility. Further, it has been pointed out that education may influence fertility directly through changing attitudes, but also *indirectly* by affecting age at marriage.

However, the relationship between education and age at marriage has not been subjected to a more detailed analysis. Some studies simply state the positive relationship as an empirical fact without elaboration, while others treat education as an indicator of social or modern attitudes assumed to affect marriage in a rather vague and unprecise way.[1] Neither of these causal propositions has been rigorously examined.

In the Indian context the few studies undertaken so far simply state a positive relationship as an empirical fact.[2] We intend in this paper to more rigorously test the causal mechanisms involved; not only empirically but also in a qualitative sense.

The Data

Our analysis is based on household interview data, collected from a stratified

1. See for instance, Holsinger D. B. and Kasarda J. D., "Education and Fertility", in Ronald Ridker (Ed), *Population and Development* 1976.

2. These studies have generally dealt with urban population samples. See for instance, R. P. Goyal, "Attitudes of Delhi's Married Females towards Age at Marriage", Paper presented to Seventh IASP Annual Conference, January 1982.

See also, Radhakrishna Murty and Umamaheswara Rao, "Female Education, Modernity and Fertility : A Study in the Indian Context", *Demography India*, Vol. XII : 1, 1983.

sample of 2,725 households in Sirsi taluk, Karnataka, during January 1980-June 1981. The data relate to income, landholding, general living conditions as well as demographic characteristics such as age, marital status, age at marriage, family size and education.

Our analysis is confined to Havyak Brahmins and Namdhari Naiks who belong to backward community, for several reasons. Firstly, each of the two castes is more or less homogenous and together they constitute nearly 70% of the total population in Sirsi taluk. Secondly, almost all the Brahmin households derive their incomes from highly profitable garden crops; areca, pepper and cardamum, whereas a very large majority of Naik households are small paddy cultivators and landless labourers with low incomes. Thirdly, the Brahmins with their considerably higher level of schooling have greater opportunities for gainful employment outside agriculture. The Naiks on the other hand, with their generally low level of education have fewer such opportunities. Thus, the two groups have completely different economic and social backgrounds.

In addition to the quantitative data for the sample, we have also gathered qualitative data for a sub-sample of 400 Havyak Brahmin and Namdhari Naik households. These data relate to such aspects as timing of marriage decisions, dowry, perceived attitudes to education and its impact on the female age at marriage etc. Our hypotheses, concerning the causal mechanisms between education and age of marriage are partly based on the qualitative data.

For our analysis we have taken the *marriage cohorts*, i.e. median age at marriage and education for those girls marrying every year during the period 1960-1979. Since our data collection pertains only to 1980-81, a number of problems arise in the analysis of change over time. We have not been able to control for the size of the different age cohorts[3] and the cohorts' past history. Another problem concerns representativeness; for example, are those girls, still living in the taluk at the time of interview, and who got married in 1969, representative of *all* girls, who got married in that particular year? However, as migration and mortality in the relevant age groups are quite low, the problem of representativeness may only be a minor one.

Hypotheses

Both Brahmins and Naiks, believe that the increase in age at marriage is *directly* linked to an increase in the number of years in school. This seems to be self-evident. If girls go to school for a longer period, the marriage delay is a strictly mechanical response. Consequently, our first hypothesis is that there is a direct relationship between the length of schooling and age at marriage.

Respondents also believed that an increase in the number of years in school

3. This is linked to the so-called marriage squeeze which will be dealt with in a separate **paper.**

leads to a higher age at marriage through changes in attitudes, not only towards marriage but also towards family size. They believed that longer schooling "would increase girls' awareness and understanding since society is very different from what it was 30 to 40 years ago". The word used by them in this context is ANUBHAVA, which can be translated to mean awareness, experience and knowledge at the same time. Thus, our second hypothesis is that an increase in the length of schooling would *indirectly* influence the age at marriage through changing attitudes. This hypothesis is intuitively reasonable, although not very precise.

A third hypothesis related to the importance of *informal* education for marriage delay. By informal education is meant proficiency in household duties, including cooking, general housekeeping etc. This is an important factor in the selection of a bride, because among the rural families the household duties are traditionally performed by the women in the house, partly because of the need for ritual cleanliness; no matter how well-to-do a family is, there is no tradition of employing an outsider to perform household duties, particularly cooking. In fact, the women interviewed considered cooking and housekeeping as the more important and basic duties, to be performed by them alone and that every unmarried girl should become proficient in these duties.

The length of training in informal education has to be seen in the context of the length of formal schooling. There are three possibilities :

(a) the length of informal education has decreased due to increase in schooling.
(*b*) the length of informal education is independent of the length of formal schooling, and
(c) the length of informal education has increased along with the increase in formal schooling.

None of these possibilities can be ruled out *a priori.*

The fourth hypothesis relates to the opportunities for gainful employment as a consequence of longer schooling, which causes a delay in marriage. This mechanism has generally been pointed out as one of the strongest causes of marriage delay. In the present case, however, the hypothesis can be rejected directly, since we are dealing with a rural economy, where job opportunities for women outside agriculture are almost non-existent.

Finally, it is considered whether the marriage delay is not due to other causes and whether increasing length of schooling is just a *response* to the marriage delay. It is, indeed, possible that marriage delay has influenced attitude to education and not vice versa. As a corollary, length of schooling and age at marriage may not be related at all. It is possible that underlying factors have influenced *both* age at marriage and education.

Results

In an earlier paper[4] we have shown that there has been a **dramatic** upward

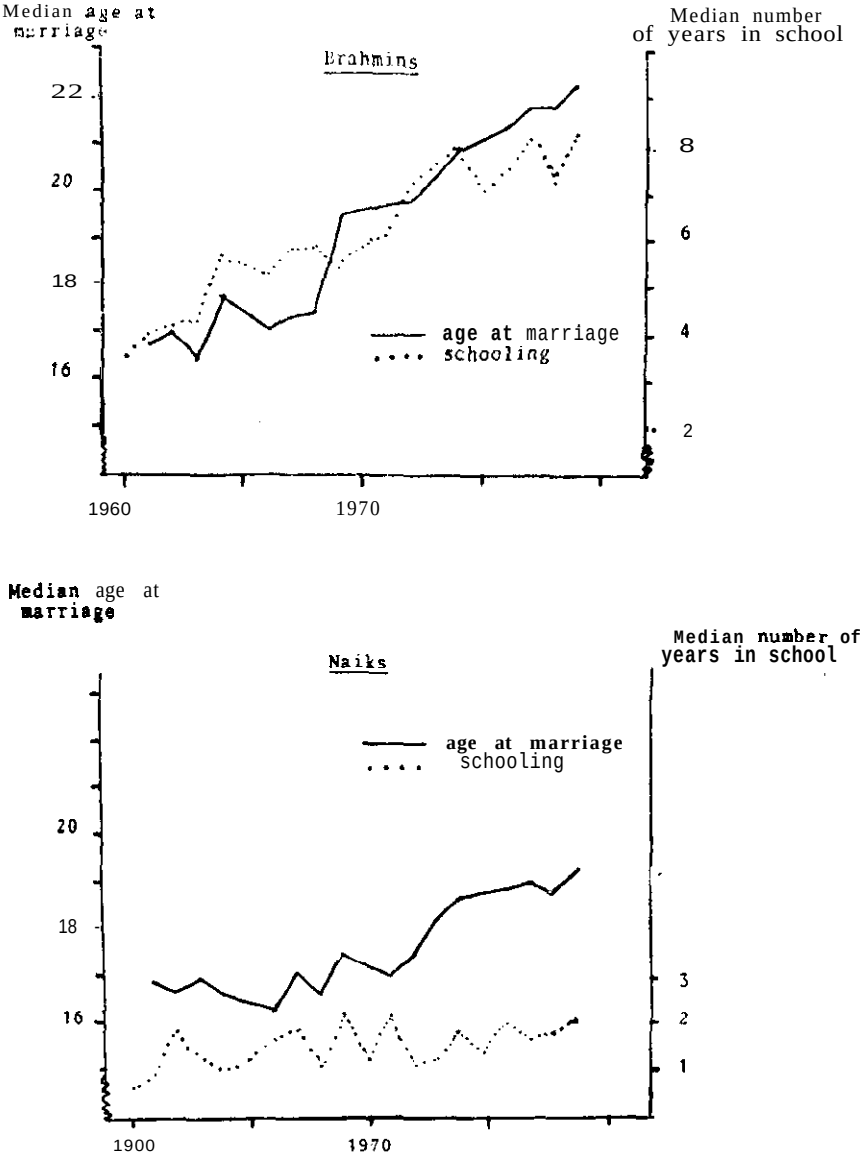

Fig. 1, Age at **marriage** and **number ofyears** in school for **women** marrying durinf the period **1961-1979.**

4. *Age at Marriage in India : A Study of Sirsi Taluk, Karnataka, during the Perid 1961-79.* Meddelande fran **Ekonomisk-historiska** institutionen, Nr **31, 1983,** Lunds **universitet.**

shift in the age at marriage, particularly among the Brahmins. The overall increase for Brahmins is 6 years, from 16.2 years in 1960 to 22.2 years in 1979. The corresponding figure for Naiks is slightly over three years, from 16.0 to 19.3.

For the same period there has been a corresponding dramatic shift in the length of schooling i.e. in the number of years in school. This change is very marked in the case of Brahmin girls. (Figure 1).

Detailed information is given in Table 1 and 2. It is evident that the proportion of illiterates, i.e., those who have never been to school, among Brahmin

TABLE 1—YEARS IN SCHOOL, CUMULATIVE DISTRIBUTION, BRAHMINS, WOMEN

Marriage cohort	*(N)*	*Illiterates %*	*4 Years and more %*	*7 Years and more %*	*10 Years and more %*
1979	(49)	8	92	80	57
1978	(47)	13	87	68	45
1977	(52)	8	92	71	52
1976	(40)	3	95	78	28
1975	(29)	7	86	69	34
1974	(36)	8	92	78	38
1973	(24)	4	92	67	42
1972	(24)	0	96	71	29
1971	(30)	8	90	53	23
1970	(39)	8	85	41	18
1969	(27)	4	93	33	11
1968	(24)	4	92	50	8
1967	(36)	8	86	53	13
1966	(25)	12	80	44	8
1965	(35)	14	77	37	6
1964	(22)	9	91	41	12
1963	(32)	4	73	23	0
1962	(30)	20	70	20	7
1961	(27)	11	78	15	0
1960	(43)	14	65	7	0

TABLE 2—YEARS IN SCHOOL, CUMULATIVE DISTRIBUTION, NAIKS, WOMEN

Marriage cohort	*(N)*	*Illiterates* %	*4 Years and more* %	*7 Years and more* %	*10 Years and more* %
1979	(58)	57	31	9	2
1978	(42)	64	31	7	0
1977	(55)	60	24	7	2
1976	(51)	59	31	10	4
1975	(61)	67	28	5	—
1974	(61)	57	30	8	—
1973	(39)	72	18	3	3
1972	(52)	75	17	4	—
1971	(32)	47	31	6	6
1970	(79)	76	18	5	—
1969	(36)	53	36	8	—
1968	(42)	76	19	2	—
1967	(47)	53	23	4	2
1966	(33)	61	24	3	—
1965	(64)	77	14	8	2
1964	(26)	85	12	—	—
1963	(23)	70	22	—	—
1962	(22)	55	36	5	—
1961	(14)	79	14	7	—
1960	(65)	83	9	2	—

girls has always been quite low, less than 15%, as compared to the corresponding proportion of 60 to 80% for Naik girls during the period under study.

In case of Brahmins nowdays a large proportion of the *girts (70-80%)* now go to school 7 years or more, while in the beginning of the 1960's the corresponding figure was only about 10%. We also notice a large increase in the proportion who go to school 10 years or more, particularly during the late 1970's.

in case of Naik girls, while the proportion of illiterates has remained more or Jess *steady,* a slight change can be observed in the proportion of girls going to school for four years.

Thus, the changes observed in the length of schooling largely correspond to the changes in age at marriage for the two groups under study. Both in age at marriage and in the length of schooling the increase has been most marked for Brahmins, while the Naiks exhibit a very moderate increase. This indicates that length of schooling has a definite impact on the age at marriage.

However, a more detailed study is required for a better understanding of the underlying causes. For this purpose, we consider every marriage cohort during the period 1960-1979. For each marriage cohort the relationship between age at marriage and length of schooling was subjected to regression analysis.

The regression *coefficients* were estimated for the following simple model[5] on an individual basis ;

$$Y = a + \beta X + e$$

where Y = age at marriage for women who got married in a certain year and X = education for the same cohort of women.

The *results* are presented in Table 3. They indicate that the anticipated positive relationship was almost nonexistent. In the few cases where there was a positive relationship it could be attributed to an unusually long period of schooling, as *indicated* by a closer study of the residuals. Considering the whole period under study we can conclude that there is no *direct* link between the length of schooling and the age at marriage since a large proportion of girls go to school for less than 10 years, i.e. they will have completed their schooling latest by the age of 17. Thus it seems likely that education would have a direct impact on age at marriage only if *length of* schooling is beyond 10 years, i.e. a schooling *threshold* has to be crossed. This is indicated by the fact that the regression coefficients for marriage cohorts of the last 3 years were significantly positive. It is likely that this *trend* has continued since 1979, to have a direct impact on the age at marriage.

Therefore, the most interesting conclusion that can be drawn from the regression analysis of the marriage cohorts is as *follows:* there is no relationship between length of schooling and age at marriage for those who have 10 years or less of schooling; i.e. the median age at marriage is approximately thesame for girls *irrespective* of whether the girls are illiterate, or had gone to school for 4, *1* or 10 years. This holds good for both Brahmins and Naiks. In fact, if we compare Naik girls with some education with illiterate Naik girls we finda *higher age* at marriage for the illiterate girls. Though the difference is marginal, it is maintained throughout the period under study. (Fig. 2).

5. We also estimated the coefficients for non-linear relationships (log-log, lin-log and reciprocal models) but the fit for the straight line was better.

TABLE 3—RESULTS OF REGRESSION ANALYSIS

Marriage cohort	DC	β	*s.d.*	r^2
Brahmins				
1979	19.5	+0.240*	0.12	0.09
1978	19.1	+0.310*	0.15	0.10
1977	20.4	+0.120	0.12	0.02
1976	21.3	-0.037	0.14	0.01
1975	21.4	-0.009	0.30	0.00
1974	17.3	+0.370	0.13	0.21
1973	20.7	-0.120	0.16	0.02
1972	21.9	−0.370	0.22	0.11
1971	21.1	−0·240	0.17	0.08
1970	19.4	−0.030	0.12	0.00
1969	17.3	+0.230	0.26	0.03
1968	17.4	−0·010	0.29	0.00
1967	18,9	-0.330*	0.15	0.13
1966	15.2	+0.440	0.25	0.13
1965	19.1	-0.430	0.22	0.12
1964	15.1	+0.310	0.17	0.15
1963	17.5	-0.200	0.32	0.02
1962	17.1	-0.030	0.18	0.01
1961	13.6	+0,702	0.22	0.31
1960	17.9	-0.220	0.40	0.01
Naiks				
1979	19.5	-0.040	0.32	0.00
1978	22.1	-0.870	0.45	0.23
1977	16.2	+0.470	0.17	0.28
1976	17.3	+0.230	0.18	0.07
1975 ·	19.6	-0.100	0.37	0.01
1970-74	15.8	+ 0.350*	0.10	0.14
1965-69	15.5	+0.060	0.13	0.00
1960-64	16,4	-0.230	0.27	0.02

Model : $Y = a + \beta X + \varepsilon$
*indicates significant at the 5 % level.

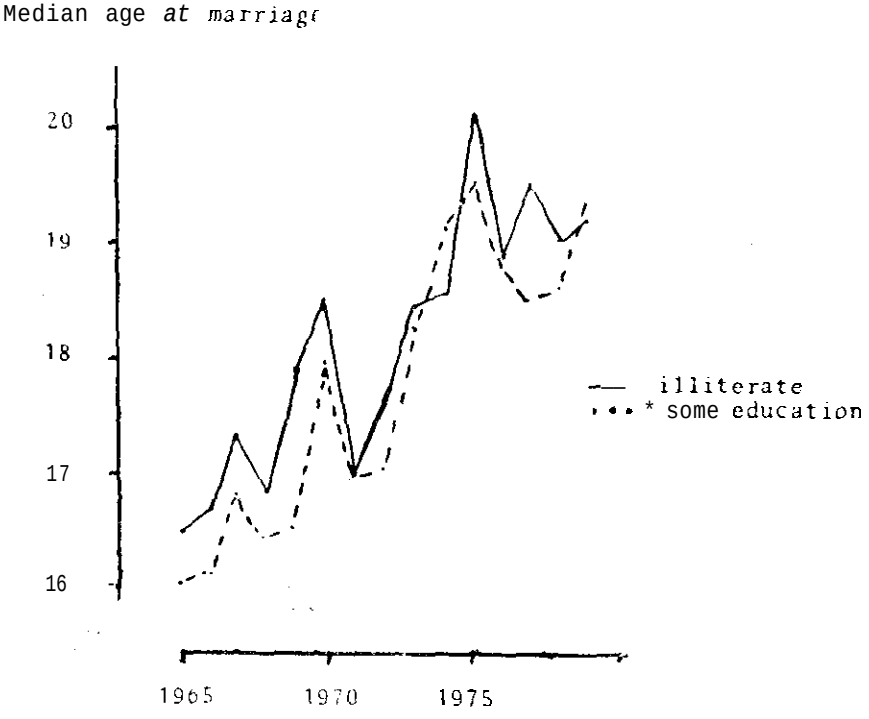

Fig. 2 Median age at marriage for Naik women marrying 1965-1979, with and without education.

Since it is evident that the age at marriage as well as the length of schooling have increased over time, particularly for Brahmins, and since there does not seem to be a direct relationship, it is likely that increasing education has indirectly influenced age at marriage through *attitudinal* changes. Since the age at marriage has increased not only in the case of those with schooling but also for illiterate girls, the possible positive impact of education seems to be a complex phenomenon to explain. Our qualitative interviews indicate that there is a socially accepted age at marriage among Brahmins. A majority of the respondents believe that education is partly responsible for this. According to them, longer schooling implies increased contact with the world outside and consequent changes in the outlook toward such factors as family size, household structure and the timing of marriage. It is not only that the girls' own outlook has changed but more so that they influence the outlook of the parents to a certain extent. Further, in a rural society it is not unusual for families with lower status to follow the practices of families with higher economic and social status. Thus it can be argued that if families with higher economic and social status send their children to school for longer periods and marry off their daughters at a higher age, this

would influence lower status families to follow, even though their own daughters go to school for shorter periods.

To conclude, it is possible that the efforts by the lower status families to imitate those with higher economic and social status may partly explain the absence of a direct link between age at marriage and education. At the same time, it should be emphasized, that *if* attitudinal changes did have some influence on the marriage delay, it would have been reflected in our data as a positive relationship between age at marriage and education, since it can be *a priori* assumed that changes in attitudes require a certain period of time to materialise. Our cross-sectional data, however, do not indicate this. Thus it is likely that attitudinal changes have not been a major influence.[6]

In the case of Naiks we can make a rather surprising observation, namely, that the age at marriage of illiterate girls is slightly higher than that of literate girls throughout the period. It is highly likely that economic factors have played an important role in causing marriage delay among Naiks, and it is also probable that changes in attitudes among Naiks is more in response to changes in economic conditions than to changes in length of schooling.

This aspect has to be seen in the light of the fact that a large majority of Naik households comprise small paddy cultivators with relatively low household incomes, and among whom subdivision and fragmentation of land is widespread. There is considerable evidence to show that the economic situation of the Naik households has deteriorated during 1960's and 1970's. In the absence of outside employment opportunities, due to their generally low level of education, this trend has had a negative impact on their household incomes. Thus, the observed marriage delay has probably been in response the deteriorating economic conditions, coupled with the fact that the dowry factor has become prevalent among Naiks, particularly during the 1970's.

One important aspect to be considered in the present context is the role of *informal* education as a counterpart of formal education. A large majority of the respondents pointed out the need for formal education, but they took great care to emphasize the need for and requirements of informal education for a successful marriage. Of course there must be a relationship between formal and informal education. It is reasonable to assume that if the length of formal education is extended, then the time available for informal education would be less, *ceteris paribus*. Consequently, it would be equally reasonable to assume that a girl with an extended period of formal education would have to go through a more intensive training in informal education, since proficiency in domestic duties is essential for the girl to be married. It can also be argued that an increase in formal education would facilitate a more effective training of the girl with regard to informal education, since she probably would be

6. Needless to say, this factor being a qualitative one, it is hard to determine the precise nature and extent of its influence on marriage delay with the kind of analytical methods use.

mentally more mature and, consequently possess greater learning capacity. Conversely, girls with a shorter period of schooling would have—and probably require—a more extended period of informal education. Thus, this can again be taken as a part explanation for the absence of direct link between age at marriage and formal education.

We can take a step further in the analysis by looking at the gap between age at marriage and years of schooling for different marriage cohorts. In Fig. 3 the relationship between age at marriage and the length of schooling for the marriage cohorts 1960-64 and 1975-79 is shown by the regression lines A-D, calculated on basis of the model :

Age at marriage = a + β years in school.

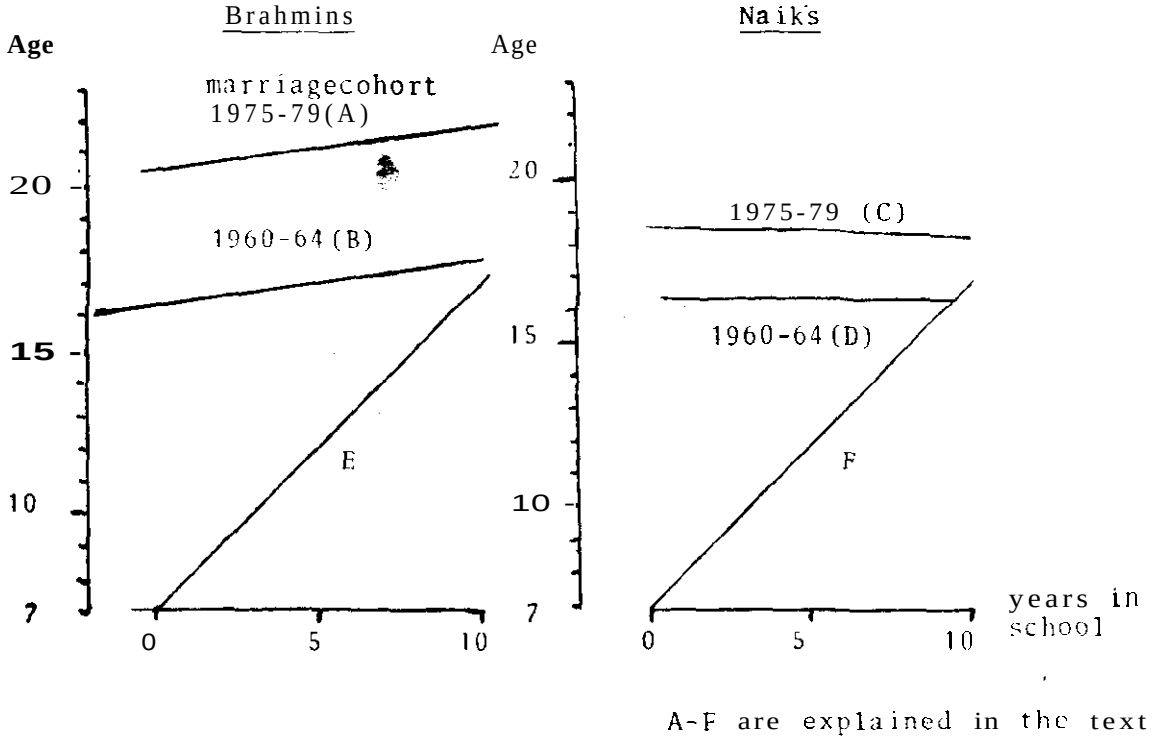

Fig. 3. The gap between age of marriage and years of schooling for different marriage cohort.

We have further assumed that *all* girls enter school at the age of 7, and that they continue schooling without interruption i.e. we have assumed that the relationship between age and number of years in school can be expressed as a straight line, (E and F). For example, the figure shows that the gap between age of marriage and years of schooling for the marriage cohort 1960-64 is 4

years in the case of Brahmin girls with 6 years of schooling (17 −/ 7 + 6/).

Firstly, we observe that the gap between age at marriage and number of years at school decreases with increasing length of schooling within each marriage cohort, which, of course, is a consequence of the fact that there is no positive relationship between age at marriage and years of schooling. This would seem to indicate a negative relationship between formal and informal education, i.e. longer the period of formal education, shorter the period of informal education. However, there could be other reasons as well for the observed larger gap for these girls with low education. For instance, it could be due to a longer search period. This longer search period, in turn, could be due to economic factors such as the household income level; families with low household income would require a longer period of saving to accumulate the marriage expenses, including dowry. It is also likely that poorer families deliberately delay the marriage of a daughter so that she could contribute to augmenting household income through wage labour. This particular aspect has relevance for Naik families, since it is rare among Brahmins to send their daughters to do wage-work.

Secondly, it is observed that there is an upward shift in the gap over time, irrespective of the length of schooling. It is also notable that the gap was more or less the same for both the groups at the beginning of the period, but at the end of the 70's the gap was larger in the case of Brahmins.[7]

A possible explanation for the upward shift in the gap may lie in an increased need for an extended period of training in informal education over time. In the case of Brahmins there are no *a priori* reasons for an extended period of training. This is more likely in the case of Naiks, where the increased need could be a response to changes in the family structure, i.e. the observed trend among Naiks towards disintegration of joint families and the establishment of nuclear families.[8] In a traditional family it is rather common that the new daughter-in-law continues her training in domestic duties under the guidance of older female members of the family, and thus be trained according to the requirements of the new family. On the other hand, in a nuclear family such a possibility does not exist and consequently the training in domestic duties has

7. The gap was longer by two years. This follows from the fact that the increase for Brahmins was four years and for Naiks, two years. For those who find this mental arithmatic beyond their capacity we humbly suggest the use of an electronic calculator.

8. Joint family maintenance is a function of family size and of social and economic environment within and outside the family. As the family size increases, the chances of personality clashes increases. A large majority of Naik community comprises marginal/small farmers and agricultural labourers who are more vulnerable to changes in economic conditions and whose families are generally large. Consequently, the risk as well as the frequency of joint family break-up is greater among this group.

For a brief study of the causes of the break-up of joint families in rural India see, Joginder Kumar, "Family Structure in the Hindu Society of Rural India", in Kurian(Ed), *The Family in India*, 1974, pp. 43-74. See also K. N. Venkatarayappa, *Rural Society and Social Change*, 1973, Chapter V.

to be undergone in the girl's natal family prior to her marriage.

To test this explanation, we compared the age at marriage of women in nuclear families with that of women in joint families. We find that the female age at marriage in nuclear families is slightly higher for almost all marriage cohorts. It should be noted that this result is based on an analysis of those who lived in nuclear families in 1980 at the time of interview and refers to each individual marriage cohort during the study period 1960-1979 (see Table 4).

TABLE 4—FEMALE AGE AT MARRIAGE FOR NAIK WOMEN IN NUCLEAR AND IN JOINT FAMILIES AND PROPORTION OF MARRIED WOMEN LIVING IN NUCLEAR FAMILIES

Marriage cohort	*Age at marriage*		*% in nuclear families*
	Nuclear families	*Joint families*	
1979			7
197S			7
1977	20,0	18,7	25
1976	20.4	18.6	29
1975	20.4	18.9	41
1974	18.5	18.9	36
1973	18.5	18.5	31
1972	18.8	17,3	35
1971	19.7	16.6	34
1970	18.1	18.3	46
1969	17.3	17.6	39
1968	16.9	16.6	48
1967	17.1	17.1	36
1966	16.3	16.3	61
1965	17.9	16.1	61
1964	17.0	16.4	73
1963	17.8	16.8	52
1962	17.1	16.7	64
1961	17.1	16.7	64
1961	16-8	16.8	65
1960	16.9.	16.0	82

The problem here is one of interpretation. **Our** data clearly indicates that the break up of joint families occurs some years *after* the marriage. This can be seen in Table 4, which shows the proportion of married women in each marriage cohort who live in nuclear families. While the table indicates that there has been an increasing trend towards establishment of nuclear families, it is difficult to determine *when* the break up of joint families occurs. Since the break up generally takes place *after* the marriage, it is likely that this trend has had any influence on the female age at marriage. Thus, it is reasonable to assume that the higher age at marriage is influenced by factors which are at play *prior* to the marriage,

Why then do Naik women, who live in nuclear families and who belong to a certain marriage cohort, have a higher age at marriage than women who continue to live in joint families and who belong to the same cohort? One likely explanation is that women, who are older when they get married, will have developed a greater sense of independence and thus contribute towards the break up of the joint family. This explanation is supported by our qualitative interview data, where a majority of the respondents clearly stated that the older the woman at the time of marriage, the more difficult she would find it to adjust herself to the requirements of a traditional joint family.

Parenthetically, it can also be noted that the level of schooling is lower among the married women Jiving in nuclear families. This is not a result that could be expected on *a priori* grounds. It is probable, however, that the factors behind the break up of joint families are economic in nature and first and foremost affect the poorer sections of the Naik community, a group that also has the lowest level of schooling.[9] This is also the group that gives priority to informal education.

Thus, we can conclude that in the case of Naiks, the upward shift in the gap between age at marriage and formal schooling can hardly be attributed to an increased need for informal education as a consequence of the growing trend towards nuclear families, since the break up of joint families occur some years after the marriage. The upward shift is not caused by a longer period of informal education either for Naik or Brahmin females,

Conclusions

The foregoing analysis shows that there is no direct relationship between length of schooling and age at marriage, except in the case of those females, who have crossed the schooling threshold, i.e. girls with schooling longer than 10 years.

9. Richer households, with relatively larger holdings, seem to find it more advantageous economically to remain united. Further, the children in richer households have greater opportunities for longer schooling and, consequently, a better chance of getting a job outside the agricultural sector, thus reducing any eventual economic pressure on the family.

In our qualitative interviews a majority of the respondents stated that an increase in the length of schooling influences the female age at marriage through changes in attitudes. However, these changes in attitudes should have been reflected in a positive relationship between age at marriage and education, since such attitudinal changes require a certain period of time to materialize. This is not substantiated by our cross-sectional data. We may emphasize here that the consideration is limited to attitudinal changes directly caused by schooling. It is likely that there have been changes in attitudes towards age at marriage due to *other* aspects of modernization. One indication of this is the fact that the gap between age at marriage and schooling exhibits a large increase in the case of Brahmins. This group is predominantly involved in the highly profitable areca economy, where the market is distributed all over India. Consequently, the Brahmins have more contact with the world outside the rural society.

Our analysis of the impact of informal education on age at marriage indicates that it has had no major influence on either group.

The impact of opportunities for gainful employment on age at marriage as a consequence of longer schooling can be rejected, since we are dealing with a rural economy, where no such opportunities exist outside the agricultural sector. It is probable that in a different environment this aspect would have contributed to a delay.

The observed changes in length of schooling over time do not seem to have contributed towards the marriage delay. Instead it is more likely that the marriage delay is caused by other factors and that the longer period of schooling is partly a response to the marriage delay. Other factors causing marriage delay could be longer search periods, changes in age structure, increasing demand for dowry, changes in economic conditions and changes in attitudes through modernization. Economic factors may have played a more important role in the case of Naiks, while other factors, such as modernization, have probably been of greater importance for Brahmins.

Finally, a word of caution. The area of our study is rather special with regard to economic as well as social characteristics. Consequently, the conclusions we have drawn are perhaps specific to the study area and can not be generalized to larger areas. Nevertheless, the somewhat surprised results clearly point to a need for similar studies in other areas.