Nuptiality Patterns in Uttar Pradesh-India

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Abstract: In this paper Indian Nuptiality Patterns over successive NFHS rounds are captured through three parameter marriage model. The Coale's model was first to capture similarity in the schedules of first marriage frequencies in population belonging to different cultures. The data on ever married sample from three rounds of NFHS was used to fit the standard nuptiality schedule for Uttar Pradesh. Findings are suggestive of the slowing marriage rates compared to the Swedish Standard. The age at entry into marriages is still quite low in Uttar Pradesh compared to International Standards
Key Words: Nuptiality, NFHS, Uttar Pradesh

Introduction

The study of Nuptiality in any population is of immense importance due to its strong association with social, economic and demographic change in the population. Nuptiality plays a significant role in determining both the fertility levels and population growth rate in the country. The experience of several less developed countries where population growth rates have lowered recently has well demonstrated the effect of age at marriage on population growth rate. An upward shift in age at marriage has played a crucial role in declining population growth rates in many of the developed world as well. Also in the societies where reproduction is primarily confined within marriage the changes in marriage ages and the resultant reduction in proportion of women who remain in married state are directly linked to fertility. In India marriages are not only universal but take place at early ages. This is basically due to combination of beliefs and practices, like parents should marry off their daughters one they reach the menarche and also they settle for more dowry if a girl is married late and so on. Because traditional marriage systems are usually organized to protect women's sexuality maximize their reproductive value, parental and social interest are best served by marrying daughters close to puberty. Additionally, in the absence of alternative opportunities such as schooling and employment, marriage may be the only socially legitimate option for an adult woman [1] [2].

One of the important factors responsible for the present high population growth is the persistence of low level of age at marriage in many of the Indian states. Age at marriage has become the focus of attention of scholars and policy makers because early and universal marriage is believed to contribute to high fertility levels. In order to deal effectively with the most urgent task of slowing down of India's population growth rate as well as to achieve socioeconomic uplift of women, it is imperative to have changes in the existing marital behaviour, and encourage late marriages because marriage spells a cessation of education for girls and premature assumption of maternal, domestic and child care responsibilities.

In India the impact of persisting low ages at marriage in maintaining the high fertility and high growth rate of Indian population is now well recognized. Though the female age at marriage in India has been rising slowly since around the middle of this century, compared to low fertility countries it still remains low. Further there is lot of intra state variations in the age at marriage and north-south divide is strikingly visible. Beside there also exits variation with regard to caste, religion and other social-economic characteristic.

It is well known that directly implementing the law and legislation may not be feasible, in several of the backward states (especially in female education) rather government can approach through only factors that are amenable to social intervention. In this context it is important to know the recent changes in the differing nuptiality pattern in various states of India and identify and assess the causal factors that are associated with or contribute to maintaining the low level of female age at marriage in the Indian states. The present proposal is an attempt in this

direction and it will try to analyse levels, patterns and trends and determinants of female age at marriage in major states and country as a whole during the latter half of this century.

Need for the Study

Until six decades ago, there were a few acute problems of population growth in India in addition to frequent epidemics, famine or other cataclysm in the country. Thereby population growth was considered a long run problem. The problems related to fertility and mortality was alike and they were tied with the standard of living, the state of nutrition, the health hazards, social institutions and the family values of the traditional   society. Since fifties, however, the declining mortality and the stable or slowly changing rates of marriage and fertility were mutually re-enforcing in their impacts on social, economic and demographic structures and dynamics. Since the savings in life were concentrated in infancy and childhood, rapidly increasing cohorts moved upward through youth and adolescence to reach the ages of marriage, family formation and labour-force participation. The persistence of early marriage and high rates of childbearing among the increasing number of parents yielded major increases in the new cohorts of infants. The life cycles would be repeated as long as the conditions influencing life and living remained unchanged. The response of the Government and people to the new milieu of increasing numbers was rapid and widespread. The distinctive aspect of the demographic transitions of the later twentieth century became the problem for planning and programme achievement. To cope with the problem, Government developed programme to make information and facilities for family planning available to the people and to raise minimum age at marriage.

Achievements especially in raising age at marriage through legislation seemed to be limited expect in regions where there was already rapid social and economic and political change. Also, one of the areas of population studies, which have been relatively neglected in micro studies, is the subject of nuptiality. The dynamics of nuptiality is less understood in the era of family planning. Under the Reproductive and Child Health approach there is a need to study the factors, which influence the formation, and dissolution of not only legal marriage but also the sexual unions in the population. Particular interest should be

accorded to a study of the relation between education and economic variables and nuptiality in different parts of the country across cultures. Further, one may examine the relationship between nuptiality and fertility under the changing socio-cultural environment.

Needless to mention that the age at marriage is intrinsically related to fertility. In countries like India, universal and early marriage, especially of females, has been prevalent for a long time and cohabitation outside marriage is uncommon. In this situation mother's age at birth of her first child is primarily linked with her age at marriage and its effects on the timings of subsequent childbearing within the reproductive period/span (15-49 years).

To achieve reduction of fertility one of the measures proposed in the World Population Plan of Action (1974) [4] was to establish an appropriate lower limit for age at marriage. It was then taken as an important factor influencing fertility. It was also pointed out that raising the age at marriage, at least in high fertility countries, would dampen future population growth. In 1976, the Government of India announced the 'National Population Policy', an important operative part of which was as follows: *"Raising the age at marriage will not only have a demonstrable demographic impact, but will also lead to more responsible parenthood and help to safeguard the health of the mother and the child. It is well known that early child bearing leads to higher reproductive morbidity and maternal and infant mortality. Early age at marriage and early childbearing truncate a girls educational career, threatening her economic prospects, earning capacity and over all well-being. Therefore, if the women of our country are to play their rightful role in its economic social and intellectual life, the practice of early marriage is to be seriously discouraged".*

A legislation relating to the above policy was enacted by the Parliament in February 1978. Contravention of the child marriage Act became cognizable offence from October 1978. The Act rose the marriageable age from 15 to 18 years for girls and from 18 to 21 for boys. Though the legal age at marriage is raised, early marriages continue to persist in Indian Society [4]. Govt., voluntary organizations and social reformers have also not succeeded in this sphere. The efforts made by the communication media like radio, TV, posters, etc. to raise the age at marriage were

not very effective. NFHS-2 [5] results suggest that a modest increase of 1.5 years in the median age at first cohabitation over a period of approximately 23 years (1978 to 1999).

Review

Historically changes in nuptiality pattern have played very significant roles in many of the European demographic transitions [6]. In Western Europe late marriage and wide spread celibacy have been the main mechanisms through which its fertility was brought to a low level. However, in other parts of Europe (eastern and central), marriages generally occurred early, and were also nearly universal and decline in fertility was achieved mainly through reduction in marital fertility. However, changes in marriage pattern in terms of higher age at marriage and lower proportion ever married at different ages has characterized several early demographic transitions in many other developed countries ([7]; [8]; [9]). As per Matra's [10] classification, shift towards late marriage is characteristic of a mid transitional stage in the course of fertility decline ever occurred among nations. Confirming to this, Coale's [11] analysis revealed that in the initial phase of demographic transition early and universal marriage was very common which slowly paved the way to later marriage and fairly common spinsterhood and then finally to a decline in marital fertility.

Evidences are on the rise in recent years too, to support the argument that nuptiality reductions produce a retarding effect on fertility. Analysing the data from several Asian countries, Cho and Retherford [12], demonstrated that marital factors have contributed substantially towards the reduction of fertility in these countries. In West Malaysia about two thirds of its decline in crude birth rate during the sixties has been attributed to change in the marital structure. The significant decline in CBR of Sri Lanka was also partly due to changes in age at marriage. Jones [13] also provides several examples from South-East Asia where rising age at marriage has played an important role in major fertility declines. Lestheghe [14] analyzed the impact of nuptiality on fertility and growth rates of a series of populations from developing nations where extra marital fertility was negligible and found that nuptiality changes can produce the same effect on birth and growth rates as changes in marital fertility. The study concluded that an overall fertility reduction initiated by decreasing marital

fertility alone would fall considerably short of the targets in several developing nations. Apart from family size being reduced through reduced exposure to pregnancy risk [15], the delayed marriage can lead to significant decline in birth rates through its effect on length of generation [7]. According to Ridley and Sheps [16] age at marriage affects fertility by changing the fertility schedule and family building pattern. Thus due to its combined effect through several routes, age at marriage can be termed the best single predictor of fertility.

Goode's [17] modernization theory emphasizes the impact of industrialization on marriage patterns. Modernization operates at both societal and individual levels by affecting marriage timing. According to him, expansion of educational opportunities, changes in work force and occupational activities, and urbanization are the most important 'modem forces'. In the process of modernization individuals with higher social status (more education, modem occupational roles etc.) want more freedom and thus tend to marry later in life. Place of residence is another factor-people reared in urban areas are exposed to more diverse life-styles and to weaker social controls than those who are reared in rural areas or small towns. As a result, those growing up in an urban environment are more likely to marry late than those living in the rural areas. Empirical studies in Asian countries support Goode's [17] modernization theory ([18]; [19]). The effect of these modernization factors may be found in any population, although the degree influence of each factor may not be the same across countries and time or across provinces and country.

In addition to modernization, there are other influential factors affecting the pattern of age at marriage, for example, religion and caste or ethnicity, in certain developing countries. In this context, Dixon [20] in her sociological framework emphasized the effect of social institutions, such as the family system and marriage norms and customs as well as factor such as warfare, which may affect the age-sex ratio. While marriage squeeze (availability of marriage partner) is less likely to have effect on the age at marriage in most of the Indian states (there being no severe imbalances in the age-sex ratio of the marriageable population during the recent past) the other factors such as the family system, social pressure, marriage norms and customs as well as individual motivations to marry and financial and

social conditions are again likely to be influencedby the modernization forces.

Objectives:

- The aim of proposed research is to study the age patterns of marriage in Uttar Pradesh and changes if any over the successive NFHS rounds.

Data

Until early nineties no direct raw data at National level on age at marriage was available to researchers. In the absence of such data researchers utilized information on age, sex and marital status distribution from census and summary measures on age at marriage published by National Sample Survey Organization and other agencies.

The National Family Health Survey round 1 conducted in 1992-93 [21], the second National Family Health survey [5] undertaken in 1998-99 and round 3 [22] in 2005-06 created an important demographic and health data base which facilitated implementation and monitoring of population health programmers in the country. Availability of raw data to researchers has also helped to carry out research in the different areas of population and health. NFHS-I, NFHS-2 and NFHS-3 obtained direct data on age at first marriage and age at cohabitation from ever-married women age 13-49 at the time survey and also collected information on age of the never married women in the surveyed household. The information on age at marriage of the women aged 13-49 were collected also by various socio-economic and demographic characteristics. These above data sets were used to carry out the current analysis.

Study Area: Uttar Pradesh

Uttar Pradesh is home to 199 million people [23]. According to NFHS-3 it has among the highest levels of fertility across states in India. Only five countries, namely, China, India, USA, Indonesia, and Brazil have a larger population than Uttar Pradesh. It is also the fourth largest state in India in terms of geographical area covering nine percent of the country's land area across a 241,000 square kilometer area. The density of population in the state is 829 persons per square kilometer as against 382 for India. As per 2011 Census [23] the state is divided into 71 districts,

312 Tehsils over 822 development blocks and 97,814 inhabited villages. UP is largely rural, with 77.7 percent of the population residing in rural areas and large population engaged in agricultural activity. The Human Development Index (HDI) [24] is a composite measure of the overall level of development in terms of life expectancy at birth, adult literacy and per capita GDP. On HDI rank Uttar Pradesh, which was fifteenth out of the major states in India in 1990-1991 has improved to twelfth in 2000-2001. In 2007-08 as per UNDP factsheet out of 23 States that were ranked on HDI Uttar Pradesh was at 18th place. 37.7 percent or about 74 million people were below poverty line in 2009-10 as per head count ratio. The literacy level in the state is far from satisfactory, and the gender gap in literacy levels is pronounced, at 57 percent for women compared to77 percent for men [23]. The sex ratio in Uttar Pradesh is 912 females per 1,000 males, which is lower than the national average sex ratio of 940.

Uttar Pradesh has the highest fertility rates among all the major India states, though there has been a gradual decline in fertility levels in the state in the recent decades. Total fertility rate (TFR) declined from 4.82 children per woman in 1990-1992 (NFHS-1) to 3.99 in 1996–98 (NFHS-2), and further to 3.8 in 2005-2006 (NFHS-3). However, it is still far away from reaching replacement level fertility of TFR of 2.1. According to the Uttar Pradesh Population Policy [25] the TFR level of 2.1 by 2016 seems unrealistic as the fertility levels in Uttar Pradesh are still quite high. According to Sample Registration System, 2014, there are 50 infant deaths per 1,000 live births in the state, which is still very high compared to the national average of 40.

The unmet need for family planning is amongst the highest in the State. The Uttar Pradesh State Population Policy [25] had set various goals and objective for different Reproductive and Child Health Indicators to be achieved by 2016. However, many of these targets are not to be achieved or met. Overall improvements in all the socio-economic, demographic and health indicators are required if the State Population Policy targets were to be realized – which seems to be a difficult goal to be achieved. Regarding age at marriage the State Population Policy of Uttar Pradesh had listed following agenda

- Increase awareness about legal age at marriage for males from 18 percent to 80 percent by 2011

- Increase awareness about legal age at marriage for females from 27 percent to 80 percent by 2011
- Ensure that panchayats (the local governing bodies) maintain records of all marriages in their jurisdiction

Though the levels of awareness have increased over time, concerted efforts are needed for upward improvements in the age at marriage.

Methodology

The three parameter marriage model developed by A J Coale is fitted to survey data on marital status distribution by age and distribution of age at marriage for ever married women. This paper uses the version 2.3.0 of the marriage model developed on 22nd January 1987 written by German Rodriquez and James Trussell [26]. Detailed descriptions are available in World Fertility Survey, Technical Bulletin 7 available from International Statistical Institute (ISI) Research Centre in The Hague [26].

Findings

Table 1 below (appendix) provides the maximum likelihood estimates of the parameters from Coale's model using ever married sample from NFHS-I Uttar Pradesh. The model goodness of fit is also presented and discussed in the findings. Test for homogeneity of cohorts were also presented in the table in order to assess whether within cohort nuptiality follows the uniform pattern or it varies. In the data on ever married sample the age at marriage is truncated by the survey date for those who are yet to experience the marriage. Estimates on age at marriages is unstable in cohorts were less than half of the women are married by the survey date. Therefore the estimates of mean and standard deviation of cohorts still going through the marriage process may not necessarily fit the complete experience of the same cohort once it finishes marrying, reason we may see unstable parameter estimates for such cohorts. The parameter estimates were not stable for 15-19 & 20-24 age cohorts, for the reason they are not presented in the table-1. The estimates for mean and standard deviation for cohort 25-29 are not very reliable as the cohort is not homogenous signifying that nuptiality may be varying within the cohort and that the different single-year cohorts in the age group 25-29 may have not followed the same nuptiality schedule.

This indicates lack model fit to the common schedule in case of 25-29 age group. Contrary to this, cohorts 30-34 till 45-49 fits the data well and as indicated by the goodness of fit, as-well-as test for homogeneity of cohorts. This indicates the cohorts may be considered to have followed the same nuptiality pattern and each single year age cohort to have followed same marriage patterns within each cohort. The likelihood ratio statistics for homogeneity of each of the four 5-year age cohorts in the NFHS-1 sample for Uttar Pradesh, as-well-as the corresponding degrees of freedom and associated p-values, are also presented in the appendix table 1. All 5-year cohorts from 30-34 till 45-49 appear to be homogeneous, which is in congruence to the general impression that existed during that time about unchanging nuptiality in Uttar Pradesh. Looking at the estimates of K one easily concludes about data quality issues with regard to cohort 25-29 as the estimates indicate that the marriage rate is slower in Uttar Pradesh compared to the Swedish standards, which is not contextual. For the rest of the cohorts the value of K is in expected direction, indicating faster marriage rates in Uttar Pradesh compared to the standard marriage schedule. Looking at the mean value for ages 30-34 and comparing it with older cohort 45-49 we presumably can infer that the age at marriage in Uttar Pradesh has increased 1.30 years in 15 to 20 years time period.

Table 2 below (appendix) presents the estimates of the parameter from the model based on NFHS 2 data from Uttar Pradesh. The findings from seven five year cohorts are presented in the table 2. As reflected the model fits 15-19 age cohorts fairly well and the cohort is homogeneous reflecting same nuptiality pattern at each age within this age cohort. The mean age at marriage is estimated at 18.39 years and the value of K is 0.58 reflecting faster marriages when compared to the standard. The estimates of standard error for mean and standard deviations for 15-19 & 20-24 cohorts are on higher side compared to older cohorts. Not having enough data values is probably among the reasons. The rate of marriage (K) though consistently declined over cohorts; from 45-49 to 15-19 as compared to the standard, however within each cohort marriages occurred at a much faster rate compared to the standard. Rates were recorded fastest (0.45) in the age cohort 45-49 as compared to the standard. Except for the cohort 15-19 and 45-49 the model did not fit well. There may be data quality issues with regard to model not fitting the nuptiality patterns for cohorts ranging from 20-24 up-till 40-44.

Possible reasons could be beside poor data quality may be that nuptiality has not been changing very fast and all such cohorts may have followed the same nuptiality pattern. This even get reflected in the goodness of fit statistics for testing homogeneity of cohort's which shows cohorts being fairly homogeneous across the marriage cohorts.

Table 3 below (appendix) presents the estimates of the parameter from the model based on NFHS-3 data from Uttar Pradesh. The model fits fairly well across cohort except for ages 25-29. The cohorts have been homogenous across all ages except for ages 20-24. Age patterns of marriage in Uttar Pradesh closely represent the standard nuptiality schedules as the rate of marriage is similar to that of the standard schedule for the ages 30-34, 35-39, 40-44 & 45-49. However, the slower marriage rates compared to standard for ages 20-24 compared to standard is somewhat compelling and needs more exploration besides the fact that nuptiality has been changing within the cohort and each age follow a different nuptiality pattern within the cohort. The rate of marriage is also higher for ages 25-29; however, it is not significant as the model does not fit the data well. The mean age at marriage has been increasing over the cohorts from older to younger cohorts, which is in the expected direction. The mean value for the ages 15-19 were estimates too high and were absurd hence they are not present in the table 3.

Conclusion

The Coale's marriage nuptiality schedule fits the data fairly well across cohorts for the data on ever married sample available from the successive rounds of NFHS for the Uttar Pradesh. The parameter estimates of the model are representative of the nuptiality patterns in Uttar Pradesh, typical of very low age at entry into the marriage market signifying universality of marriages in Uttar Pradesh. Compared to Swedish standard marriages in Uttar Pradesh occurred at an accelerating rate during NFHS 1 & NFHS 2 period, however there were signs of slowing down during NFHS 3 period. The mean age at marriages has increased in Uttar Pradesh as reflected by the means values of the recent cohorts, especially for the estimates from NFHS 3 dataset.

Policy Implications:

In-spite of so many years of developmental planning and existence of Child Marriage Restraint Act (CMRA), the age at entry into marriage market for female is still quite low in Uttar Pradesh, India. Government may consider incentivizing various centrally sponsored schemes that are women centric such that, girls marrying beyond 18 years may be given priority in admission into higher education institutions across India whenever they seek admissions into such higher education institutions.

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Appendix:

Table 1: Maximum Likelihood Estimates of the Coale's Model based on NFHS 1 Data: UP

NFHS 1	Parameter Estimates				Standard Error		Goodness of Fit			Homogeneity of Cohort		
Cohort	Mean	SD	A0	K	Mean	SD	chi Sq	DF	P value	chi Sq	DF	P value
15-19	Ns	--	--	--	--	--	--	--	--	--	--	--
20-24	Ns	--	--	--	--	--	--	--	--	--	--	--
25-29	20.38	6.94	8.40	1.06	0.21	0.16	488.77	98	0.30	99.64	78	0.05
30-34	18.54	5.92	8.33	0.90	0.15	0.13	520.78	117	0.05	97.77	94	0.38
35-39	18.01	5.72	8.14	0.87	0.14	0.12	529.01	133	0.38	97.50	108	0.76
40-44	17.59	5.60	7.92	0.85	0.15	0.12	549.27	167	0.76	110.07	135	0.94
45-49	17.24	7.47	7.47	0.86	0.17	0.13	482.67	173	0.94	108.67	140	0.98

Table 2: Maximum Likelihood Estimates of the Coale's Model based on NFHS 2 Data: UP

NFHS 2	Parameter Estimates				Standard Error		Goodness of Fit			Homogeneity of Cohort		
Cohort	Mean	SD	A0	K	Mean	SD	chi Sq	DF	P value	chi Sq	DF	P value
15-19	18.39	3.87	11.71	0.58	0.37	0.27	18.24	18	0.44	16.56	14	0.28
20-24	17.79	3.63	11.51	0.55	0.13	0.11	80.64	43	0.00	41.35	34	0.18
25-29	17.24	3.23	11.66	0.49	0.08	0.07	99.14	68	0.01	64.45	54	0.16
30-34	16.94	3.14	11.52	0.48	0.09	0.08	128.31	83	0.00	83.21	68	0.10
35-39	17.02	3.26	11.39	0.50	0.09	0.08	134.35	112	0.07	92.96	91	0.42
40-44	16.70	3.04	11.44	0.46	0.09	0.08	178.28	128	0.00	110.69	104	0.31
45-49	16.65	2.96	11.53	0.45	0.11	0.09	165.89	162	0.40	107.12	131	0.94

Table 3: Maximum Likelihood Estimates of the Coale's Model based on NFHS 3 Data: UP

NFHS 3	Parameter Estimates				Standard Error		Goodness of Fit			Homogeneity of Cohort		
Cohort	Mean	SD	A0	K	Mean	SD	chi Sq	DF	P value	chi Sq	DF	P value
15-19	Ns	--	--	--	--	--	--	--	--	--	--	--
20-24	22.78	8.89	7.44	1.35	0.47	0.33	417.17	83	0.27	104.11	66	0.00
25-29	19.66	7.38	6.93	1.12	0.34	0.26	502.42	108	0.00	96.27	86	0.21
30-34	18.04	6.64	6.65	1.00	0.17	0.13	699.79	130	0.21	115.24	105	0.23
35-39	17.24	6.11	6.69	0.93	0.17	0.13	756.70	148	0.23	124.99	120	0.36
40-44	16.98	6.18	6.32	0.94	0.18	0.14	617.17	173	0.36	138.02	140	0.53
45-49	16.65	6.42	5.58	0.98	0.22	0.17	459.19	128	0.53	101.50	104	0.55