Why Has Early Marriage in India Declined Sharply during 2005-2015: Role of Education Vis-à-Vis Other Factors

1. Background

Marriage is almost universal in India. And like many traditional societies, in India too, women's age at marriage acts simultaneously as a gateway to new family roles as well as to early childbearing. Low age at marriage has broad public health as well as social implications. Early age at marriage propels women for early onset of reproduction before the women is adequately able to nurture her offspring and maintain her own health. Previous studies clearly indicated that early marriage and early childbearing has adverse health consequences to mothers and to their offspring, which include malnutrition and high rates of morbidity and mortality (Marphatia et al., 2017). Apart from health implications, early marriage also prevents women from attaining their rightful education, accessing employment and training opportunities, developing social relationships with peers, and participating in civic life (Marphatia et al., 2017; UN General Assembly, 1989).

India's Prohibition of Child Marriage Act was revised in 2006 with stricter enforcement, with a fine of 100,000 Indian rupees ($1975 approx.) and two years in prison for parents caught trying to marry off their underage children. Despite the law, child marriage (marriage before the legal age of 18 years for girls) had remained deeply rooted and accepted in parts of the country for decades. However, showing a positive trend, the proportion of girls getting married before the age of 18 years in India has nearly halved in a decade – between 2005 and 2015, leading to a sharp decline in early marriage, globally (UNICEF, 2017). Over 25 million child marriages were prevented worldwide with the largest reduction in South Asian countries with India at the forefront. The recently noted 20 percent decline in proportion of girls aged 20-24 years married before the age of 18 years in India between two successive rounds of National Family Health Survey - is remarkable: from 47 percent in 2005-06 to 27 percent in 2015-16 (IIPS & ORC Macro, 2007; IIPS & ICF, 2017). Similar decline has been noticed in the analysis based on census data as well (Zavier et al. 2017). Given the life-altering impact of early marriage on a young girl's life, the reduction in early marriage in India is very positive news. However due to a universal recognition of the legal age and the impunity of the law, there have been speculations whether in surveys respondents report marriage age as what is legally appropriate. The accuracy of such data thus needs thorough investigation.

Given that high illiteracy among Indian women, one could suspect that the decline in early marriage might not be a secular decline, rather a misreporting of marriage age, a result of fear of huge penalty of violation of revised Prevention of Child Marriage Act, 2006. The present study therefor examines whether such decline is real or result of misreporting of marriage age. Furthermore, this study also attempts to explore the developmental or socio-demographic factors that may have contributed to this sharp decline. Identifying the reasons for such decline will have important implications for future strategies for further reduction in early marriage in the country and towards achieving the global goal to end child marriage by 2030.

2. Data and methods

2.1 Data

Data for this study is drawn from four successive rounds of the National Family Health Survey (NFHS) conducted in India during 1992–93, 1998–99, 2005–06, and 2015–16; also known as NFHS-1, NFHS-2, NFHS-3, and NFHS-4, respectively. However, most of the analyses are restricted to two latest rounds of the survey i.e. NFHS-3 and NFHS-4. The NFHS of India is similar to the Demographic and Health Survey (DHS) of other developing countries. The NFHS covers more than 99% of the India's population in each of the survey rounds. The main purpose of the NFHS is to provide reliable estimates on, age at marriage, fertility, family planning, utilization of maternal and child health care services, nutritional status of mother and children, infant and childhood mortality etc.

The NFHS has adopted a similar sampling design in each of the survey rounds. A two-stage sampling design was adopted in most of the rural areas – villages were selected at the first stage using probability proportional to size (PPS) sampling scheme followed by selection of households at the second stage using systematic sampling scheme. The sample in urban areas was selected in three stages. The first stage comprised of selection of urban wards using PPS sampling scheme. Census enumeration blocks (CEB) containing approximately 150-200 households were selected at the second stage. Households were selected at the third stage using systematic sampling scheme. The details of sampling design are given in the reports of the various rounds of NFHS (IIPS and ORC Macro, 1995, 2000; 2007; IIPS & ICF, 2017).

2.2 Measure

Age at marriage is the key outcome variable in the present study and is defined as proportion of women aged 20-24 years, who were married before exact age 18 years. In the survey, information on age at marriage is available at both household and individual level. At the household level, information on marital status of the eligible household members (who is of 13 years or older) was collected from head of the household; and if the head is not available, then from another adult member of the household. In the individual interview, information on age at marriage was collected from the eligible married women (aged 15-49 years) by asking a direct question: “How old were you when you (first) got married?”. The marriage age, reported this way, was generally corroborated with other important events in a girl’s life – her educational attainment, age at menstruation, birth of children, etc.

2.3 Statistical analysis

Descriptive analysis is carried out to understand the changes in age at marriage over four rounds of the survey in India, recent changes (in past one decade) in proportion of girls married before age 18 in India and across selected states. To examine the marriage pattern over years, Singulate Mean Age at Marriage (SMAM) is calculated. The SMAM is defined as average length of single life expressed in years among those who marry before the age of 50 years. The advantage of SMAM is that, it is not affected by age of marriage misreporting because it is calculated from proportion of women who are single in a population at different ages obtained from household data.

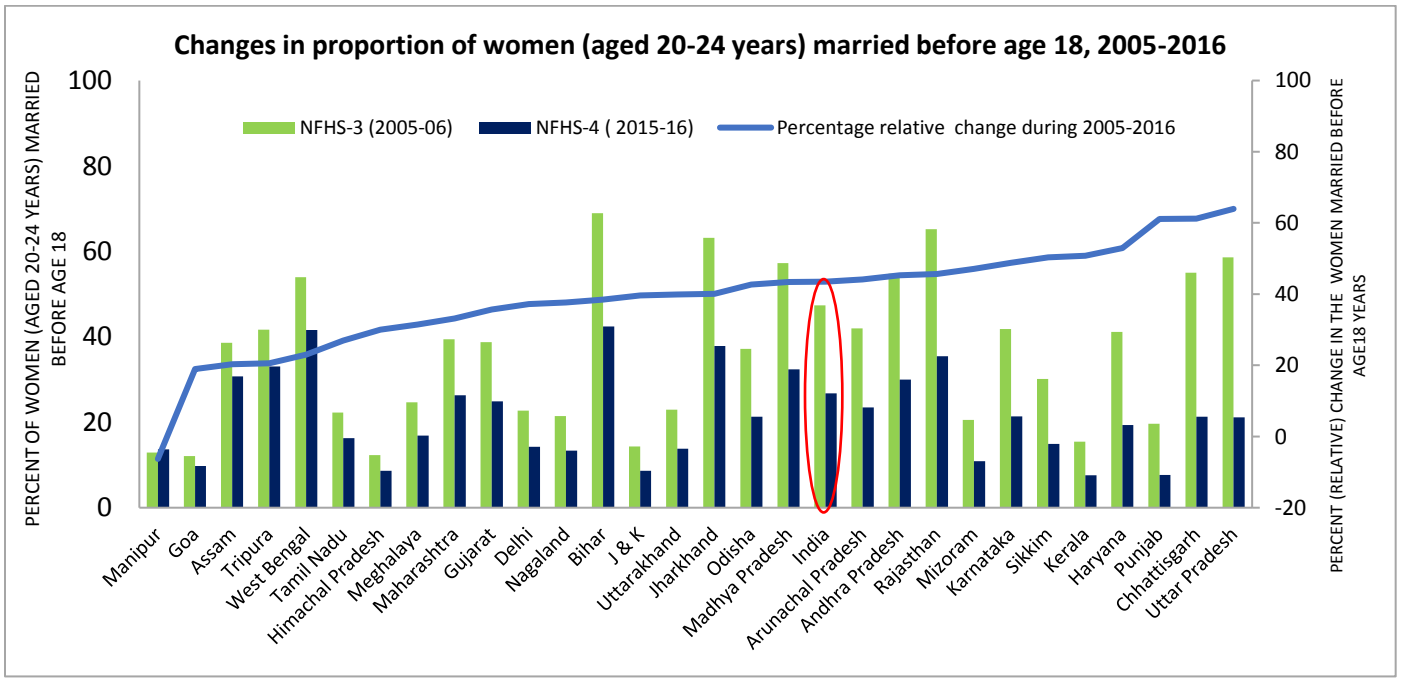
Decomposition analysis is used to understand the contribution of different factors in the decline of proportion of girls married before age 18 years in past one decade i.e. between NFHS-3 (2005–06) to NFHS-4 (2015–16). Generally, Blinder–Oaxaca decomposition technique is used for the purpose. It is a commonly used approach to identify and quantify the factors associated with inter-group differences in mean level of an outcome (Blinder, 1973; Oaxaca, 1973). However, this technique is not appropriate if the outcome is binary in nature (Fairlie, 2005) – like in our case where the outcome is whether a girl married before age 18 years. Hence, we used the Blinder–Oaxaca decomposition technique modified for binary outcomes to decompose the inter-group difference (between two surveys) in the mean level of an outcome due to different observable characteristics or endowments across groups (Fairlie, 2005). Following the same logic, we decomposed the changes in proportion women (aged 20-24 years at the time of interview) married before age 18 years between NFHS-3 and NFHS-4. All analyses were done using statistical software STATA 13.0.

3. Preliminary findings

Trends in decline in proportion of women married before age of 18 years

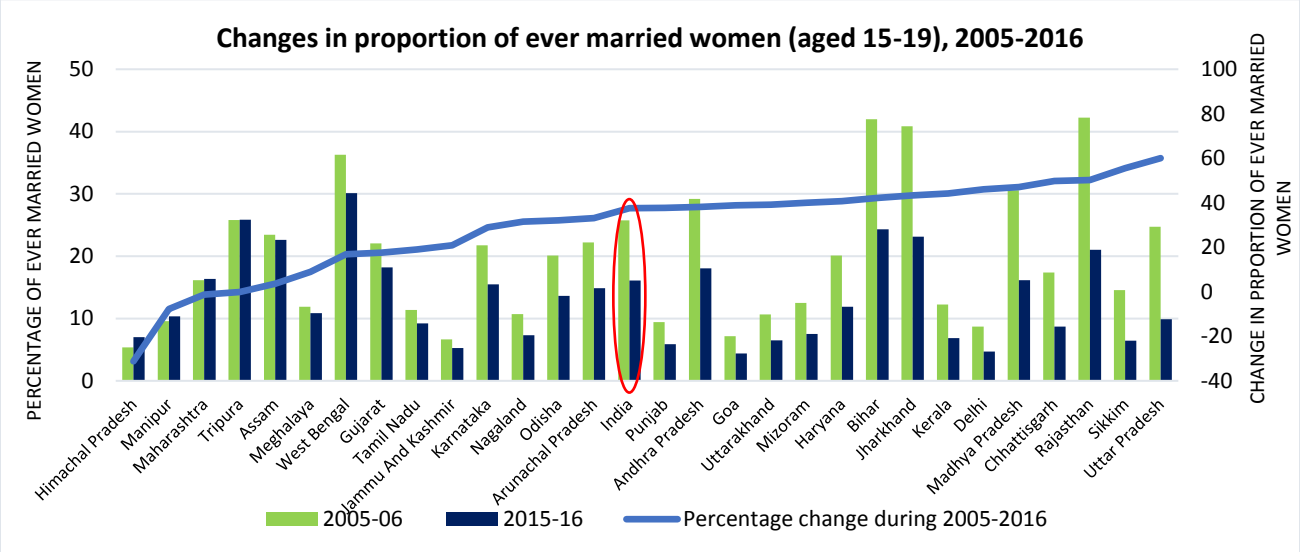
Results presented in Figure 1 clearly indicate a sharp decline in proportion of women (aged 20-24 years) married before age 18 years. Overall, the proportion has declined from 47 percent in 2005-06 to 27 percent in 2015-16. Across the states, the decline was highest in Uttar Pradesh (59 percent to 21 percent) and other socio-demographically backward states, such as, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, and Rajasthan; whereas the decline was relatively lower in the states where few girls get married before age 18 years, such as, Goa, Kerala, Assam, Delhi, and Tamil Nadu. These findings suggest that the mean age at marriage has shifted from below 18 to above 18 during 2005-16.

Figure 1. Trends in proportion of women (aged 20-24 years) married before age 18 in India and states, 2005-2016



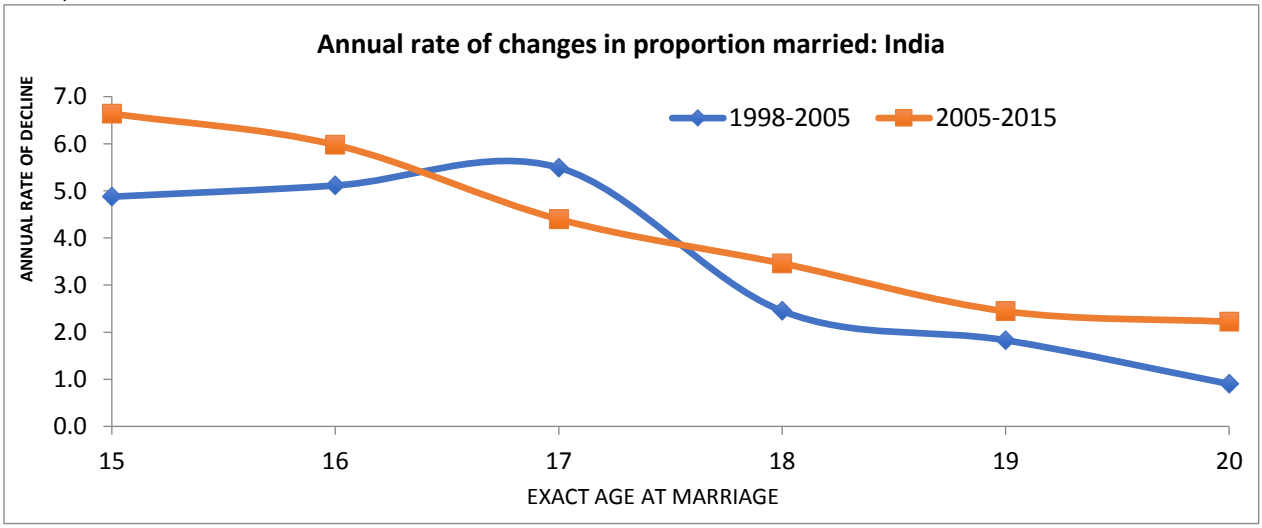
To examine the concerns around age misreporting, we examined trends in Singulate Mean Age at Marriage (SMAM). There is a clear increasing trend in SMAM, which suggests that the age at marriage is indeed increasing and has gone up from 19 years in NFHS-2 to 20.7 years in NFHS-4 for India (results not shown). Similarly, the proportion of women married in age group 15-19 years (Figure 2), also like the SMAM, is not affected by marriage age misreporting as it comes from the household data (not reported by the respondent but a household head). We see large decline in the states of Uttar Pradesh, Bihar, Rajasthan where we also see a similar large decline in age at marriage (or proportion that married below age 18).

Figure 2. Trends in proportion of ever married women (aged 15-19 years) in India and states, 2005-2016



Furthermore, the annual rate of change in exact age at marriage at each age between 15-20 years showed a continuous and smooth decline at each age including age 18 (Figure 3). It also shows that there is an accelerated change between NFHS-3 and NFHS-4, compared to NFHS-2 and NFHS-3. Results do not suggest any unusual pattern at age 18 that may suggest age bias reporting.

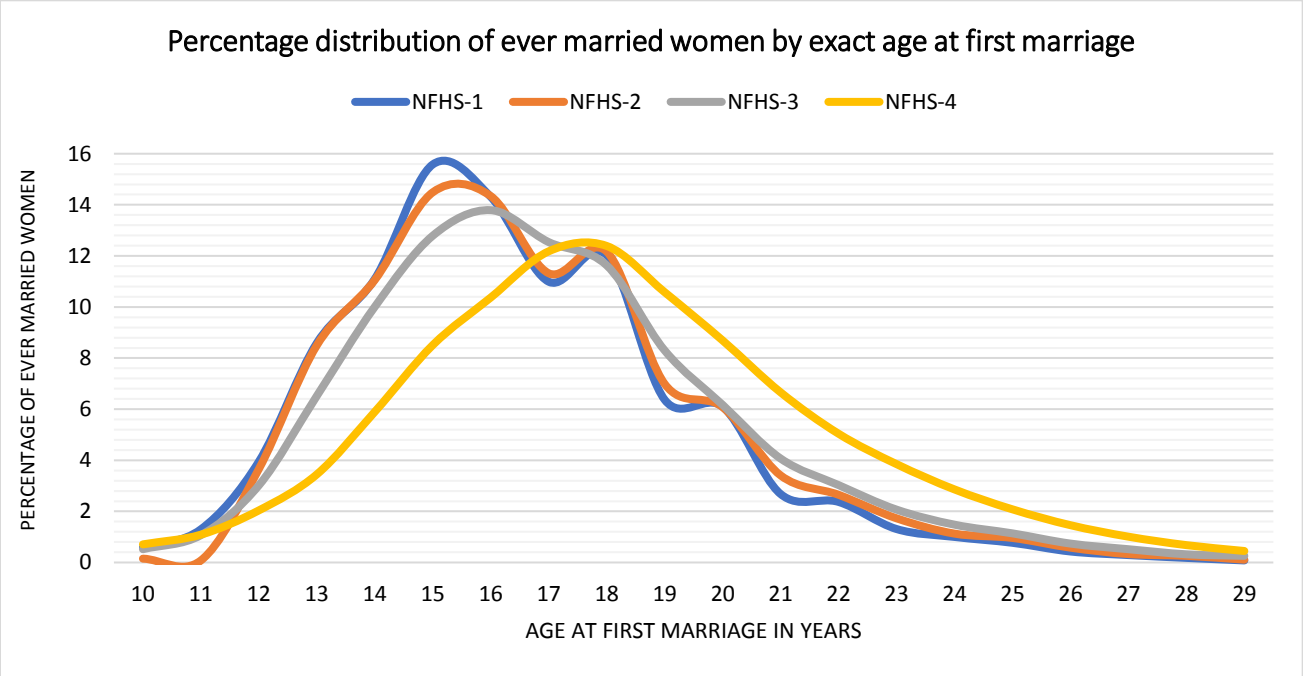
Figure 3. Annual rate of changes in proportion of women married by exact age between 15-19 years in India, 1998-2016



Is there heaping in reporting of age at marriage?

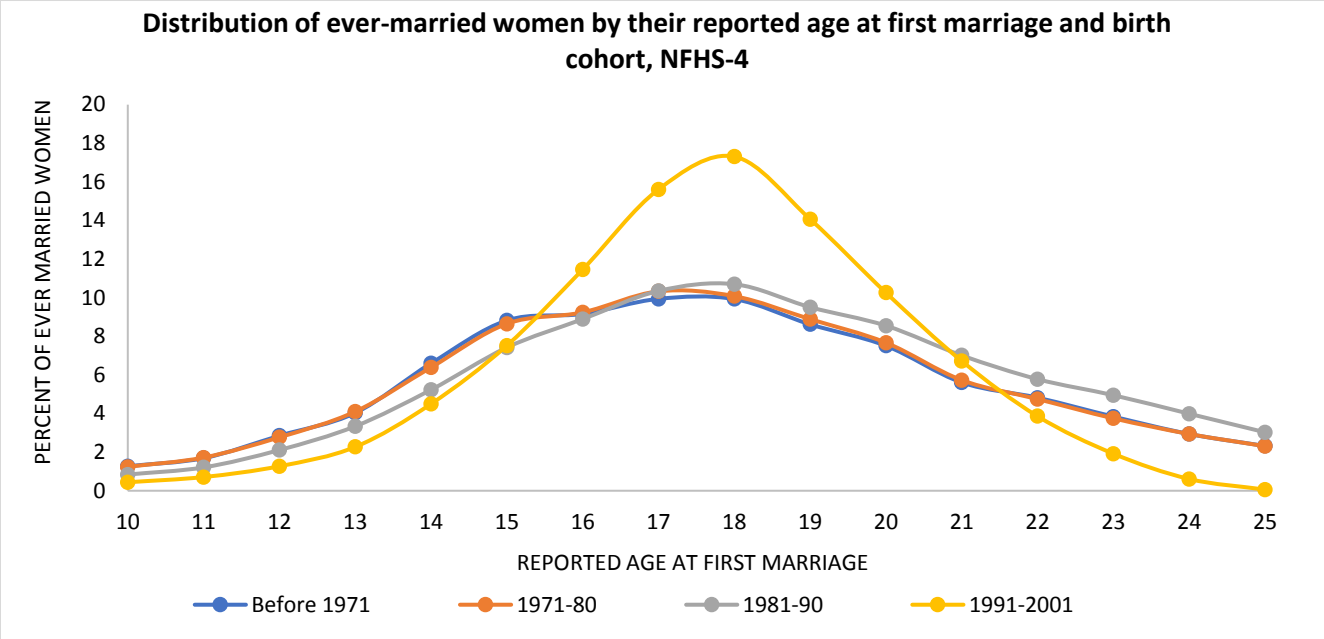
There is clear evidence that age at marriage increased in India in past 10 years. To examine that whether this is secular decline, or due age heaping in reporting of age at marriage, we attempted to understand the broad distribution of age of marriage in India, where we look at two types of the changes over time. First, we examined the distribution of reported age at marriage between the four rounds of surveys i.e. from NFHS-1 to NFHS-4, over two and half decades (Figure 4). This analysis shows a gradual the shift in age at marriage (a shift to the higher age at marriage) that shows no signs of heaping at age 18 from NFHS-3 and NFHS-4. In fact, among four rounds of the survey, the NFHS-4 distribution looks the smoothest, suggesting possible better reporting on age of marriage over time.

Figure 4. Percentage distribution of ever married women (aged 15-59 years) by exact age at first marriage in India 1992-2016



We extended this analysis, by creating four birth cohorts and examining their distributions by age at first marriage. This analysis restricted to NFHS-4 data only. The result presented in Figure 5 shows a pattern – while first three birth cohorts aren't very different from each other, the youngest one is. The changes from the previous cohort in ages 16, 17, 18, and 19 are large and the shape of the curve also changes - from a flatter distribution to a more sharply pointed distribution with peak at age 18 suggesting that 18 is a clear marker for reported age of marriage. Although the change from previous cohort is the largest at age 18, it is not alarmingly high. There could be evidence of age misreporting but given similar increase at other ages it cannot be conclusively said that people are deliberately reporting 18 or above as marriage age. It seems more likely that there is delay in the age of marriage to age 18, and perhaps a high likelihood of marriage as soon as age 18 is achieved. This was also found in a large longitudinal study conducted in Haryana, to understand the impact of conditional cash transfer program on delayed age of marriage (Nanda et al. 2016).

Figure 5. Percent distribution of women of different birth cohort by their reported age at first marriage in India, 2015-16



What contributed to the decline in early marriage in India over the past decade?

Findings reported above, clearly suggest a genuine over time decline in the proportion of girls getting married before the age of 18, with a more accelerated decline in the last decade compared to the previous one, suggesting that this is over and above what might be considered a secular change. There may be several factors that might have contributed to such decline, including higher awareness of the law, a wider exposure to media, the increased education level among women. To quantify the contribution of factors explaining the decline in age at marriage in past decade, we conducted Fairlie's regression decomposition analysis. The analysis is restricted for India, and those states that reported higher decline in the age at marriage in the past decade.

Table 1. Result of Fairlie decomposition analysis showing contribution (%) of each covariate in explaining the decline in age at marriage (before age 18 years) among women aged 20-24 years in India and selected states, 2005-2016

Predictors	India	Bihar	Chhattisgarh	Haryana	Madhya Pradesh	Rajasthan	Uttar Pradesh
Educated 10+years	58.7	42.7	70.3	77.1	50.9	76.2	64.1
Exposed to any media	8.3	-1.9	20.1	8.7	21.5	2.5	-1.2
Resides in urban areas	6.4	-0.1	12.9	0.6	7.7	9.8	8.0
Household having electricity	22.6	58.9	-4.1	0.7	11.8	8.1	27.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The selected predictors in the model were able to explain about 60 percent of the decline in age at marriage in India between 2005-16 (Appendix 1). However, this percentage varied across the states, ranging from 28 in Madhya Pradesh to 55 percent in Haryana. The results presented in Table 1 show that completion of secondary education is the largest contributor in explaining such decline, followed by a proxy socio economic growth indicator (% households with electricity) and exposure to media. In India, increased level of education (10+ years) has

contributed 59 percent of the decline, followed by household with electricity (23%) and exposure to media (8%). Across the states too, increased education accounted for maximum contribution in the declining age at marriage, ranging from 42 percent in Bihar to 77 percent in Haryana. Surprisingly, in Bihar, contribution of socio-economic growth indicator (percent of households with electricity: 59%) overshot the contribution of education (42%).

4. Conclusions

India experienced huge decline in proportion of women married before age 18 years in past decade. Using data from multi-rounds of the National Family Health Survey (NFHS) conducted during 1992-93 and 2015-16 in India, this paper attempts to examine whether such decline in age at marriage is a secular decline or attributed due to misreporting of age at marriage. Furthermore, this paper attempts to quantify the contribution of factors explaining such decline.

Preliminary findings suggest that, in the past decade, India experienced about 20-percentage point decline in proportion of women married before age 18 years. A huge variation, however, exists across geography of the country – the decline is more than 30-percentage points in some socio-economically backwards states. This decline is observed, whether reported by women or the head of the household. Such a huge decline might be result of stricter enforcement of revised Child Marriage Act in 2006. Our preliminary analyses clearly suggest that, decline in proportion of women married before age 18 years is a secular decline, and there is no evidence to argue for misreporting in age at marriage over time. Result of decomposition analysis suggests increased age at marriage is mainly attributed due to increased level of education (10+ years) in the past decade. The NFHS-4 data also show a considerable increase in school attendance rate among females aged 6-17 years during the inter-survey period. For instance, this proportion has increased by 18 percent in the country (Appendix Figure 1). Similar increases are observed across the states as well. This finding is similar to the results of previous study conducted in India (Zavier et al. 2017) and other South Asian countries (Marphatia et al., 2017). Another study by Nanda et al. study (2016) from Haryana, India, showed that although the Conditional Cash Transfer (CCT) programmes have an effect of keeping girls in school, and a large secular decline in early marriage affecting both beneficiary and non-beneficiaries, it did not have an effect on changing behaviors around child marriage.

Reference

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Appendix Table 1. Summary result of Fairlie decomposition analysis showing the mean changes in the proportion of women married before age 18 years from NFHS-3 to NFHS-4 in India

	India	Bihar	Chhattisgarh	Haryana	Madhya Pradesh	Rajasthan	Uttar Pradesh
Women (aged 20-24) married before age 18 in NFHS-3	0.47	0.69	0.55	0.41	0.57	0.65	0.59
Women (aged 20-24) married before age 18 in NFHS-4	0.27	0.42	0.21	0.19	0.32	0.35	0.21
Raw differences	0.21	0.26	0.34	0.22	0.25	0.30	0.37
Total differences explained	0.12	0.14	0.13	0.12	0.07	0.13	0.15
% differences explained	57.1	53.8	38.2	54.5	28.0	43.3	40.5

Appendix Figure 1. Trends in proportion of female aged 6-17 years attending school in India and selected states, 2005-2016