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Research Article

Measuring Child Marriage from Census and Large Scale Data Systems in India

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Abstract

Considering the negative impact of child marriage on women's health and empowerment, it is important to trace the levels and trends of child marriage at the national and sub-national levels in India. Various researchers have used different data sources and different ways to measure child marriage. The paper proposes deriving indicator from Census data to estimate the prevalence of child marriage as contrast to the widely used indicator derived from large scale surveys. The definitional and interpretation aspects of the indictor derived from Census have been discussed as well as levels, trends and differentials of child marriage are presented. The paper argues to consider estimation of child marriage from Census at the lower levels of geographies as the estimate from survey is associated with large confidence intervals, which might be one of the major issues to trace changes in child marriage rates at the district level from survey data in future, unless proper attention on statistical tests are given to detect significant decline from its previous round.

Introduction

Child marriage is one of the major challenges in many developing countries including India. It has been practiced in India since long as a result of deep rooted social and cultural norms. It is a phenomenon in which girls or boys are married before they attain the minimum legal age at marriage enforced by the law. Girls who marry early are not only denied their childhood, they are often socially isolated and cut off from family and friends and other sources of support, with limited opportunities for education and employment (UNICEF, 2014). A girl marrying before attaining proper adulthood age, poses significant adverse impact not only on her health but it is also surrounded by very low levels of her agency and empowerment. Early marriages are also associated with early childbearing which has higher risks of delivery complications and maternal and child morbidity and mortality (UNFPA, 2013). Thus, the consequences of child marriage is far reaching and it affects the current health, social and economic status of girl as well as of her children.

The continued high incidence of child marriage has become a major policy issue in many developing countries and various international and civil society organizations combating to end child marriage have regarded it as a human rights violation. Although child marriage is not directly addressed in the Convention on the Rights of the Child, it is linked to other rights and is recognized in the Universal Declaration of Human Rights as the "right to free and full consent to marriage" (article 16). The Convention on the Elimination of All Forms of Discrimination against Women states that "the betrothal and the marriage of a child shall have no legal effect" and calls upon states to set legal minimum age for marriage and to make marriage registration compulsory (article 16). Education is a right for children and adolescents under the 1948 Universal Declaration of Human Rights, the 1989 Convention on the Rights of the Child and other human rights instruments (UNICEF, 2008, 2009). The international community is increasingly aware of the negative impacts of child marriage on a wide range of development outcomes and ending child marriage is now part as one of the targets (5.3) of the Sustainable Development Goals (Wodon, 2017).

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As far as legal provisions against child marriage in India is concerned, the British Government passed the Child Marriage Restraint Act 1929, also called the Sarda Act to restrict the practice of child marriage. It became a law on April 1, 1930 extended across the whole nation, except Jammu and Kashmir and applied to every Indian Citizen and prescribed 14 years for girls and 18 years for boys as the minimum age for marriage. Later, the Child Marriage Restraint Act has been amended in 1949 and in 1978. According to the amendment of 1978, the minimum age for girls has been enhanced to 18 for girls and 21 years for boys. Further, the Child Marriage Restraint Act was replaced by The Prohibition of Child Marriage Act, 2006. The new Act made several new provisions to prohibit child marriages, but the minimum age of marriage remained unchanged (Srinivasan, 2017; Bhagat 2016).

Despite laws to prevent child marriage, the practice remains unabated and is widespread in India. As per the Census of India, 102 million girls less than 18 years are reported married in 2011 of which 46 percent married when they were 15 years of age or below. Hence, it is not only the extent, but the depths of child marriage (marrying at very young ages as children) is yet another issue concerning the overall development of girls. There are different ways of measuring child marriage and various indicators depending upon data availability, have been employed to denote child marriage rates. The evidences seem to suggest that the child marriage has come down over past decades. Widely used indicator on child marriage in India from National Family Health Survey (NFHS) has shown a decline from 47 percent in 2005-06 to 26.8 percent in 2015-16 which is measured as the percentage of married women aged 20-24 years who got married before 18 years of age. Although there seems to be an impressive decline in child marriage in India, still geographical variations continue to exist with higher rates still prevailing in some of the states and districts.

The practice of child marriage seems to be guided by variety of socio-cultural, religious and economic factors. Researchers have provided several reasons for child marriage and persistent poverty and gender inequality seems to be the most dominant and overarching reasons. Specific reasons of child marriage include poverty, lack of education and job opportunities, insecurity in the face of war and conflict, and the force of custom and tradition. Poor families marry their daughter at an early age which means less person to feed, clothe and educate. Coupled with prevalence of dowry remains an underlying cause of child marriage and it is seem that the burden of dowry increases with increase in the age of the daughter. Gender inequality in attainment of education for daughters as compared to son is another important factor which are enforced by many other reasons including lack of access to nearby schools and safety and security concerns of daughters and women in general, therefore parents like to marry their daughters at an early age due to protecting the girls sexuality. Most often due to traditional and religious believes, girls are married off at an early ages to prevent her from becoming sexually active before marriage (Anju, 2010; ICRW, 2011). Girls' vulnerability to child marriage can increase during humanitarian crises when family and social structures are disrupted (UNFPA, 2012).

With the above backdrop, the paper attempts to bring out measurement aspect of child marriage from Census and large scale data systems such as National Family Health Survey (NFHS) and District Level Household Survey (DLHS). In addition, the paper also attempts to investigate socio-economic differentials of child marriage based on the availability of data and suggest deeper analysis of determinants to identify its correlates when unit level data from recently conducted NFHS-4 is made available to the researchers.

Measurement of Child Marriage - Methodological issues

Various researchers have used different data sources and different ways of measuring child marriage. Most common way of measuring child marriage is 'percentage of women aged 20-24 years married before 18 years of age' which is provided by Demographic and Health Surveys (DHS) or Multiple Indicator Cluster Survey (MICS) conducted in various counties over past few decades. In India, large data systems such as NFHS and DLHS surveys provide this indicator of child marriage, which are around four years back to the survey reference year. For example, NFHS-4 (2015-16) measures child marriage for circa 2013. The indicator is available at national, state and district level now from the recent round of this survey, though there are concerns about the confidence interval due to sample size at the lower level of disaggregation. While deriving child marriage estimation, the

choice of the age group 20-24 is considered mainly to avoid the problem of incomplete information for girls below 18 years of age who could still get married before reaching 18, thereby to use ages 20-24 years for measuring the indicator in a robust manner.

Ideally, from the survey data, child marriage should be estimated among women 18 - 20 years of age in the similar manner computed for the age group 20-24, as these cohort of women had already crossed the minimum legal age of marriage. This will provide child marriage rates for more recent past as compared to the cohort of women belonging to 20-24 years (which is around 4 years back than the survey reference year) and for the former age group the reference period would be about 1-2 years prior to the survey year.

On the other hand, some publications have also used marital status as synonymous to child marriage (Bhagat, 2016; Goli, 2016; Young lives and NCPCR, 2017; Srinivasan 2017), although one of the researcher has used the term 'child bride'. These publications used marital status of women aged 15-19 years which is not a true measurement of child marriage and considering marital status as indication of child marriage has certain inherent problems. While it is true that those married below 18 years of age at the time of census undertaking is definitely cases of child marriage, as they are married while being less than 18 years of age (at the most it may be called as child brides), but the problem in such measurement is that it suffers from truncation bias. For example, a girl aged 16 years not married at the time of census, may get married next year, after the census count is over, and still she would be a case of child marriage, but this could not be included in the estimates. This can further be substantiated with the data that the estimates of married girls in the age group 10- 19 years are around 11% while other measurements (i.e. those obtained from large scale survey data) provides a much higher rates.

In addition to the marital status, the Census of India also provides useful tables on duration of marriage, which can be used to construct as one of the measures of child marriage. Table C-4 under C series pertaining to Social and Cultural tables, provides data on ever married and currently married population by age at marriage and duration of marriage. The data is presented for all currently married women and men whose duration of marriage is 0-4 year, 5-9 years and so on. Such duration of marriage is provided for age groups starting with <10 years and subsequently in two years age interval (e.g. 11-12, 13-14, 15-16 etc.) and goes up to the age of 34 years. The duration of marriage is cross-tabulated by the current age at marriage in two years age interval (e.g. 11-12, 13-14, 15-16 etc.) and goes up to the age of 34 years. Most importantly, such information is provided by sex, which allows to construct indicators for women and men separately.

In order to construct child marriage prevalence from Census data, one can derive an indicator, which can be termed as 'percentage of girls married before 18 years of age among those who got married 0-4 years prior to Census'. From the information provided in C-4 table, if we consider all married women whose duration of marriage is 0-4 years, which means that these marriages had happened during 0-4 years prior to census and can be taken as denominator, which reflect all marriages performed during this period. If this provides the total number of marriages, the count of those individual ages which are less than 18 and 21 years (respectively for girls and boys) could reflect the prevalence of child marriage among all marriages performed during 0 to 4 years prior to the Census count. This can be derived as below –

$$CM_{0.4} = \frac{\text{No. of girls with age at marriage} < 18 \text{ years}}{\text{Total number of women (all ages) with marital duration of 0-4 years}} \times 100^{-10}$$

In addition, one can also compute early child marriage (< 15 years) as the information is available for those individuals whose age at marriage is less than 15 years, and those having marital duration of 0-4 years. C-4 tables have been made available for each district as well as by social group and place of residence. Additional tables are provided by Census for religious community, level of education and by work status (C-5, C-6 and C-7 respectively). Hence the indicator on child marriage can be generated for each district and by rural-urban, socio-economic, religious and educational characteristics to study the differentials. The present paper attempts to present findings of child

marriage (married less than 18 years of age among girls) derived from Census data and compares with the one obtained from large scale data systems.

Estimates of Child Marriage – Levels and Trends

Although the practice of child marriage is declining considerably yet it is deeply rooted in India. There were 37.6 million females married during 0-4 years prior to Census 2011, out of which 6.5 million females reported their age less than 18 years of age at the time of marriage, which comprises 17% of the all females married during this period, down from 32% in Census 2001. Percentage of girls marrying below age 18 years among all marriages during 0-4 years prior to Census 2011 has been highest in Rajasthan at 32% which decreased from 52% a decade ago.

If we consider widely quoted indicator from the NFHS, its third and fourth round indicate that percentage of women aged 20-24 years married before 18 years of age has declined from 47.4 percent in 2005-06 to 26.8 in 2015, a reduction of around 21 percentage points during a period of 10 years. Results of two types of measurements of child marriage are presented in Figure 1. One can also notice that district level household survey (DLSH) conducted during 2007-08 reported that around 43 percent of the women aged 20-24 years were below 18 years of age and considering the gap between NFHS-3 and DLHS-3, the indicator showed a consistent pattern of decline and eventually the latest round of NFHS has shown a much lower level.



In terms of percentage decline in child marriage during a period of 10 years, it came down by 46 percent between 2001 and 2011 Censuses. If we measure child marriage from the national family health survey data, a similar decline (44 percent) has been registered between 2005-06 and 2015-16 (Table 1). The table also presents various measurements of child marriage using various data sources for each of the state of the country. Bihar had the highest child marriage rate among states computed from Census 2001 data and it showed an impressive decline of 57 percent reduction and reaching to 23 percent during 2011 Census. In Rajasthan, with 52 percent of child marriage as per Census 2001, it declined by 39 percent in 10 years registering the child marriage rate of 32 percent as per 2011 Census and comes out with the highest prevalence rate. On the other hand, if we compare the measurement from survey data in these two states, the decline in last 10 year in child marriage had been to the tune of 35 percent in Bihar and 46 percent in Rajasthan. Incidentally, Bihar occupies the highest prevalence rate of child marriage as per survey data while it is true for Rajasthan when we consider Census data to measure the indicator on child marriage. Overall, if we look at the correlation coefficient between the child marriage rates computed from the two sources at the recent availability of the data (i.e. 2011 Census and NFHS-4), these two are highly correlated (r=.92) indicating the measurements from these two sources depict quite a similar pattern across the states. Even if we look at the rate of decline during 10 years' time period and correlate the state wise decline, a significant correlation is found, though it is not as strong as in the former case (r=.41).

Table 1: Child marriage rates derived from various sources and time points in India and states

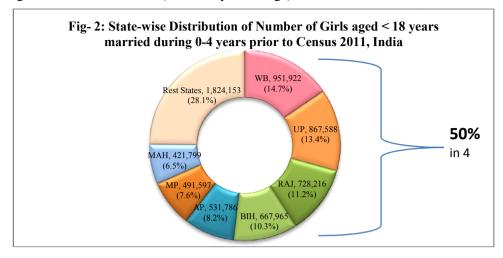
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								in child
	State				NIETIG 6	NFHS-4	marriage (%)	
Sl.		Census	Censu	DLHS-3	NFHS-3	(2015-	Between	Between
		2001	s 2011	(2007-08)	(2005-06)	16)	2001 -	NFHS3 -
						,	2011	NFHS-4
							Census	
	India	32.1	17.2	42.9	47.4	26.8	46.4	43.5
	Andhra Pradesh	42.0	20.2	51.9	35.5	32.7	51.9	-
2	Arunachal Pradesh	23.7	14.3	26.2	42	23.5	39.6	44.0
3		24.5	16.5	40	38	32.6	32.6	14.2
4	Bihar	53.0	23.0	68.2	60.3	39.1	56.6	35.2
5	Chhattisgarh	32.5	15.0	45.2	55	21.3	53.8	61.3
6	Goa	5.6	3.2	19.1	11.7	9.8	42.7	16.2
7	Gujarat	18.6	12.1	35.4	38.7	24.9	35.0	35.7
8	Haryana	31.0	14.5	28	39.8	18.5	53.3	53.5
9	Himachal Pradesh	7.3	4.2	9.1	12.3	8.6	42.5	30.1
10	Jammu and Kashmir	14.7	6.9	24.6	14.4	8.7	53.1	39.6
11	Jharkhand	48.4	27.9	55.7	63.2	38	42.4	39.9
12	Karnataka	26.0	12.3	50.2	41.2	23.2	52.7	43.7
13	Kerala	10.1	6.0	15.5	15.4	7.6	40.7	50.6
14	Madhya Pradesh	46.0	22.5	53.8	53	30	51.1	43.4
	Maharashtra	19.2	11.5	40.4	39	25.1	40.0	35.6
16	Manipur	11.0	6.7	24.7	12.7	13.1	39.3	-3.1
17	Meghalaya	16.8	12.7	34.3	24.5	16.5	24.5	32.7
18	Mizoram	10.7	7.9	23.7	20.6	10.8	26.2	47.6
19	Nagaland	13.0	8.6		21.4	13.3	33.8	37.9
	NCT Delhi	14.7	7.4	24.2	22.7	13	49.7	42.7
21	Odisha	22.8	12.3	37.5	37.2	21.3	46.1	42.7
22	Punjab	8.7	4.3	15.5	19.7	7.6	50.6	61.4
	Rajasthan	51.5	31.6	57.6	65.2	35.4	38.6	45.7
	Sikkim	21.5	14.9	30.6	30.1	14.5	30.7	51.8
25		14.7	7.1	24	21.5	15.7	51.7	27.0
	Tripura	26.9	21.5	43.6	41	32.2	20.0	21.5
27	•	40.5	17.6	54.9	58.6	21.2	56.5	63.8
	Uttarakhand	16.3	7.6	19.7	22.6	13.9	53.3	38.5
	West Bengal	37.2	29.2	54.7	53.3	40.7	21.4	23.6
	con Correlation coeffi							

Pearson Correlation coefficient between: Child marriage from Census 2011 and NFHS-4 = 0.919 p value - .000 (n=29), Decline in Census and NFHS = 0.405 p value - .032 (n=28)

The distribution of child marriage in terms of absolute number by state is presented in Figure 2. Four states namely, Rajasthan, West Bengal, Uttar Pradesh and Bihar account for 50 percent of child marriages in the county. Though West Bengal ranks number two in terms of prevalence of child marriage derived from Census 2011 data, in terms of absolute numbers it has the highest number of child marriages performed during 0-4 years prior to Census 2011. If we add another three states, namely, Andhra Pradesh, Madhya Pradesh and Maharashtra, together these seven states account for around 72 percent of the child marriages in the country.

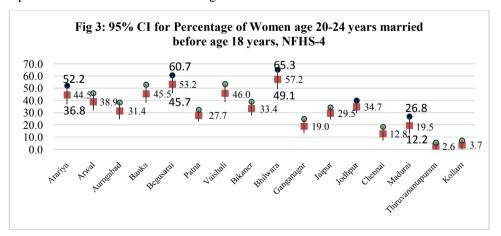
While we may compare the child marriage rates from various sources, we need to keep in mind two important points. Firstly, the interpretations are different as the denominator from Census is the total number of marriages, hence the percentage of child marriage reflects the extent of child marriage among all marriages performed during a specified period of time. The measurement of child

marriage from survey data is based on the number of women aged 20-24 years and among those what percentages were married as child (below 18 years of age).



Secondly, the comparison should also take into account the confidence interval of the estimates from survey data, while census based estimates are not on sample, hence it represents the true rates in the population. This point is more pertinent while we use survey data at lower levels (say district level), where the sample size becomes one of the important consideration in the interpretation of the child marriage rates. An attempt has been made to estimate the confidence interval of the child marriage indicator derived from NFHS-4 data at the district level. Figure 3 brings out the 95% CI for selected districts which are having varying levels of child marriage rates provided by NFHS-4. Ideally, to compute the confidence interval, the number of women in age group 20-24 is required, but in the absence of age wise breakup of the sample size published in the fact sheets, the same is estimated by dividing the total sample size of 15-49 age group of women in a given district by seven, and used this as proxy to the sample size for age group 20-24 years.

As can be seen from Figure 3, that the confidence interval for many of the districts are large (around 15 percentage points), which clearly indicates a wide range of interval of the estimates from the survey data. For example, in Arariya district of Bihar, while the measurement of child marriage among 20-24 years aged women is 44.5 percent, but the actual estimates will vary from 36 to 52 percent. Even in other districts the large confidence interval indicate interpretation of the results with some caution, particularly, when it will be compared for the future rounds of the estimates provided by the next round of sample survey at the district level. Unless the two estimates over a period of time for a given district is not tested for its statistical significant differences, the interpretation of the results based on point estimates could be misleading.



The comparison of the estimates of child marriage derived from the two sources at the district level is presented in Table 2. Though the measurement definitions are different from census and NFHS-4, an attempt has been made to investigate the concordances of the districts with the range of child marriage estimates from the two sources. As can be seen from the table that a uniform ranges of child marriage rate (for both the definitions) is adopted to compare the number and percentages of districts falling in each of the range categories. Measured from Census data, more than half (53 percent) of the districts indicate the child marriage less than 15 percent. This is in accordance with the average of all India which is 17 percentage. Another 37 percent of the districts are having child marriage in the range of 15 - 30 percent. On the contrary, if child marriage measured through survey definition are used, the distribution of the districts by categories of the child marriage are somewhat different. Only around 30 percent of the districts indicate having child marriage rate less than 15 percent as per NFHS-4. While almost similar proportions of the district (as compared to Census definition) fall in the range 15 - 30 percent, the two distributions are different in terms of less percentage in lower category (less than 15 percent) and higher proportion measured from survey in more than 30 percent range of child marriage. This points towards a situation which might overestimate the child marriage rate from survey data. Moreover, the indicator derived from survey at the district level is subject to wide range of confidence interval, hence results tend to suggest using census definition while measuring child marriage at lower levels of geographies.

Table 2: Number and percentage of districts as per child marriage estimates from various sources

Categories of District as	Census 20)11	NFHS-4 (2015-16)		
per % of Child Marriage	Number of districts	Percent	Number of districts	Percent	
Less than 15%	339	53.2	182	28.6	
15 - 29.9%	235	36.9	249	39.1	
30 - 44.95	56	8.8	158	24.8	
45%& above	7	1.1	48	7.5	
Total	637	100.0	637	100.0	

The plotting of the district level estimates of child marriage on a map separately for the two definitions are shown in Map 1. The geographical mapping of the child marriage as per census definition clearly depicts a contiguous geographical band starting from western parts of Rajasthan which covers the hinterland spread towards east direction till West Bengal, which has child marriage above than the national average. In between this band there are some patches or pockets with higher rates of child marriage falling in Rajasthan, parts of Madhya Pradesh and Uttar Pradesh and some pockets in Bihar and West Bengal. Another contiguous geographical area starts from parts of Maharashtra and spread towards eastern coastal area of Andhra Pradesh with higher levels of child marriage in the range of 15-30 percent. Thus, child marriage estimates from census 2011 data identifies these two contiguous geographical bands with higher prevalence of child marriage in the country.

With the same range categories of the child marriage at the district level, a clear pattern of geographical contiguity is not reflected when child marriage is measured from survey data, as can be seen from the map with estimates of child marriage indicator plotted from national family health survey data. Geographical pockets with higher than 30 percent of child marriage are seen in parts of Rajasthan, Bihar and West Bengal along with patches in Maharashtra and Andhra Pradesh. Districts with higher child marriage rates are also seen even in north eastern states. The district wise indictors on child marriage derived from the two sources are presented in Appendix Table. The sporadic spread of districts with higher child marriage from NFHS-4 data may be due to the issue of sample size, with large confidence interval, as discussed earlier in this paper. The mapping of district level child marriage rates from the two sources further strengthen the argument to use census definition to for identifying the geographical pattern of prevalence of child marriage rates in the country which has implications for policy and programmatic interventions.

Differentials in Child Marriage

Both census and survey data allow the researchers to understand the correlates of child marriage. However, it is important to have access to unit level data from the survey for undertaking such analysis. The national family health survey – 4 has released key indictors in the form of national, state and district level fact sheets (IIPS, 2017) only and still the unit level data is not accessible, this section presents the differentials in child marriage rates from Census 2011 data using simple cross tabulation analysis. As stated earlier, various tables from Census data on age at marriage and duration of marriage are available for investigating child marriage rates by background characteristics, such as place of residence, literacy levels, work status, caste and religious categories. The results are presented in table 3. As can be seen, a wide variations in child marriage exist between rural and urban areas. The percentage of girls married before 18 years of age among all those got married 0-4 years prior to Census 2011 in rural areas was 21 percent while it is only half of this in urban areas. Similarly, education also seems to be one of the important determinants whereby child marriage rates are higher at 25 percent among those illiterate girls as compared to 15 percent among their literate counterparts. Further, the level of educational attainment have shown a clear association with child marriage. The chances of marrying as child are highest among those girls with below primary level of education as 27 percent of such girls got married when they were less than 18 years of age. Even girls with next category of educational attainment (primary but below middle level), have higher chances of getting married as child and 23 percent of the girls with this level of education were married as child. The findings suggest that at least having educational attainment up to matriculation seems to be a threshold level which impacts on child marriage, as only around 11 percent of girls having matriculation level of education got married as child as compared to relatively much higher levels of those with lower levels of educational attainments. The literature (Kalamar et al. 2016) also suggest that keeping girls in schools is one of the best ways to delay marriage.

Table 3: Percentage of girls married before 18 years of age among those who got married 0-4 years prior to Census 2011 by background characteristics

Background Characteristics	India	Background Characteristics	India
All	17.2	Work Status	
Place of Residence		Main Workers	17.3
Rural	20.8	Marginal Workers	22.3
Urban	9.8	Non Workers	16.1
Literacy Status		Type of Work	
Illiterate	24.9	Cultivators	21.1
Literate	14.9	Agricultural Labourers	22.4
Level of Education		Household Industry Workers	19.2
Literate but below primary	26.6	Other Workers	8.5
Primary but below middle	23.2	Religion	
Middle but below matric or secondary Matric or secondary but below	19.4	Hindu	17.4
graduate	11.5	Muslim	20.4
Graduate and above	0.3	Christian	6.1
Scheduled Case	21.2	Sikh	4.2
Scheduled Tribes	21.3	Buddhist	10.3
		Jain	2.5
		Other religions and persuasions	19.4

Among caste and religious categories, girls belonging to scheduled tribes and schedule castes and those belonging to Muslims had higher prevalence of child marriage (around 20-21 percent). The

child marriage prevalence are lowest among Jains, Sikhs and Christian, while it was almost at equivalent level of national average among Hindus.

Work status and type of work engaged in also seem to play an important role as far as child marriage among girls are concerned. It is found that those girls reported engaged as marginal worker had higher rate of child marriage among them (22 percent) and also among those who reported their main occupation as cultivators or agricultural labourers (21 to 22 percent). Given the higher percentage of child marriage in rural areas and among those from farming community as well as working as agricultural labourers are associated with higher chances of getting married as child. These factors seems inter-related and any meaningful analysis to single out most dominant factor could only be done using multivariate analysis and limitation in data availability from the latest sources at this point in time restricts such detailed investigations of the correlates of the child marriage.

Conclusion

Early marriage results in teenage pregnancy and early childbearing. Considering the negative impact of child marriage on women's health and empowerment, it is important to trace the levels and trends of child marriage at the national and sub-national levels in India. There were 37.6 million females married during 0-4 years prior to Census 2011, of which 6.5 million females reported their age less than 18 years of age at the time of marriage, which comprises 17% of the all females married during this period, down from 32% in Census 2001. Thus, such information and analysis help to understand prevalence of child marriage in the country. The paper proposes deriving this indicator from Census data to estimate the prevalence of child marriage as contrast to the widely used indicators derived from large scale survey. The definitional and interpretation aspects of the indictors derived from Census have been discussed as well as levels, trends and differentials of child marriage are presented. The paper argues to consider estimation of child marriage from Census at the lower levels of geographies (district level) as the estimates from survey is associated with large confidence intervals which might be one of the major issue in future to trace changes in child marriage rates at the district level from survey data, unless proper attention to statistical tests are given to detect significant declines from its previous rounds. The sub national analysis of the child marriage rates in India depicts a clear pattern of two streams of geographical contiguity of higher prevalence of child marriage in the country derived from Census 2011 data, while such pattern is found to be sporadic when mapped based on district level estimates of child marriage indicator from the latest round of survey data.

One of the recent studies has reported the role of education, particularly life education including transacting life skill education among adolescent girls which are associates with reduction of child marriage in India (Pande, 2006). The analysis of socio economic differentials of child marriage based on available Census data clearly brings out the role of education and work status, particularly the type of economic activity of the girls which are associated with the prevalence of child marriage in India. Due to interaction of various factors, the paper recommends for deeper analysis of unit level data from Census as well as from surveys and use of multivariate analysis to ascertain significant correlates of child marriage which might be helpful for programmatic action to address child marriage.

There has been several attempts by the government and the development agencies to end child marriage by undertaking focused interventions in certain geographies with a clear theory of change. These interventions are largely attempted to empower girls, providing life skill education and also creating enabling environment by sensitizing community and family members and decision makers to spread knowledge of legal age at marriage as well as negative consequences of child marriage. As discussed above, there is a need for identifying correlates of child marriage in India, which could help strengthen such interventions in future towards ending child marriage. While evidences do suggest greater role of education and dominance of patriarchy, there is a need to undertake deeper analysis of economic factors as poverty often cited as one of the important factor. Future research on child marriage should attempt to demonstrate causal linkages of various factors which will be helpful for the development and strengthening of the theory of change for programmes aimed at ending child

marriage in India and elsewhere. Along with such deeper analysis of the data, there is a need to study and evaluate the impact of various interventions along with documenting good practices in order to provide way forward to address this problem.

Acknowledgement

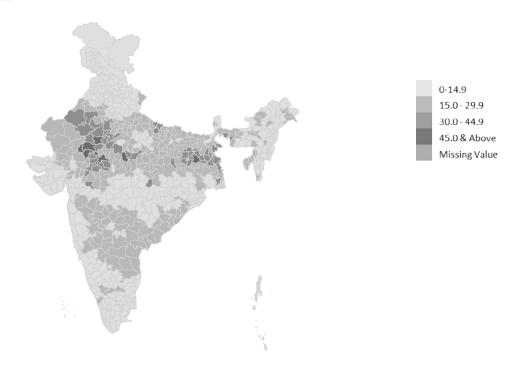
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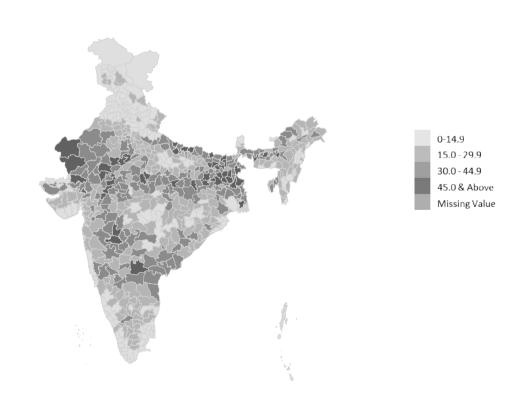
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Map 1: District level estimates of child marriage rates from Census 2011 and NFHS-4, 2015-16 Census 2011



NFHS-4, 2015-16



Appendix Table: District wise estimates of child marriage as per Census 2011² and National Family Health Survey³ (NFHS-4), 2015-16

	Child Ma	rriage Rate	=	Child Ma	rriage Rate
District	Census 2011	NFHS-4, 2015-16	District	Census 2011	NFHS-4, 2015-16
Jammu & Kashmir			Patiala	4.6	5.6
Kupwara	8.1	8.6	Amritsar	3.7	10.3
Badgam	5.1	2.8	Tarn Taran	4.5	7.7
Leh(Ladakh)	3.3	5.2	Rupnagar	2.6	4.5
Kargil	5.4	4.6	SahibzadaAjit Singh Nagar	3.4	12.1
Punch	13.2	17.5	Sangrur	5.3	8.4
Rajouri	10.9	25.6	Barnala	5.9	11.1
Kathua	6.6	7.0	Uttrakhand		
Baramula	4.4	3.6	Uttarkashi	11.1	11.6
Bandipore	6.6	5.4	Chamoli	5.7	10.6
Srinagar	2.2	3.7	Rudraprayag	6.6	9.1
Ganderbal	7.2	7.6	TehriGarhwal	6.4	10.0
Pulwama	4.8	0.7	Dehradun	5.0	9.0
Shupiyan	5.8	2.9	Garhwal	4.3	6.2
Anantnag	6.8	4.5	Pithoragarh	15.6	26.6
Kulgam	4.5	3.5	Bageshwar	10.6	20.0
Doda	14.0	20.2	Almora	5.8	9.1
Ramban	12.2	20.2 11.1		3.8 10.4	9.1 17.7
Kishtwar	8.2	18.1	Champawat Nainital	6.9	15.3
	10.8	12.2		6.9 9.9	19.6
Udhampur			Udham Singh Nagar		
Reasi	12.5	16.9	Hardwar	7.4	15.4
Jammu	3.9	6.9	Haryana	5.0	0.6
Samba	4.2	7.9	Panchkula	5.8	9.6
Himachal Pradesh	5.0	0.4	Ambala	3.2	7.2
Chamba	5.0	8.4	Yamunanagar	4.6	6.9
Kangra	1.3	2.4	Kurukshetra	6.9	9.9
Lahul&Spiti	3.8	13.8	Kaithal	12.4	16.8
Kullu	10.0	17.8	Karnal	9.7	8.4
Mandi	5.9	14.3	Panipat	14.0	15.1
Hamirpur	1.8	3.0	Sonipat	13.3	20.4
Una	1.7	4.0	Jind	17.2	15.8
Bilaspur	3.7	13.6	Fatehabad	14.2	16.4
Solan	4.2	11.6	Sirsa	12.9	15.6
Sirmaur	5.9	7.6	Hisar	15.7	15.5
Shimla	5.0	8.9	Bhiwani	19.7	21.5
Kinnaur	11.9	22.5	Rohtak	12.4	21.8
Punjab			Jhajjar	13.2	15.6
Gurdaspur	2.6	7.5	Mahendragarh	25.2	16.8
Kapurthala	3.3	6.7	Rewari	17.4	20.0
Jalandhar	3.3	4.6	Gurgaon	11.6	36.8
Hoshiarpur ShahidBhagat Singh	2.4	6.7	Mewat	37.9	37.6
Nagar	2.2	5.1	Faridabad	12.0	21.2
Fatehgarh Sahib	3.3	8.3	Palwal	25.8	28.3
Ludhiana	4.7	6.4	NCT of Delhi		
Moga	4.4	10.8	North West	9.3	15.9
Firozpur	6.5	7.5	North	6.3	14.4
Muktsar	7.0	8.6	North East	7.1	12.0
Faridkot	6.0	9.9	East	5.0	5.8
Bathinda	5.7	5.7	New Delhi	6.8	19.1
Mansa	5.5	13.3	Central	4.6	5.9

² Percentage of girls married before 18 years of age among those who got married 0-4 years prior to Census ³ Percentage of women aged 20-24 years married before 18 years of age

	Child Ma	rriage Rate	_	Child Ma	rriage Rate
District	Census 2011	NFHS-4, 2015-16	District	Census 2011	NFHS-4, 2015-16
West	7.0	7.7	Pilibhit	16.3	14.9
South West	7.0	18.4	Shahjahanpur	22.1	30.2
South	8.4	15.2	Kheri	18.6	33.9
Rajasthan			Sitapur	19.2	32.8
Ganganagar	15.6	19.0	Hardoi	17.3	22.3
Hanumangarh	22.0	23.1	Unnao	9.8	11.5
Bikaner	36.0	33.4	Lucknow	10.5	9.6
Churu	33.4	36.4	Rae Bareli	14.0	12.1
Jhunjhunun	24.5	23.8	Farrukhabad	16.4	24.4
Alwar	37.0	40.8	Kannauj	12.8	16.7
Bharatpur	28.9	37.3	Etawah	16.9	22.8
Dhaulpur	30.6	35.4	Auraiya	14.0	19.0
Karauli	37.7	49.8	Kanpur Dehat	10.7	19.4
SawaiMadhopur	36.8	47.7	Kanpur Nagar	7.6	7.8
Dausa	38.3	40.1	Jalaun	17.6	22.1
Jaipur	30.9	29.5	Jhansi	20.0	22.2
Sikar	30.5	24.2	Lalitpur	49.3	49.3
Nagaur	34.2	42.2	Hamirpur	13.7	17.3
Jodhpur	24.5	34.7	Mahoba	20.6	25.9
Jaisalmer	22.5	48.4	Banda	17.3	18.8
Barmer	20.5	46.7	Chitrakoot	17.3	31.1
Jalor	18.9	32.4	Fatehpur	11.1	14.2
Sirohi	15.6	31.0	Pratapgarh	17.0	11.4
Pali	22.1	31.3	Kaushambi	13.6	20.0
Ajmer	39.1	35.0	Allahabad	19.1	16.2
Tonk	48.4	47.3	Barabanki	22.1	22.5
Bundi	43.1	35.1	Faizabad	23.4	26.9
Bhilwara	54.1	57.2	Ambedkar Nagar	16.4	13.3
	45.7	44.5	-	25.5	22.8
Rajsamand		29.4	Sultanpur Bahraich	25.3	40.9
Dungarpur	17.8 23.1		Shrawasti	41.3	
Banswara	52.8	28.3		31.2	68.5 41.5
Chittaurgarh		53.6	Balrampur		
Kota	19.8	19.7	Gonda	32.1	48.6
Baran	26.3	33.7	Siddharthnagar	26.4	45.2
Jhalawar	45.6	36.3	Basti	19.5	28.3
Udaipur	28.1	40.4	SantKabir Nagar	15.3	31.8
Pratapgarh	29.8	41.2	Mahrajganj	28.6	48.2
Uttar Pradesh			Gorakhpur	17.4	25.0
Saharanpur	6.9	7.7	Kushinagar	16.2	31.2
Muzaffarnagar	9.0	8.4	Deoria	15.0	22.4
Bijnor	4.6	6.8	Azamgarh	17.3	11.0
Moradabad	12.4	9.3	Mau	11.9	14.0
Rampur	10.3	9.9	Ballia	15.1	20.2
JyotibaPhule Nagar	11.5	11.9	Jaunpur	22.9	18.9
Meerut	8.9	8.9	Ghazipur	18.4	25.5
Baghpat	11.1	14.3	Chandauli	25.8	33.7
Ghaziabad	9.7	18.3	Varanasi	19.2	19.9
Gautam Buddha	12.4	21.0	SantRavidas Nagar	20.2	25.4
Nagar	13.4	21.0	(Bhadohi)	29.3	25.4
Bulandshahar	12.9	18.7	Mirzapur	23.6	30.7
Aligarh	16.3	23.2	Sonbhadra	23.9	33.0
Mahamaya Nagar	17.0	29.5	Etah	17.5	27.1
Mathura	26.1	25.4	Kanshi Ram Nagar	20.0	21.0
Agra	18.9	21.3	Bihar		
Firozabad	17.3	22.2	PashchimChamparan	24.1	37.9
Mainpuri	17.9	18.4	PurbaChamparan	23.9	43.5
Budaun	26.0	35.7	Sheohar	15.9	48.7
Bareilly	17.7	12.9	Sitamarhi	22.6	49.7

	Child Ma	rriage Rate		Child Ma	rriage Rate
District	Census	NFHS-4,	District	Census	NFHS-4,
District Madhubani	2011	2015-16 40.9	District Nagaland	2011	2015-16
Supaul	18.4	56.9	Mon	9.6	16.5
Araria	18.1	44.5	Mokokchung	6.1	3.2
Kishanganj	9.9	24.4	Zunheboto	3.8	5.4
Purnia	13.7	36.8	Wokha	5.9	10.6
Katihar	15.0	38.6	Dimapur	11.0	19.4
Madhepura	18.7	56.3	Phek	7.3	9.0
Saharsa	22.4	37.4	Tuensang	8.7	12.6
Darbhanga	19.9	41.2	Longleng	9.4	25.4
Muzaffarpur	16.9	35.4	Kiphire	10.5	16.8
Gopalganj	15.6	28.3	Kohima	6.2	2.4
Siwan	12.8	27.5	Peren	16.0	26.0
Saran	16.4	26.9	Manipur		
Vaishali	21.9	46.0	Senapati	8.0	19.7
Samastipur	25.1	49.6	Tamenglong	6.7	16.1
Begusarai	26.1	53.2	Churachandpur	8.5	13.5
Khagaria	21.7	46.1	Bishnupur	5.8	13.9
Bhagalpur	17.0	27.0	Thoubal	7.5	13.6
Munger	17.4	32.6	Imphal West	4.7	9.0
Lakhisarai	31.0	42.8	Imphal East	7.4	12.3
Sheikhpura	34.4	40.4	Ukhrul	5.4	16.2
Nalanda	32.4	41.7	Chandel	8.7	16.3
Patna	23.0	27.7	Mizoram		
Bhojpur	26.9	32.0	Mamit	11.6	17.4
Buxar	29.7	30.7	Kolasib	9.0	14.9
Kaimur (bhabua)	25.4	29.8	Aizwal	4.0	5.7
Rohtas	24.2	28.3	Champai	8.7	18.3
Aurangabad	28.9	31.4	Serchhip	4.7	7.0
Gaya	35.0	47.6	Lunglei	9.0	17.2
Nawada	38.1	40.1	Lawngtlai	15.4	15.0
Jamui	35.4	50.8	Saiha	9.9	11.7
Jehanabad	37.1	36.6	Tripura		
Arwal	35.8	38.9	West Tripura	21.2	29.7
Sikkim			South Tripura	24.8	34.8
North	10.3	12.3	Dhalai	20.9	33.6
West	17.4	12.4	North Tripura	18.1	35.4
South	18.7	13.9	Meghalya		
East	12.6	15.9	West Garo Hills	17.6	17.9
Aruncahal Pradesh			East Garo Hills	11.0	18.7
Tawang	8.7	7.1	South Garo Hills	9.7	9.7
West Kameng	14.5	25.9	West Khasi Hills	12.9	21.0
East Kameng	20.3	34.6	Ribhoi	12.5	23.6
Papum Pare	14.0	23.3	East Khasi Hills	7.1	9.0
Upper Subansiri	14.8	31.1	Jaintia Hills	19.0	24.7
West Siang	10.3	21.2	Assam		
East Siang	10.2	13.0	Kokrajhar	20.8	41.0
Upper Siang	13.7	18.8	Dhubri	34.7	48.3
Changlang	15.6	19.2	Goalpara	23.3	40.9
Tirap	6.7	13.5	Barpeta	16.5	46.9
Lower Subansiri	13.6	13.7	Morigaon	21.6	49.0
KurungKumey	26.1	37.8	Nagaon	20.1	42.5
Dibang Valley	13.7	23.7	Sonitpur	14.5	25.8
Lower Dibang Valley	15.3	28.1	Lakhimpur	18.4	27.0
Lohit	17.2	31.9	Dhemaji	13.6	36.7
Anjaw	14.3	26.4	Tinsukia	13.2	25.6
			Dibrugarh	10.1	26.7

-	Child Ma	rriage Rate	_	Child Ma	rriage Rate
	Census	NFHS-4,		Census	NFHS-4,
District	2011	2015-16	District	2011	2015-16
Sivasagar	10.3	29.6	Gumla	18.4	24.0
Jorhat	10.3	21.9	Simdega	7.7	14.7
Golaghat	11.9	27.2	PashchimiSinghbhum	13.5	21.3
KarbiAnglong	13.5	29.9	Sarikela-kharsawan	17.8	33.2
Dima Hasao	12.3	20.8	Odisha		
Cachar	10.0	18.5	Bargarh	10.3	13.7
Karimganj	16.5	29.5	Jharsuguda	6.1	11.2
Hailakandi	16.8	22.0	Sambalpur	7.4	11.8
Bongaigaon	19.4	42.6	Debagarh	10.5	23.4
Chirang	17.0	34.0	Sundargarh	7.6	15.5
Kamrup	13.9	32.4	Kendujhar	12.6	28.1
Kamrup Metropolitan	7.7	22.2	Mayurbhanj	20.1	35.0
Nalbari	10.5	26.4	Baleshwar	13.6	25.9
Baksa	12.6	29.3	Bhadrak	5.0	6.2
Darrang	23.4	37.9	Kendrapara	3.5	12.2
Udalguri	13.2	30.4	Jagatsinghapur	3.3	9.7
West Bengal			Cuttack	6.3	17.6
Darjiling	14.8	20.4	Jajapur	4.5	8.5
Jalpaiguri	22.3	32.7	Dhenkanal	11.9	25.4
Koch Bihar	34.8	41.2	Anugul	14.4	22.0
Uttar Dinajpur	25.8	39.1	Nayagarh	17.5	31.3
DakshinDinajpur	37.2	44.4	Khordha	7.1	18.1
Maldah	36.8	54.8	Puri	4.9	8.3
Murshidabad	41.6	52.6	Ganjam	19.7	29.8
Birbhum	36.2	52.0	Gajapati	16.2	25.3
Barddhaman	27.7	40.1	Kandhamal	14.7	22.1
Nadia	33.9	40.5	Baudh	17.1	23.4
North 24 Parganas	26.1	36.0	Subarnapur	11.1	22.2
Hugli	22.2	31.9	Balangir	11.3	14.7
Bankura	29.6	38.3	Nuapada	13.5	19.1
Puruliya	28.9	38.3	Kalahandi	14.2	21.7
Haora	19.0	24.4	Rayagada	17.7	34.4
Kolkata	11.0	13.1	Nabarangapur	23.6	37.9
South 24 Parganas	31.1	49.7	Koraput	25.0	34.7
PaschimMedinipur	33.4	52.1	Malkangiri	25.7	39.3
PurbaMedinipur	30.7	43.1	Chattisgarh		
Jharkhand			Koriya	23.1	31.1
Garhwa	31.9	58.8	Surguja	23.7	42.8
Chatra	34.2	49.0	Jashpur	13.2	31.8
Koderma	39.5	50.8	Raigarh	10.1	16.6
Giridih	46.5	52.6	Korba	13.9	20.2
Deoghar	41.2	52.7	Janjgir - Champa	13.3	18.2
Godda	31.7	63.5	Bilaspur	20.7	21.4
Sahibganj	28.2	38.4	Kabeerdham	34.6	30.7
Pakaur	31.2	41.1	Rajnandgaon	9.9	17.2
Dhanbad	25.8	29.9	Durg	13.1	16.9
Bokaro	28.4	30.6	Raipur	13.2	18.9
Lohardaga	20.9	28.5	Mahasamund	11.5	19.6
PurbiSinghbhum	16.7	26.1	Dhamtari	9.3	8.5
Palamu	28.8	40.5	Uttar BastarKanker	7.9	14.5
Latehar	24.7	37.1	Bastar	13.0	20.1
Hazaribag	33.2	40.8	Narayanpur	11.2	16.7
Ramgarh	26.4	27.7	DakshinBastarDantewada	9.4	19.4
Dumka	33.4	47.4	Bijapur	9.6	17.3
Jamtara	36.1	44.7	Madhya Pradesh		
Ranchi	16.0	28.1	Sheopur	30.9	29.6
Khunti	13.7	27.8	Morena	24.2	27.0

		rriage Rate			rriage Rate
District	Census	NFHS-4,	District	Census	NFHS-4,
District Bhind	2011	2015-16	District	4.3	2015-16
Gwalior	14.1	31.7 19.4	Rajkot	5.0	15.4 18.8
Datia	21.3		Jamnagar Porbandar	5.5	17.2
Shivpuri	30.2	37.1 34.0	Junagadh	3.3	17.2
Tikamgarh	39.4	47.2	Amreli	5.3	10.5
Chhatarpur	33.4	43.5	Bhavnagar	7.4	14.3
Panna	21.4	32.9	Anand	20.0	27.4
Sagar	21.4	38.6	Kheda	25.6	41.7
Damoh	25.9	39.9	PanchMahals	18.9	26.6
Satna	21.2	36.1	Dohad	16.3	32.8
Rewa	18.4	33.6	Vadodara	12.6	24.0
Umaria	24.0	37.3	Narmada	12.6	33.1
Neemuch	35.9	31.8	Bharuch	7.0	24.3
Mandsaur	38.1	48.2	The Dangs	19.4	37.6
Ratlam	30.0	46.2	Navsari	7.8	17.6
	34.8		Valsad	10.9	17.0
Ujjain Shajapur	34.8 42.6	41.0 35.2	Vaisad Surat	7.8	
Shajapur Dewas	42.6 27.3	35.2 36.1	Surat Tapi	7.8 7.3	16.6 17.2
			*	7.3	17.2
Dhar	24.0	30.1	Maharashtra	147	22.7
Indore West Nimar	18.2	20.7	Nandurbar	14.7	23.7
	19.1	24.0	Dhule	14.4	34.7
Barwani	31.2	42.2	Jalgaon	14.7	34.2
Rajgarh	36.9	38.2	Buldana	14.4	36.1
Vidisha	18.2	43.5	Akola	5.7	12.4
Bhopal	9.7	13.1	Washim	11.5	25.5
Sehore	26.7	31.5	Amravati	4.4	15.7
Raisen	15.8	28.1	Wardha	3.2	7.1
Betul	8.8	12.5	Nagpur	3.1	7.0
Harda	11.7	24.3	Bhandara	2.0	4.5
Hoshangabad	9.6	18.4	Gondiya	2.3	5.7
Katni	20.4	25.5	Gadchiroli	6.5	8.8
Jabalpur	10.8	13.9	Chandrapur	4.5	18.6
Narsimhapur	16.0	27.4	Yavatmal	6.7	20.8
Dindori	18.4	34.9	Nanded	15.8	39.8
Mandla	14.5	27.3	Hingoli	22.3	40.7
Chhindwara	8.8	16.3	Parbhani	20.4	41.3
Seoni	10.7	16.3	Jalna	22.8	47.1
Balaghat	5.3	8.6	Aurangabad	22.6	31.4
Guna	28.1	29.8	Nashik	15.5	29.9
Ashoknagar	29.1	33.2	Thane	8.1	20.4
Shahdol	25.7	35.4	Mumbai Suburban	5.9	14.6
Anuppur	22.3	27.3	Mumbai	5.1	10.6
Sidhi	25.0	45.7	Raigarh	7.5	16.6
Singrauli	29.6	34.9	Pune	9.8	23.6
Jhabua	35.5	54.0	Ahmadnagar	18.6	38.7
Alirajpur	19.2	37.1	Bid	19.9	51.2
East Nimar	15.1	17.6	Latur	19.2	36.5
Burhanpur	15.2	24.7	Osmanabad	17.4	31.1
Gujarat			Solapur	20.3	34.5
Kachchh	9.6	30.4	Satara	9.5	22.6
BanasKantha	17.5	47.9	Ratnagiri	2.3	8.6
Patan	18.8	35.0	Sindhudurg	1.9	8.3
Mahesana	18.6	32.6	Kolhapur	11.0	30.9
SabarKantha	13.9	37.0	Sangli	14.8	25.4
Gandhinagar	24.1	50.4	Andhra Pradesh		
Ahmadabad	12.0	19.9	Adilabad	17.8	31.7
Surendranagar	12.0	24.7	Nizamabad	17.9	23.9

	Child Ma	rriage Rate		Child Ma	rriage Rate
	Census	NFHS-4,		Census	NFHS-4,
District	2011	2015-16	District	2011	2015-16
Karimnagar	15.5	12.7	Kerala		
Medak	22.8	31.6	Kasaragod	4.5	4.0
Hyderabad	6.7	10.5	Kannur	3.7	10.2
Rangareddy	13.2	22.8	Wayanad	6.7	13.8
Mahbubnagar	27.8	45.6	Kozhikode	6.1	7.1
Nalgonda	28.1	36.8	Malappuram	19.9	23.3
Warangal	24.0	27.7	Palakkad	13.4	12.5
Khammam	23.6	30.9	Thrissur	2.6	2.3
Srikakulam	19.8	22.8	Ernakulam	1.1	0.0
Vizianagaram	20.7	29.0	Idukki	2.2	3.7
Visakhapatnam	18.2	29.8	Kottayam	0.7	1.3
East Godavari	21.3	30.3	Alappuzha	0.9	1.2
West Godavari	19.3	30.2	Pathanamthitta	0.8	1.2
Krishna	18.7	31.9	Kollam	1.8	3.7
Guntur	26.0	39.1	Thiruvananthapuram	2.1	2.6
Prakasam	28.5	44.5	Tamil Nadu		
Sri Potti Sriramulu Nellore	21.4	20.5	Thiruvallur	6.1	16.0
Y.S.R.	21.4 16.5	38.5 27.9	Chennai	6.1 3.8	16.0
1.S.R. Kurnool	21.6			3.8 4.0	
		42.9	Kancheepuram		11.9
Anantapur	20.1	29.6	Vellore	10.4	11.6
Chittoor	16.1	25.9	Tiruvannamalai	11.3	19.8
Karnataka	20.6	24.0	Viluppuram	10.0	20.5
Belgaum	20.6	34.9	Salem	14.3	19.5
Bagalkot	24.3	35.8	Namakkal	11.2	16.5
Bijapur	21.9	17.3	Erode	8.3	20.7
Bidar	14.4	21.7	The Nilgiris	6.5	18.7
Raichur	16.3	28.3	Dindigul	8.7	19.9
Koppal	18.6	35.9	Karur	8.3	23.1
Gadag	11.2	22.7	Tiruchirappalli	5.7	12.6
Dharwad	11.2	23.1	Perambalur	13.5	13.9
Uttara Kannada	4.7	15.2	Ariyalur	8.7	12.8
Haveri	8.4	22.0	Cuddalore	8.1	14.3
Bellary	18.0	31.4	Nagapattinam	4.6	6.3
Chitradurga	13.3	23.9	Thiruvarur	4.2	7.2
Davanagere	8.5	25.4	Thanjavur	4.5	11.8
Shimoga	6.5	11.6	Pudukkottai	5.1	12.1
Udupi	1.4	6.3	Sivaganga	4.8	12.8
Chikmagalur	6.2	23.8	Madurai	6.5	19.5
Tumkur	11.9	19.3	Theni	10.8	26.7
Bangalore	6.2	14.9	Virudhunagar	6.1	17.6
Mandya	14.0	22.2	Ramanathapuram	5.8	13.0
Hassan	6.8	14.8	Thoothukkudi	3.1	11.4
Dakshina Kannada	2.4	8.5	Tirunelveli	3.9	6.0
Kodagu	6.9	11.7	Kanniyakumari	0.7	5.5
Mysore	16.5	23.4	Dharmapuri	17.7	27.9
Chamarajanagar	24.1	32.3	Krishnagiri	14.0	22.5
Gulbarga	16.4	27.9	Coimbatore	4.6	19.9
Yadgir	24.7	35.5	Tiruppur	5.4	15.1
Kolar	10.7	20.0			
Chikballapura	13.6	23.9			
Bangalore Rural	9.3	25.8			
Ramanagara	13.0	23.7			
Goa					
North Goa	3.1	9.9			
South Goa	3.4	9.6			