Early Marriage and Health of Women in India: Evidence of "Weathering" in Mid-Life

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Abstract: Using the 2005 and 2012 waves of the nationally representative India Human Development Survey, this paper investigates the link between early marriage and self-rated health, chronic conditions and functional limitations among women. Early marriage, defined as marriage at or before the age of 18 years, is negatively associated with self-rated health among women in India. This disadvantage exists even after accounting for socio-economic status of the family, education of the women and her husband, her fertility and empowerment status within the household. Additionally, early marriage is associated with chronic conditions and functional limitations in middle age. Women who were married early also experienced worsening of health over the two waves. The fact that this worsening is also evident in middle-aged women is suggestive of "early weathering of health" due to the stresses and strains of early marriage. Early marriage may set women on the path of lifelong health disadvantage in India.

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Early marriage has significant negative consequences for the health and well-being of women (Singh and Samara 1996). Early marriage leads to early onset of sexual activities and consequently early first pregnancy and frequent childbearing. Married adolescents have poorer fertility outcomes as compared to married young adults, including inadequate birth spacing, lower contraceptive use, and a higher number of unintended pregnancies (Raj, Saggurti, Balaiah and Silverman 2009). It is well recognized that early marriage leads to a number of adverse health outcomes such as pregnancy-related complications, preterm delivery, delivery of low birth weight babies, low gestational age, fetal and maternal mortality (Chen et al. 2007; WHO 2011).

Much of the research on the health impact of child marriage relates to the reproductive and maternal health consequences of adolescent motherhood (Santhya and Jejeebhoy 2003; Raj et al. 2009; Santhya 2011; Godha, Hotchkiss and Gage 2013; Goli, Rammohan and Singh 2015). Research has also examined intergeneration effects of child marriage (Raj et al. 2010a; Efevbera, Bhabha, Farmer, and Fink 2017). However, this research primarily focuses on adolescents and young women and their children and does not assess the implications of early marriage at later life stages. This paper fills that gap as by examining the impact of early marriage on women's self-rated health, chronic conditions and functional limitations in middle adulthood. In adopting a life course perspective, we move beyond the emphasis on women's reproductive and sexual health to her overall wellbeing.

Early marriage is a critical transition in the lives of women. Transitions, especially early in life, have lifelong implications by shaping later events and experiences (Elder, Johnson and Crosnoe 2003). Life course framework helps us to understand how biological and sociocultural factors intersect to influence women's health status over her lifespan in India. Social and cultural context, gender norms and expected social roles define life trajectories as they circumscribe the choices and opportunities available to women. Early marriage in India disadvantages young girls in several ways and may predispose them to accumulate disadvantage over their life course. This disadvantage could be reflected in outcomes later in life such as health and longevity (O'Rand 2009).

Early marriage is associated with household poverty, residence in rural areas, low parental education, lower school enrollment of girls at age 15 and parental aspirations for the

daughter (Singh and Espinoza 2016). Early marriage has strong social implications as it is associated with reduced educational attainment, economic participation, and social status of young women (Santhya 2011; Bajracharya and Amin 2012). Arguably, the disadvantage associated with early marriage could be due to selection as marriage and fertility timing differs according to the socioeconomic status of families (Geronimus and Korenman 1993; Bates, Maselko, and Schuler 2007).

The Indian context is particularly salient in defining the status of women. Patrilocal exogamy, the marriage pattern whereby the couple resides with the husband's family and the wife comes from outside the village, is the norm in many regions (Dyson and Moore 1983). Even though early marriage can be viewed as a health risk due to its implications on childbearing, it is exacerbated in this context where the young bride is alienated in her new home and community. Research shows young brides in India have the lowest autonomy within multigenerational households and have a lower say in most decisions than their husbands (Sen, Rastogi and Vanneman 2016). Das Gupta (1996) contends that young married women (because of their gender and age) experience "double powerlessness" due to their limited ability to exercise autonomy during their childbearing years which has negative consequences for reproductive health and child-survival outcomes. Moreover, research has also examined how early marriage predisposes women to the heightened risk of interpersonal violence (Speizer and Pearson 2011). Given her lower status and position within the household and her reproductive vulnerability, early marriage may set women on the path of disadvantage, with a series of negative events, which would be reflected in her health outcomes.

Geronimus (1992) proposed the weathering" hypothesis when faced with the evidence of early health deterioration among Blacks at all socioeconomic levels. She argues that the experience of early health deterioration can be viewed as a consequence of the cumulative impact of repeated experience with social or economic adversity, political marginalization, and experience of racism. McEwen and Seeman (1997) make the crucial link between repeated exposure to stress, both acute and chronic, and higher allostatic load. Allostatic load (AL) is defined as the physiological "wear and tear" a person experiences across his or her life resulting from strain (McEwen and Stellar 1993). A higher allostatic load is associated with mortality, cognitive decline, and chronic diseases, as well as lower SES, unsupportive childhood and adult relationships (as summarized in Geronimus et al. 2006). Women who marry early may experience disproportionate physiological deterioration as a consequence of their lower SES and status, lack of empowerment at early ages, alienation, the risk of

violence and early and frequent childbearing. This would not only lead to poor health at earlier ages but cause severe deterioration over time, producing inequality in health with age through middle adulthood.

In the absence of biological markers of weathering, investigators have studied diverse health indicators such as excess mortality (Geronimus et al. 1996), blood pressure (James et al. 1992) and disability (Wong et al. 2002). In the study, we utilize the Indian Human Development Survey which is rich in several measures of health: short and long-term morbidity, self-rated health and functional limitation over two waves and provides a wealth of data on the household and women in the households.

Research Questions:

H1: Early marriage will be associated with lower self-rated health among all married women. Early marriage is likely to set women on a path of disadvantage with lower educational attainment, early and frequent childbearing and lower empowerment status. Therefore, it is hypothesized that

H2: Early marriage will predispose women to accumulate disadvantage over their life course. This will be reflected in worsening health profiles over time.

H3: Lowered empowerment and higher fertility are mechanisms through which early marriage affects women's health over the life-course.
Additional tests will be carried out later that link early marriage with fertility and empowerment.

H3a: Early marriage will be associated with higher fertility.

H3b: Early marriage will be associated with lower autonomy.

H4: Early marriage will be associated with higher functional impairment and prevalence of chronic diseases (heart disease, high blood pressure, and diabetes) among women over the ages of 35 years. These diseases are not likely to occur among younger women and therefore an older sample is utilized for this analysis.

Methods:

Data and Sample

The India Human Development Survey (IHDS) is a nationally representative face-to-

face survey of over 41,554 households across all Indian states and union territories (with the minor exceptions of the Andaman and Nicobar Islands and Lakshadweep) (Desai et al. 2008). It covers both urban and rural areas, including 1503 villages and 971 urban blocks. The IHDS is carried out jointly by the University of Maryland and the National Council of Applied Economic Research. The first wave took place in 2004-05. In 2011-12, 83% of wave 1 was resurveyed: the re-contact rate was over 90% in rural areas and 72% in urban areas (Desai and Vanneman 2015).

In this paper, we use the second wave of the survey (2011-12) which has of 35,253 ever-married women in the ages of 15-49 years. We also use the panel of ever-married women to study worsening of health over time. We have 19,456 women in the ages of 20 to 60 from the India Human Development Panel Survey.

Independent Variables

Early Marriage: In India, the legal age at marriage for women is 18 years. The international community defines child marriage as any marriage that occurs before the age of 18 (UNICEF 2007). Women in the survey were asked about their age at marriage and *Gauna*. In some parts of India, girls may get married at a very young age, but sexual relations and cohabitation does not begin until a ceremony known as *Gauna* has taken place (Joshi, Dhapola, Kurian, and Pelto 2001). The gap between the marriage ceremony and *Gauna* may extend to several years until the girl attains puberty or is deemed mature enough to begin living with her husband (Joshi et al., 2001). Previous studies of early marriage define the age at marriage as the age at cohabitation or *Gauna* (Speizer and Pearson 2011). We construct a dichotomous indicator to indicate *Gauna* at or before the age of 18 years. Increasingly, Indians are becoming familiar with the legal age at marriage and may misreport the age at marriage and *Gauna* to 18 years for reasons of legal propriety. Therefore, we include married at age 18 as early marriage as well. Early marriage is rampant in India although declining in recent cohorts. This is also evident in our sample as 63% of ever-married women were married at age 18 or earlier. Approximately 0.2 percent of the sample has missing values on the independent variables and is excluded from the analysis.

Dependent Variables

Our primary dependent variable is self-rated health and is based on the survey question: ‘‘In general, would you say your own health is….. ’’ Responses ranged from 1 to 5, indicating very good to very poor health. We recoded this variable with higher values to

indicate better health. This measure of self-reported physical health has been used extensively in U.S. and international research and has been consistently recognized to be a valid measure of physical health (Farmer and Ferraro 1997; Hays et al. 1996; Johnson and Wolinsky, 1993). Research shows that it is a strong predictor of survival and mortality, controlling for objective measures of health such as physicians' examinations, medical records, or extensive health histories (Idler and Angel 1990; Idler and Benyamini 1997). We also create a dichotomous variable to indicate worsening of health status over the two waves using the self-rated health measure for the panel data.

The second dependent variable is an objective indicator of health based on a series of questions asking respondents if they have been diagnosed by a doctor with chronic conditions. We select heart disease, high blood pressure, and diabetes because research has established a robust link between the experience of psychosocial stress, higher allostatic load and the development of these diseases (Seeman et al. 1997; McEwen and Stellar 1993). We calculate a dichotomous indicator to indicate the presence of these chronic diseases.

In order to measure the presence of functional limitations, our fourth health measure, we constructed a composite score based on a series of questions that are designed to assess the degree of disability of the respondent: "Does anyone in the household have a problem…… (1) walking 1 km (2) going to toilet without help (3) dressing without help (4) hearing normal conversation (5) speaking normally (6) seeing distant things (7) seeing nearby objects." The responses were recorded on a 3-point scale ranging from no difficulty to inability to do it. The answers are combined into a "functional impairment" scale (alpha = 0.75), where higher values reflect greater impairment. Functional limitations have been used in several studies of aging and health (Kahn and Pearlin 2006).

We control for three types of covariates: demographic covariates, socioeconomic resources, indicators of fertility and empowerment. Basic demographic covariates included education of the woman (illiterate, primary education, secondary education, high school and any college), her work status (does not work, works part time and full time work), her self-reported age, and region of residence (northern hills, northern states, north-central, central plains, east, west and south) and her marital status (married, separated or divorced and widowed). We used two variables to measure socioeconomic resources: household assets measured as quintiles and the education of the spouse (illiterate, primary education, secondary education, high school, and any college). Religion and caste identification of the household are also included in the analysis. Two indicators for fertility history are included in the analysis, the number of children ever born and the number of children ever died. Child

and infant mortality could be associated with the mother's health but it can also cause poor mental health. Lastly, two empowerment variables are included in the analysis: whether the mother has the most say when the child was sick and whether she was the primary decision maker in the number of children to have.

Data analysis

To assess the relationship between child marriage and women's health, linear and logistic regression models were run. Two continuous outcomes were tested: self-rated health and functional impairment scale and two logistic outcomes: the presence of chronic diseases and worsening of health status.

A series of models were run to test pathways explaining associations between child marriage and women's self-rated health. The first model (Model 1) controlled for basic demographic information. Model 2 added women and her spouses' education to assess how much of the relationship was explained by educational attainment. Model 3 added household assets to the equation to assess how much of the relationship was explained by poverty. Model 4 and 5 add the pathways, fertility and empowerment variables.

The last analysis focuses on how the impact of early marriage interacts with women's age in influencing her self-rated health. This is achieved by introducing interaction terms between early marriage and women's age.

Preliminary Results:

The results show that early age at marriage has detrimental effects on the health status of women as reflected in self-rated health, chronic conditions, and functional limitations. Even after accounting for socio-economic status of the household, women's fertility history and empowerment status, women who were married at or before the age of 18 still bear a disproportionate burden of morbidity and assess their health negatively. The weathering hypothesis suggests that early health deterioration experienced by marginalized groups is due to cumulative effects of exposure to chronic and acute stressors. In our analysis, we find that the impact of early marriage varies by age, worsening at later ages, suggesting that women do experience weathering of their health over time. Additionally, the panel analysis also underscores the deteriorating health status of women married early. We also find that widowhood and loss of children are associated with worse self-rated health for women.

The results show that fertility and empowerment pathways are associated with self-rated health and even reduce the magnitude of early marriage coefficients. However, the

empowerment pathway captures women's current status. Research shows that women in Indian multigenerational households gain status with age (Sen, Rastogi and Vanneman 2016), therefore the current empowerment variables do not appear to provide a strong explanation.

Future research will assess the association between early marriage and fertility and empowerment as well as use propensity score models (PSM) to rule out selection as an explanation for these results.

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Table 1a: Summary statistics

Variable	Mean	Std. Dev.	Min	Max
Self-rated health	3.940	0.836	1	5
Chronic diseases	0.045	0.207	0	1
Functional impairment scale	0.066	0.512	0	14
Early marriage	0.637	0.481	0	1
Women's age	34.077	8.521	15	49
Marital status: currently married	0.987	0.111	0	1
Separated or divorced	0.004	0.065	0	1
Widowed	0.008	0.091	0	1
Women's education: no schooling	0.385	0.487	0	1
Primary education	0.162	0.368	0	1
Secondary education	0.319	0.466	0	1
High school education	0.071	0.256	0	1
Any college	0.064	0.244	0	1
Spouse's education: no schooling	0.208	0.406	0	1
Primary education	0.172	0.377	0	1
Secondary education	0.407	0.491	0	1
High school education	0.101	0.302	0	1
Any college	0.112	0.315	0	1
Work status: no work	0.510	0.500	0	1
Work status: missing hours	0.003	0.054	0	1
Less than 240 hours	0.082	0.274	0	1
Part-time work	0.328	0.470	0	1
Full-time work	0.077	0.267	0	1
Household assets: 1st quintile	0.189	0.392	0	1
2nd quintile	0.176	0.380	0	1
3rd quintile	0.247	0.431	0	1
4th quintile	0.200	0.400	0	1
5th quintile	0.189	0.391	0	1
Brahmins	0.046	0.210	0	1
Forward castes	0.155	0.361	0	1
Other backward classes	0.358	0.479	0	1
Scheduled castes	0.221	0.415	0	1
Scheduled tribes	0.079	0.270	0	1
Muslim	0.123	0.329	0	1
Other minority religions	0.019	0.135	0	1
Hills	0.032	0.175	0	1
North	0.057	0.232	0	1
North central	0.246	0.431	0	1
Central plain	0.137	0.343	0	1
East	0.154	0.361	0	1
West	0.148	0.355	0	1
South	0.227	0.419	0	1

Table 1b: Means of health scores by early marriage status.

	Early marriage	No Early marriage
Self-rated health	3.871	4.060
Chronic diseases	0.042	0.046
Functional impairment scale	0.054	0.073

Table 2: Early Marriage and Self Rated Health

	Basic Model	Adding Education	Adding Assets^	Adding Fertility	Empowerment Model
Early marriage	-0.155***	-0.102***	-0.099***	-0.092***	-0.087***
(Ref: Did not experience early marriage)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)
Women's age	-0.012***	-0.010***	-0.011***	-0.010***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Marital status: Separated	0.049	0.096	0.108	0.076	0.076
(Ref: currently married)	(0.068)	(0.068)	(0.068)	(0.069)	(0.071)
Widowed	-0.175***	-0.140**	-0.131**	-0.108*	-0.106*
	(0.049)	(0.049)	(0.049)	(0.049)	(0.051)
Women's education: Primary		0.039**	0.028*	0.022	0.019
(Ref: no schooling)		(0.014)	(0.014)	(0.014)	(0.014)
Secondary		0.089***	0.070***	0.067***	0.047***
		(0.013)	(0.014)	(0.014)	(0.014)
High School		0.133***	0.104***	0.100***	0.096***
		(0.021)	(0.022)	(0.022)	(0.023)
Any College		0.224***	0.187***	0.183***	0.160***
		(0.024)	(0.025)	(0.025)	(0.026)
Spouse's education: Primary		0.062***	0.053***	0.052***	0.039*
(Ref: no schooling)		(0.015)	(0.015)	(0.015)	(0.015)
Secondary		0.100***	0.081***	0.077***	0.070***
		(0.014)	(0.014)	(0.014)	(0.014)
High School		0.084***	0.056**	0.052**	0.050*
		(0.019)	(0.020)	(0.020)	(0.020)
Any College		0.114***	0.077***	0.071***	0.066**
		(0.021)	(0.021)	(0.021)	(0.022)
Household assets: 2nd quintile			0.064***	0.064***	0.051**
(Ref: 1st quintile)			(0.015)	(0.015)	(0.016)
3rd quintile			0.069***	0.065***	0.071***
			(0.015)	(0.015)	(0.016)
4th quintile			0.099***	0.095***	0.092***
			(0.017)	(0.017)	(0.018)
5th quintile			0.143***	0.138***	0.143***
			(0.020)	(0.020)	(0.021)
Work status: missing hours	0.036	0.033	0.041	0.051	0.049
	(0.093)	(0.092)	(0.092)	(0.093)	(0.097)
Less than 240 hours	-0.076***	-0.052**	-0.038*	-0.032+	-0.006
	(0.017)	(0.017)	(0.017)	(0.017)	(0.018)
Part-time work	-0.021+	0.016	0.033**	0.036**	0.034**
	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)

Full-time work	0.024	0.031+	0.043*	0.044*	0.033+
	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)
Caste: Forward	-0.003	0.018	0.016	0.019	0.027
	(0.023)	(0.023)	(0.023)	(0.024)	(0.024)
Other backward classes	-0.018	0.034	0.037+	0.041+	0.040+
	(0.022)	(0.022)	(0.022)	(0.022)	(0.023)
Scheduled castes	-0.056*	0.018	0.026	0.032	0.044+
	(0.023)	(0.023)	(0.023)	(0.023)	(0.024)
Scheduled tribes	0.056*	0.142***	0.161***	0.163***	0.176***
	(0.026)	(0.027)	(0.027)	(0.027)	(0.028)
Religion: Muslim	-0.091***	-0.015	-0.017	-0.013	-0.010
	(0.024)	(0.025)	(0.025)	(0.025)	(0.025)
Other minority religions	0.050	0.058	0.054	0.055	0.043
	(0.039)	(0.039)	(0.039)	(0.039)	(0.040)
Number of children born				-0.005	-0.010*
				(0.004)	(0.004)
Number of children dead				-0.036***	-0.036***
				(0.008)	(0.009)
Respondent autonomy on how many children to have					0.036**
					(0.012)
Respondent autonomy on what to do if child is sick					0.032**
					(0.011)
Constant	4.100***	3.786***	3.748***	3.734***	3.730***
	(0.036)	(0.041)	(0.041)	(0.042)	(0.044)
Observations	33,222	33,222	33,213	33,013	30,607
R-squared	0.074	0.081	0.083	0.083	0.080

Standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, + p<0.1; controls for region of residence not shown. ^Control Model

Table 3: Early marriage and self-rated health, functional impairment and chronic diseases. Women over the age of 35 years.

VARIABLES	Self-rated health	Functional impairment scale	Chronic diseases
Early marriage	-0.145***	0.033**	0.245**
(Ref: Did not experience early marriage)	(0.017)	(0.013)	(0.089)
Women's age	-0.008***	0.011***	0.088***
	(0.002)	(0.001)	(0.010)
Marital status: Separated	0.066	0.026	0.964
(Ref: currently married)	(0.102)	(0.078)	(0.608)
Widowed	-0.059	0.077	0.282
	(0.070)	(0.053)	(0.377)
Women's education: Primary	0.015	-0.006	0.210+
(Ref: no schooling)	(0.022)	(0.017)	(0.120)
Secondary	0.038+	-0.006	0.191
	(0.022)	(0.017)	(0.128)
High School	0.162***	-0.015	0.120
	(0.040)	(0.031)	(0.195)
Any College	0.191***	-0.014	-0.063
	(0.043)	(0.032)	(0.208)
Spouse's education: Primary	0.053*	-0.016	0.244+
(Ref: no schooling)	(0.022)	(0.017)	(0.138)
Secondary	0.102***	0.003	0.294*
	(0.021)	(0.016)	(0.135)
High School	0.116***	-0.026	0.284
	(0.032)	(0.024)	(0.183)
Any College	0.121***	0.014	0.355+
	(0.035)	(0.026)	(0.200)
Work status: missing hours	0.011	-0.109	0.243
	(0.150)	(0.114)	(0.514)
Less than 240 hours	-0.064*	0.005	0.120
	(0.028)	(0.021)	(0.177)
Part-time work	0.072***	-0.056***	-0.193+
	(0.018)	(0.013)	(0.108)
Full-time work	0.067*	-0.048*	-0.261
	(0.027)	(0.020)	(0.159)
Household assets: 2nd quintile	0.079**	-0.021	0.303
(Ref: 1st quintile)	(0.025)	(0.019)	(0.195)
3rd quintile	0.073**	-0.034+	0.423*
	(0.025)	(0.019)	(0.187)
4th quintile	0.117***	-0.057**	0.657***
	(0.028)	(0.021)	(0.187)
5th quintile	0.164***	-0.104***	0.752***

	(0.032)	(0.024)	(0.199)
Caste: Forward	0.021	0.017	-0.215
	(0.036)	(0.027)	(0.170)
Other backward classes	0.053	-0.003	-0.360*
	(0.034)	(0.026)	(0.163)
Scheduled castes	0.046	0.010	-0.340+
	(0.036)	(0.027)	(0.174)
Scheduled tribes	0.231***	-0.085**	-1.095***
	(0.042)	(0.032)	(0.273)
Religion: Muslim	-0.028	-0.007	0.229
	(0.038)	(0.029)	(0.174)
Other minority religions	0.003	0.097*	0.396+
	(0.056)	(0.043)	(0.216)
Constant	3.599***	-0.353***	-6.497***
	(0.097)	(0.074)	(0.521)
Observations	14,567	14,627	14,627
R-squared	0.086	0.014	

Standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, + p<0.1; controls for region of residence not shown.

Table 4: Early Marriage, Interaction of Early Marriage with Age and Self Rated Health

	Control Model	Interaction with Women's Age
Early marriage	-0.099***	0.061
(Ref: Did not experience early marriage)	(0.010)	(0.038)
Women's age	-0.011***	-0.008***
	(0.001)	(0.001)
Early marriage* Women's age		-0.005***
		(0.001)
Marital status: Separated	0.108	0.101
(Ref: currently married)	(0.068)	(0.068)
Widowed	-0.131**	-0.137**
	(0.049)	(0.049)
Constant	3.748***	3.647***
	(0.041)	(0.048)
Observations	33,213	33,213
R-squared	0.083	0.083

Standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, + p<0.1.
Controls included: Women and spouse's education, household assets, caste and religion, women's work status and region of residence.

Table 5: Panel Survey: Early Marriage and Worsening of Health over the Two Waves.

	Health worsened over the two waves
Early marriage	0.120*
	(0.052)
Women's age	0.012***
	(0.004)
Marital status: Separated	-1.015**
(Ref: currently married)	(0.367)
Widowed	-0.015
	(0.217)
Women's education: Primary	-0.027
(Ref: no schooling)	(0.068)
Secondary	0.053
	(0.066)
High School	0.007
	(0.109)
Any College	-0.209
	(0.131)
Spouse's education: Primary	-0.003
(Ref: no schooling)	(0.072)
Secondary	-0.109
	(0.068)
High School	-0.039
	(0.100)
Any College	-0.031
	(0.105)
Work status: missing hours	-0.582
	(0.421)
Less than 240 hours	0.131
	(0.093)
Part-time work	-0.184**
	(0.056)
Full-time work	-0.221**
	(0.082)
Household assets: 2nd quintile	-0.209**
(Ref: 1st quintile)	(0.077)
3rd quintile	-0.219**
	(0.079)
4th quintile	-0.289***
	(0.086)
5th quintile	-0.360***
	(0.095)
Caste: Forward	-0.163
	(0.109)
Other backward classes	-0.181+
	(0.105)
Scheduled castes	-0.275*

	(0.110)
Scheduled tribes	-0.525***
	(0.128)
Religion: Muslim	-0.260*
	(0.114)
Other minority religions	-0.062
	(0.158)
Observations	19,892

Standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, + p<0.1; controls for region of residence not shown.