

The Motherhood Penalty and Female Employment in Urban India

Maitreyi Bordia Das
Ieva Žumbytė



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Abstract

Since the 1990s, India has seen robust economic growth, rising wages, steady fertility decline, increased urbanization, and expanded educational attainment for males and females. But unlike other countries that have undergone similar transitions, urban women's employment has refused to budge, never crossing the 25 percent mark. This paper fills a critical gap in policy research on women's employment in India. The discussion is situated in the normative construction of motherhood and the gendered nature of caregiving in India. The analysis uses pooled data from six rounds of the National Sample Surveys to examine the effects of having a young child on mothers' employment in urban India over 1983–2011. The analysis also looks at

household structure, and analyzes the effects of other household members on women's labor supply. The results show that although the onus of childbearing may have reduced, that of caregiving has increased. Having a young child in the home depresses mothers' employment, an inverse relationship that has intensified over time. Further, living in a household with older children and women over the age of 50 is positively associated with women's employment. These results show that the care of young children is an increasingly important issue in women's employment decisions, in a context where formal childcare is practically nonexistent. These results have significant implications for policy to raise women's labor force participation in India.

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The Motherhood Penalty and Female Employment in Urban India

Maitreyi Bordia Das (mdas@worldbank.org)¹ and Ieva Žumbytė (ieva.zumbyte@gmail.com)

¹ Corresponding author

1. The Indian Conundrum

Since the 1990s, India has witnessed high economic growth, accompanied by rising real wages, a steady decline in fertility and higher educational attainment for both males and females. But a strange conundrum has simultaneously unfolded. It has to do with women's employment. In most other countries, overall prosperity, the freeing of women from the onus of childbearing and their increased educational qualifications have gone hand in hand with their increased entry into the labor market. However, in India female labor participation rates have stayed below 35 percent for more than two decades, whereas the developing country average has been stable at around 50 percent (World Bank 2015a). In fact, women's employment in India is among the lowest in the world, and lower than in most countries of the same income level (Verick 2014). During the past few decades, other countries in South Asia have experienced rising or flattened rates of female employment, but in India the overall women's labor force participation has declined since 2004.

For urban women in the 25-55 year age range, employment rates rose slightly from 22.7 percent in 1993 to 24.6 percent in 2004 but afterwards declined gradually to 22.2 percent in 2011. In contrast, nearly all men in this age group (97 percent) are working in India and this proportion has fluctuated only marginally (see Table 1). The aggregate decline in female labor force participation has been driven primarily by the withdrawal of rural women from the labor market, without commensurate increase in urban areas. Essentially, India has one of the lowest labor force participation rates (LFPR) for urban women – one that has stayed consistently below 25 percent, and in some states below 15 percent. This contrasts with our expectations that women in cities and towns would be more likely to engage in market work, since urban areas are hubs for jobs..

Table 1. Labor Force Participation Rates (percent) for Women and Men Aged 25–55 Urban Areas, 1983–2011

	1983	1993	2004	2007	2009	2011
Women	22.7	22.7	24.6	20.6	21.2	22.2
Men	97.3	97.1	96.9	97.0	97.0	97.2

Note: Data is presented for women aged 25-55 to exclude those who may be in education. This includes all women in the age range – not just wives of household heads.

Source: India National Sample Survey data based usual principal status.

If we look at Indian women's employment patterns in the context of broader demographic change and drawing upon the experience of other countries, we find that the classic facilitators of employment are in place. India's total fertility rate (TFR) saw a 20 percent fall from 3.0 in 2001-

03 to 2.4 in 2011-13, based on the sample registration system (SRS). In urban areas, the TFR was below replacement at 1.9 in 2011-13 (Registrar General of India, 2014). As a result, the number of children per household has fallen dramatically. The size of the average urban household in the National Sample Survey (NSS) during the period 2004-2011 declined from 4.3 to 4, and only a little over 26 percent of households had at least one child of pre-school age (under 6 years old) in 2011. Educational attainment has also increased across the board, despite rising concerns about the quality of education.

The Indian conundrum of low female labor force participation despite the existence of what are considered enabling factors, has garnered considerable attention among scholars and policy makers. Several studies and reportage have sought to explain these peculiar patterns. Some discussion focuses on the possible under-measurement of women's work (Kapsos et al. 2014; IAMR and ILO 2013; Sudarshan and Bhattacharya 2009), while another set of explanations points to the fact that more women are now enrolled in educational institutions, which accounts for their unavailability for market work (Himanshu 2011; Rangarajan et al. 2011). However, enrollment in higher education does not explain low rates of employment for those who have completed schooling (e.g. women aged 25 and over) (Mahapatro 2013). Still other explanations point to an "income effect," where women withdraw from the labor market as household income rises, especially in a culture where males are regarded as the main breadwinners (Klasen and Pieters 2015). The so-called U-shape where female labor force participation declines initially with economic development, but then flattens and rises again, reflecting structural economic shifts has also been implicated in explaining the Indian conundrum (Goldin 1994). Yet it is not clear at what point of rising incomes should the "U" veer upwards, as it has not done so for India as yet (Lahoti and Swaminathan 2015).

It is likely that the jobs available to women are not in keeping with either their aspirations or their ambition; in other words, there are not enough "good jobs" that women would consider engaging in (Chatterjee et al. 2015; Kapsos et al. 2014). It may also be possible that women's reservation wage is higher than that of men, given the many pressures on the former's time. There is widespread recognition in feminist circles, of constraints from (real and perceived) safety and security, inadequate housing and transport that contribute to the overall opportunity cost of engaging in the labor market. This is compounded by the fact that employers may have an implicit, or in many cases an explicit bias against women doing certain kinds of work. Over a decade ago

Das and Desai (2003) and Das (2006) had argued that in fact, cultural and structural factors are mutually reinforcing and the context that arises of the reinforcement hinders both women's labor supply decisions as well as the demand for their labor.

The puzzle we focus on in this paper is why urban mothers in the 25-55 age group, who are more likely to be educated, have fewer children and reside in locations that are considered hubs for jobs, have had labor force participation rates consistently below 25 percent. It may entirely be possible that these women want to stay home with their children, but we believe that reality is more complex than that. There is little empirical evidence on the manner and extent to which urban mothers' caregiving roles impede their ability to undertake market work. This paper therefore fills a critical gap in policy research on women's employment in India. Situating the discussion in the normative construction of motherhood and gendered nature of caregiving in India, it uses pooled data from six rounds of the NSS to examine the effects of having a young child on mothers' employment in urban India over the period 1983-2011. Second, it looks at household structure and analyzes the effects of other household members on women's labor supply. The remainder of the paper is organized as follows. The next section is a review of studies on the construction of motherhood, employment and the care of young children. Section 3 presents data and descriptive statistics. Section 4 lays out the analytic strategy and methods, section 5 describes the empirical findings, while the sixth and final section presents a discussion of the findings and implications for policy and action.

2. Motherhood, the Care of Young Children and Women's Work

Constructions of motherhood vary across cultures, but for the most part, mothers are the primary caregivers of young children. Globally, women with a child of pre-school age are less likely to be employed, provided other conditions remain the same.² The competing demands of market work and child-rearing lead women to make tradeoffs, especially during children's infancy and preschool years when the latter require intense supervision.³ Therefore, motherhood places a "penalty" on almost all female workers, unless formal or informal institutions step in to share care

² For a literature review of empirical studies, see Del Boca (2015); Kalb (2009); Anderson and Levine (2000) and Deutsch (1998).

³ Borrowed from socio-demographic literature, the so-called "maternal role incompatibility" argument posits that roles of mother and worker may be inherently incompatible (Rindfuss and Brewster 1996).

responsibilities with women or female wages are high enough to compensate for the monetary and non-monetary costs of childcare.

Several analyses find that the presence of young children in the household is associated with lower female labor force participation in India (Das 2006; Rani and Unni 2009; Bhalla and Kaur 2011; Sengupta and Das 2014; Kapsos et al. 2014; Das et al. 2015; Sorsa et al. 2015). Both Klasen and Pieters (2015) and Sorsa et al. (2015) find an increasing negative association between urban married women's employment and the presence of young children in the household. Chatterjee et al. (2015) find that while young children constrain women's employment, having older parents or other elderly members in the household increases women's LFPR, suggesting that lack of child support restrains women's ability to work. A recent decomposition of rural women's labor force participation finds that an increase in more educated women's returns to home production, relative to their returns in the labor market, may have depressed their labor force participation rates in rural areas (Afridi et al. 2016). None of these studies however, undertakes a detailed analysis of the relationship between having a young child and mothers' employment nor do they examine how household structure mediates the relationship.

The construction of motherhood exercises a strong normative pressure on women's market and domestic work. In India, as in many other countries, motherhood is assigned an exalted role; conversely, women who are not perceived as fulfilling the role in the traditional sense are censured, either overtly or covertly, both within the home and outside. In this context, child care is almost entirely the responsibility of the mother. While Indian fathers are becoming increasingly involved in child rearing, especially in urban areas, they are perhaps more involved after the child starts school. In a publication that considered societal norms of a good wife and mother, respondents from India, as elsewhere, characterized good motherhood as being about a mother putting her care responsibilities uppermost. At the same time, respondents felt that working mothers are discriminated against for abandoning their children and that children may be negatively affected by their mother's absence (Muñoz Boudet et al. 2013). Anecdotal evidence also shows that working mothers may be discriminated against by employers for not being adequately committed to the labor market (Johari 2015). Given this milieu, women feel that if they leave children with non-family members they would be negligent mothers despite the fact that there is no conclusive evidence of the relationship between maternal employment and children's welfare, with a rich

body of literature showing effects in both directions (Desai and Jain, 1994; Kishor and Parasuraman 1998; Glick 2002).

It is ironic that in India, as the burden of childbearing has reduced, the burden of childrearing has increased over time (table 2). There could be two main reasons for this. First, intergenerational co-habitation has declined, especially in urban areas, as families have become more nuclear. Women have fewer potential helpers in child care and domestic responsibilities and hence have fewer options (Tuli and Chaudhary 2010). According to NSS data, among those married women (aged 25–55) who reported not being in the labor force in 2011, a significant majority (70 percent) reported staying in the domestic realm, due to compulsion. While the responses did not vary greatly by women's education level, about one-third of women attending domestic duties only said they would be willing to accept work outside the home, and most of them (75 percent) wanted regular part-time jobs (World Bank 2011).

Second, it is possible that while the number of children per woman has declined, families place greater emphasis on the quality of childrearing and make higher investments in children, both as a route to social mobility and in response to pressure from schools. It is for instance, possible that especially in recent years, mothers in urban areas spend more time tutoring and mentoring their young children, as pre-schools insist on greater involvement of parents in the child's education. Palriwala and Neetha (2011) suggest that the elite and middle classes have higher expectations of quality from child care providers, while Datta and Konantambigi (2007) argue that while many middle and upper class mothers have few alternative care options, they are pressured to provide early stimulation and education for their children. In another study, Basu and Desai (2012) find children in one-child families to be advantaged: they are more likely to be sent to private schools and English medium schools, and more likely to receive private tutoring in addition to schooling, than children from larger families. Yet women in one-child families are less likely to be employed than those in larger families.

In countries with established welfare systems, or with institutions that actively encourage women's participation in the labor market, affordable child care is a facilitator of women's employment, but in places that lack formal care arrangements, families and other informal arrangements are indispensable (Del Boca 2002; Del Boca 2015). Parents may choose grandparents or trusted relatives over low-quality private or public providers, to share care responsibilities (Del Boca et al. 2005; Kuhlthau and Mason 1996; World Bank 2015b). Teenage

children are also often tasked to help with household responsibilities, including caring for younger siblings, which has its own negative consequences for the older children. In developing countries, potential caregivers in the household have been observed to be girls as young as age 6, when there are younger siblings to be cared for, while in richer countries it is more common for a grandmother to replace working mothers in child care (Hallman et al. 2005).⁴ Francavilla et al. (2013) find that if mothers work in India, children, especially in poorer households, may contribute to housework or to household income, or simply stay inactive instead of attending school. The burden of household chores and care of siblings was also found to be a significant factor in girls' non-enrollment and absence from school in poor families in the mid-1990s (Probe Team 1999).

Indian labor laws require that employers provide child care, but only a few provide satisfactory facilities.⁵ Moreover, since the majority of women work in unregulated, informal jobs, they do not have assured access to such facilities, even if they did exist. Regardless of laws, institutional care facilities for children under the age of 6 are practically non-existent in rural areas and very unsatisfactory in urban areas. Urban households tend to send their children—usually from the age of 2 years—to pre-schools, that are for the most part unregulated but expensive and keep the child only for a few hours. These facilities are not a viable child care option for women who work full-time, or even part-time, especially if they have to travel some distance to get to their place of work. For children under the age of two, there are even fewer child care options and women have to either hire private help or ask for assistance from family and relatives.

Palriwala and Neetha (2011) argue that social policies for women and child welfare, including crèche schemes have been developed mainly to address issues of children's health and well-being rather than of women's employment. There are various non-state initiatives, of which those offered by the Self-Employed Women's Association (SEWA) and Mobile Crèche are among the best known, but several private providers and employers are slowly realizing the importance

⁴ See Wong and Levine (1992) for urban Mexico; Connelly, DeGraff and Levinson (1996) for metropolitan Brazil; Maurer-Fazio et al. (2011) for urban China; Hallman et al. (2005) for urban slums of Guatemala City; Deutsch (1998) for slums of Rio de Janeiro; and Posadas and Vidal-Fernandez (2013) for the U.S. For the role of grandmothers in childcare, see Du and Dong (2010) for China; Compton and Pollak (2014) for the U.S.; Arpino et al. (2010) and Del Boca (2002) for Italy, though the latter study does not test whether grandmothers' effect on women's LFPR is through child care.

⁵ Section 48 of the Factories Act, 1948; Section 44 of the Inter State Migrant Workmen (RECS) Act, 1979; Section 12 of the Plantations Labour Act, 1951; Section 14 of the Beedi and Cigar Workers (Conditions of Employment) Act, 1966; Section 35 of the Building and other Constructions (Regulation of Employment and Conditions of Service) Act, 1996. See the list of protective provisions for women employees:

<http://labour.gov.in/content/division/women-labour.php>

of child care to retain female workers. Most of these initiatives are small in scale and patchy, compared to the vast needs for child care. SEWA and Mobile Crèche have long highlighted the needs of especially the poorest informal women in large urban centers – women who work on construction sites, street vendors, domestic workers, and others who work in taxing manual jobs, for low wages. As yet however, there is not a similar lobby for the needs of educated women who may want to work, but cannot.

Micro studies shine more granular light on women's child rearing and domestic responsibilities and their influence on urban women's labor market decisions. Qualitative research based on interviews with professional women, confirms accounts of women placing their reproductive and caregiving roles above their jobs and careers, where domestic help is hard to find and the employer does not provide child care facilities or flexible work options (Agarwal et al. 2012; Buddhapriya 2009; Valk and Srinivasan 2011). Sudarshan and Bhattacharya (2009), based on a household survey in urban Delhi in 2006 found that 60 percent of respondents had quit work after childbirth, and around 57 percent of working respondents felt that women should stop working when their children are young. Among women who withdrew from the formal labor market, the most common reason was that household work had become too burdensome. Both working and nonworking women reported neglect of children and conflict over domestic chores as the two factors that most constrained women's employment.

Yet many women, not just the poorest, have to walk a fine balance between market work and child care, and while a growing feminist discourse is drawing attention to this, empirical studies are limited. A study in urban areas of Uttar Pradesh and Gujarat, found that women from certain communities would forego wage work, saying it was mostly due to family responsibilities and social norms (IAMR and ILO 2013). On average, working women spent 4–6 hours a day either attending to household duties or taking care of the children or elderly. Some women with young children preferred to work from home, when there was no one from the family to help with child care. Based on interviews with female engineers, an article in *Quartz* cites the “maternal wall” as the main barrier for Indian women to advance in their careers (Madhok 2015), while in a 2015 poll of G20 countries, female respondents from India stated that balancing work with home was the main issue they dealt with in their working lives, followed by few opportunities for flexible work (Thomson Reuters Foundation 2015).

3. The Data and Its Description

This paper uses NSS data to study the relationship between mothers' employment, presence of young children and household structure. The NSS surveys are the largest and most frequently used data sets on employment for India. We use six "thick" rounds of the Employment and Unemployment schedules of the NSS: 1983, 1993–94, 2004–05, 2007–08, 2009–10 and 2011–12. While the NSS include an extensive set of questions on employment and individual characteristics, they do not have questions on child care or norms of motherhood and caregiving.

Our analytic sample comprises wives of household heads aged 25 to 55 years in urban areas.⁶ The age range excludes women who may be in college or may have exited the labor market due to early retirement. It is worth noting here that marriage in India is early and near universal for women, with mean age at effective marriage in urban areas standing at 22.7 according to the Census.⁷ Other analysis shows that marriage by itself is an important predictor of employment, in that it depresses women's labor force participation in several countries, and certainly in India (Das and Desai, 2003; Das, 2006).

We have 25,000 to 29,000 observations for each year in our sample, and the pooled sample has nearly 162,000 observations. The dependent variable is women's employment, which is estimated based on their activity in the last 365 days (i.e. whether a woman worked for the major part of the year preceding the survey, also called usual principal status). The main variable of interest is the presence of at least one young child under age 6 in the household, because by age 6 most children start going to school and require less intensive care. Other explanatory variables are woman's education, age, a squared term for age, region of residence and household characteristics such as Scheduled Caste (SC), Scheduled Tribe (ST) and Other Backward Caste (OBC) status, religion and household size.

In line with fertility decline in India, we observe that the share of women with children under age 6 fell almost by half from 42.9 percent in 1983 to 23.2 percent in 2011. This has been accompanied by a plunge in average household size, which dropped from a high of 5.8 in 1983 to 4.6 in 2011. The mean age at first birth for women aged 25 years and older in urban areas is

⁶ To capture the effects of children on mother's employment we focus only on the spouse of household head as a unit of analysis and thus exclude other women who may be residing in the same household. However, other women in the household enter the analysis as explanatory variables in terms of possible childcare support to the wife of the household head, and our protagonist.

⁷ http://www.censusindia.gov.in/vital_statistics/srs_report/9chap%20%20-%202011.pdf

between 21.2 and 21.5 (Desai et al. 2010). Therefore, women in our sample would have commenced childbearing, leading to a higher average household size than of the whole sample. This is borne out in table A2. In addition, the share of households with at least one male is higher than the share of households with at least one female, irrespective of age group in all survey rounds. This is because single migrants to urban areas tend to be men and women usually migrate after marriage. Table 2 shows only 16 percent of women (aged 25-55) with young children were in the labor market in 2011, compared to 23.6 percent of women without young children. The difference in LFPR of the two sets of women increased from 4.7 percentage points in 1983 to 7.5 percentage points in 2011.^{8,9}

Table 2. Labor Force Participation Rates for Married Women with and Without Children under Age 6 in Urban Areas, 1983–2011 (percent)

	1983	1993	2004	2007	2009	2011
Female with no children under age 6	24.4	24.4	25.8	21.7	22.8	23.6
Female with at least one child under age 6	19.7	18.7	20.2	15.9	14.6	16.1
<i>difference</i>	4.7	5.7	5.6	5.8	8.2	7.5

Source: Authors' estimates from the NSS for urban women aged 25-55, who are wives of household head.

We expect a lower likelihood of employment for younger women, those belonging to non-SC/ST/OBC households and Muslim women. SC/ST women have been generally disadvantaged and are among the poorest; therefore, they are more likely to work compared to non-SC/ST women. They also tend to have weaker norms of male-female segregation (Das and Desai, 2003; Das 2006). Religion, however, plays a complex role and its negative effects on employment are stronger for Muslim women, due to a variety of reasons, of which lack of opportunities may be one (see Das 2005). We also add the husband's education and employment type as a proxy for household income and socio-economic status.¹⁰

Further, we account for household structure to bring in the presence of potential caregivers. In doing this, we include older females and males by age group, assuming that their presence in

⁸ The difference in LFPR between women with at least one young child and those without young children is statistically significant in all years.

⁹ We estimate the LFPR for women with children aged 6–7 and find that it is around 2–3 percentage points higher than the LFPR of women with children under age 6 in the period 2004–2011, whereas in the years before the difference was negligible.

¹⁰ The NSS surveys do not collect earnings information for self-employed workers (who constitute around half of employed persons) making it impossible to infer household income.

the household is exogenous (see discussion in section 5). Several studies suggest that grandmothers are usually the next best alternative to a mother and, in particular, women who live with their mothers-in-law may benefit from help in household chores (Datta and Konantambigi 2007; IAMR and ILO 2013). All variables are binary except for age, age squared and household size. Table A1 presents means for all variables used in the analysis for spouses of urban household heads aged 25–55 for years 1983–2011. Table A6 presents descriptions of all variables.

Descriptive statistics show that during the period 1983 to 2011, only 17 to 20 percent of women in the sample were employed each year. Their labor force participation was highest in 2004 at 19.6 percent but dropped to 17 percent and remained at that level in 2011. Education levels in the sample expanded considerably. The proportion of women with no education declined from 48.7 percent in 1983 to 24.5 percent in 2011. At the same time, the share of women with a secondary or higher education increased from 25.5 percent in 1983 to 55.4 percent in 2011. Almost a quarter of the women in the sample had post-secondary education by 2011.

There is a gendered pattern to the availability of persons over the age of 50 in a household, in that a little over a quarter of the households in each survey year had males over the age of 50, but much fewer had females over the age of 50. In fact, the share of households with females above age 50 decreased from 13.7 percent in 1983 to 10.7 percent in 1993 and stayed at that level during the remaining period. This decline probably reflects the increase in nuclear families and the fact that older women today are less inclined to be full time support for younger working women, than in previous generations. It is also probably a reflection of the fact that single migrants in urban areas tend to be men. Whatever the reason, it has implications for the labor force participation of younger women.

4. Analytic Strategy and Methods

We use a logistic regression model to predict the probability of women’s employment using the following specification:

$$\text{logit}\{\text{Pr}(y_i = 1|x_i)\} = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \varepsilon_i$$

where $y_i = 1$ denotes employment for the wife of the household head, i ($y_i = 0$ denotes not employed), x_{1i} is a variable that stands for presence of children under age 6 in the household (0 = if none, 1 = if at least one), x_{2i} – the individual and household variables that we control for

(i.e. women's education, age, age squared, social class, religion, region of residence, household size, husband's education and employment type and dummies for presence of other household members grouped by age and gender). β_0 is an intercept, β_1 is the coefficient of interest, which shows the effects of the presence of young children, and β_2 contains coefficients that capture other individual and household level effects. Except for age and household size (which are continuous variables), all variables are represented by dummy indicators.

We estimate logistic regressions for each year and in the pooled sample we include dummies for the survey year with 1983 as a reference (see Table A6 for a list of variables and their descriptions). We calculate odds ratios predicting women's employment probability in three logistic regression models. The first specification estimates the odds of being employed for married women while controlling for presence of young children, women's education and other individual and household characteristics. Then, we add several variables to control for other observable characteristics and test the robustness of the model. The second model adds husband's education and employment type. In the third model we add the presence of young females and males as well as those aged over 50 in the household.

Limitations of data throw up several empirical challenges in measuring the association between women's employment, child care responsibilities and household structure; the complex nature of these relationships may lead to confounding issues of endogeneity. First, it is possible that labor market opportunities affect fertility decisions, (e.g. career-oriented women may decide to postpone or not to have children), and our inability to control for this may lead to biased estimates. Second, some variables may simultaneously affect household structure, fertility and employment decisions, and we may omit a variable that cannot be measured. For instance, as new employment opportunities open up for women, older household members may be more likely to move into the household to help with child care needs. In addition, lack of data on formal child care does not allow us to test whether the effect of other household members on women's labor supply is through child care. Yet, in India, with its norms of co-residence with the husband's family, we consider the presence of other household members as exogenous to the employment decisions of mothers. Similar to Connelly et al. (1996), we do not try to explain household structure or the joint time allocation decisions of all household members. While the possibility of reverse causality and endogeneity cannot be fully excluded in our econometric specification, we assume that in the short term, women's fertility decisions as well as household structure are a given.

5. Results

The findings of this paper echo a rich global literature that testifies to the role young children play in women's labor supply decisions. Table A3 shows the results of the first logistic regression model, where we look at the association between women's employment and the presence of children under age 6 in the household in each survey round and in the pooled sample. We find an increasing negative association between having a young child in the household and women's employment during the 1983–2011 period. While in 1983–2004 having a young child was negatively associated with women's employment (statistically significant only at the 10 percent level), after 2004 the likelihood of being employed for women with young children decreased substantially. In 2011, the odds of being employed for women without a young child were almost 1.4 times higher than for those with at least one young child. These results are in line with other recent empirical work for India that identifies an increasing negative association between having young children and women's working (Klasen and Pieters, 2015; Sorsa et al. 2015; Kapsos et al. 2014). Clearly, young children in a household impose huge demands on women's time and limit their employment potential, as evidenced by studies from other countries (e.g. Cackley 1990; Connelly et al. 1996; Wong and Levine 1992; Deutsch 1998). However, as pointed out earlier, since we cannot account for possible endogeneity—i.e. that labor market and fertility decisions can be simultaneously determined—we do not establish the causal effects of care responsibilities.

We also find that education has a complex relationship with women's likelihood of being employed. Those who are educated below primary level are more likely to be employed than those with secondary education, but then post-secondary education raises the chances of employment again. The reference category is uneducated women. We also find that over time, the positive effect of post-secondary education has declined. It is likely, as Desai et al (2010) point out, that the increasing number of women with higher education has been accompanied by their stronger preference for white-collar jobs. However, as the supply of such jobs has not kept up with demand; highly educated women withdraw from the workforce instead of accepting menial or low-status jobs (Das and Desai 2003). According to Klasen and Pieters (2013), the share of white-collar services in urban employment dropped from 19 to 17 percent between 1987 and 2009, while the share of graduates in the working-age population increased from 11 to 21 percent during the same period.

Consistent with the results of other empirical work, coefficients for demographic characteristics show expected effects. SC, ST and OBC women are more likely to be employed than are women from the “general category” (non-ST/SC/OBC). Younger women are less likely to be employed but household size does not seem to matter much. Looking across regions, we find that women from the South and West are more likely to be employed than women from other regions. These findings are in keeping with our expectations and a large body of literature on female labor force participation in India.

The second model adds husbands’ characteristics (education and employment type) to proxy for household income level and socio-economic status (see Table A4). The effect of having young children on women’s employment changes only marginally, and the negative association remains intact. Women whose husbands have more education are less likely to be employed- this stylized fact is in line with the work of Das (2006), Klasen and Pieters (2015) and Wong and Levine (1992). In fact, the effects of husbands’ education have not changed much between 1983 and 2011. Women whose husbands had post-secondary education were three times less likely to be working compared to those whose husbands were uneducated in 2011; essentially, the odds of working for these women have remained unchanged for the past 30 years.

We also find that women whose husbands are in regular jobs are less likely to be employed. While coefficients are highly significant for husbands with regular and self-employed jobs, they are less so for husbands who are casual laborers. We suspect that higher household wealth and socio-economic status (captured by husbands’ education and regular employment) allow women to stay out of the labor force, unless there are attractive job opportunities and women’s employment is socially acceptable (Kingdon and Unni 1997; Das 2006). Indeed, we observe that husbands’ characteristics do not lower the likelihood of being employed for women with post-secondary education. Highly educated women are twice as likely to be working as women with no education, even controlling for husbands’ characteristics and the presence of young children. In urban areas, skilled women are more likely to be pulled into the labor market by higher earnings opportunities and better jobs (Klasen and Pieters 2015; Kapsos et al. 2014; IAMR and ILO 2013). The “motherhood penalty” for these women may also be lower as they are better positioned to find and afford child care.

The third model (Table A5) adds the presence of potential caregivers, such as older girls and boys and members over age 50 in the household. The presence of young children in the

household is still negatively associated with women's employment, though the relationship is weaker in 2007 and 2011. By contrast, we find that the presence of girls aged 6–15 is positively associated with married women's employment.¹¹ Furthermore, we find that the presence of women aged 50 and older in the household increases the likelihood of women's employment. This effect is strongly significant in all years. In the pooled sample, the odds of employment are 39 percent higher for women living with females over age 50 in the household. Although the magnitude of the effect declined over time (by around 18.6 percentage points during 1983–2011), the presence of older females in the household suggests that older women function as mother surrogates in a way that older girls living in the home do not.

As we turn to male members in the household, we find that the presence of young boys (aged 6–9) is positively associated with women's employment in the pooled sample and in the years 1983 and 1993, though the relationship is weaker and not statistically significant for later years. The presence of boys aged 10–15 in the household is also positively associated with women's employment but the relationship is not statistically significant for all years. The results suggest that older boys may also contribute to housework (although less than girls), or perhaps older children may also allow women to enter market work due to lower demands for their care needs.

6. Discussion and Implications

To our knowledge, this paper is the first to empirically examine the relationship between women's care responsibilities and their decision to participate in the urban Indian labor market. Social norms dictate that even if other family members help out, the ultimate responsibility of child care rests on women, particularly on the mother. A culture that instills the responsibility of child care so overwhelmingly into women, especially in their role as mothers, also makes it hard for them to enter and stay in market work. It is also possible that parents today want to invest more heavily in children than the previous generations did. This decision comes at the cost of mothers staying out of the labor market and providing high quality care to children. It is particularly the case for educated mothers, who use their skills in providing their children a better life, possibly in

¹¹ We have also tested the effects of living with other household members, including them by their relationship status to the spouse of household head, rather than age group. Yet, these variables are not statistically significant for most years, hence we assume that grouping household members by age is more relevant in this analysis.

the expectation that their kids will fare better than they did, and the overall status and standing of the family will be elevated. Whether this is altruism or “sacrifice”, or self-interest is the subject of another, more philosophical discussion.

Indian women’s decision to enter and stay in the labor market has garnered more scholarly and public attention in the last few years. We know that married women tend to stay out, and mothers are even more likely to do so. Their decisions are likely influenced by a number of factors, not just the mere presence or absence of child care. This includes the type of jobs available to them, their wages, conditions of work, status in the workplace, travel time to the workplace, whether they have enough flexibility to take time off when children need them, etc. Qualitative interviews our team has conducted during 2014-2016 show that the perception of safety and security both in the workplace and outside may have a lot to do with the overall package of “conditions of work”. These considerations are difficult to measure with classic data sets but together make up what is a black box of “opportunity cost” of market work for women. Often the conditions of work and the norms of a “good mother” and “good wife” are too difficult to question or to negotiate, even if women wanted to, and so staying home is a rational option. Opportunity cost is likely calculated by husbands and wives, who understand the labor market and its likely opacity, and juxtapose that with the needs of high quality care for their children, thereby making well thought-out decisions on the costs and benefits of mothers entering the labor market.

What does this mean for policy and practice? It really depends on how much a government wants to encourage women’s labor force participation. If indeed it does, there are several policy levers, but they need to be implemented in tandem. Provision of affordable, high quality childcare, safe transport, and implementation of extant enabling legislation are of course quick wins. It is also fashionable to say that norms need to change, but in fact, change in norms often follows strong policy interventions, and norms and behaviors respond well to incentives, as family policy across the world has shown. In sum, unless the state, employers and families weave a web of support, women are unlikely to enter the labor market.

Norms are indeed powerful in society and the economy and may affect not just intra-family decision-making, but also the supply of institutional child care and the labor market in general (Polanyi 1944). What are the chances that the pervasive societal belief that mothers of young children should stay home, or that mothers will not leave their children to take up market work, affects both private and public investment in child care centers? What are the chances that

employers do not hire mothers of young children because of the pervasive doubt about the latter's "attachment to the labor market"? The Pew Research surveys find that 84 percent of Indians agree with the statement: "when jobs are scarce, men should have more right to a job than women" (Pew Research Center 2010). Such attitudes are found to be negatively correlated with women's labor force participation across many countries and are a reflection of social norms that reinforce the traditional role of women and also mediate the way institutions treat women and perpetuate gender inequality in the labor market (Das et al. 2015; World Bank 2013). Norms are often self-perpetuating, in that employers and investors look for what they expect to find. Unless they make a concerted effort to question the conventional wisdom, norms will remain largely stubborn to change.

The state can signal a more enabling vision for women and mothers in different ways. Publicly funded information campaigns that value women as workers and project child care as a shared responsibility in the home, are likely to remove some of the guilt that women often experience when they leave children behind to go out to work. Such campaigns have been effectively used in India and elsewhere to achieve health outcomes such as family planning, immunization, or for literacy and to enroll participants in social programs such as conditional cash transfers schemes. Both the state and the private sector in India are beginning to gingerly experiment with options to attract larger numbers of female workers into the labor market. We need a better understanding of what these initiatives are, how well they work and how they can scale up.

Finally, there is the issue of data and the analysis of the complexity of Indian women's decision to stay out of the labor market. We need data that better capture norms, perceptions and aspirations, in addition to conditions of work, transport, housing, and infrastructure. Better analysis is also required about the mediating factors for women's employment such as the extent to which infrastructure and other services (such as toilets in the work place, hours of water supply in the home, connectivity through transport and information technology) inhibit or encourage women's participation in the labor market, since women and men are differentially affected by the availability of services.

In conclusion, this paper contributes to the understanding of urban India women's decisions to participate in the labor market by assessing the influence of young children in the household. It finds that while the responsibility of child bearing has gone down due to the secular decline in

fertility, the onus of child rearing has gone up. Having a young child in the household reduces urban mothers' likelihood of being employed and this effect has intensified over time. The presence of mother surrogates, in the form of other women in the home, somewhat attenuates this negative effect, but overall, the motherhood penalty is an important factor in women's decisions to enter or stay in the labor market. There are various ways in which policy can help, but provision of childcare will have to go hand in hand with other measures, and employers, the state and households will have to make a coordinated effort to attract and keep urban women in the labor market.

Table A1. Sample Means for Married Women (Wives of Household Heads), Aged 25–55

Year/Variables	1983	1993	2004	2007	2009	2011
Employed	18.4	18.0	19.6	16.7	17.1	17.2
Education						
No education	48.7	39.9	31.5	28.7	25.8	24.5
Below primary	10.8	9.9	8.0	7.5	7.7	8.1
Primary	14.9	13.2	13.4	12.8	12.3	12.0
Secondary	20.1	23.3	27.7	30.7	29.3	30.1
Post-secondary	5.4	13.7	19.4	20.3	24.9	25.3
Demographic characteristics						
SC	12.1	12.5	14.7	14.4	14.4	14.0
ST	3.4	3.0	2.9	2.7	2.7	3.5
OBC	0.0	0.0	36.0	38.4	39.5	41.9
Non-SC/ST/OBC	84.5	84.5	46.4	44.5	43.4	40.6
Hindu	78.7	80.2	79.8	80.0	80.5	79.8
Muslim	14.5	13.5	13.9	14.1	13.4	14.6
Other religion	6.8	6.4	6.3	5.9	6.1	5.7
Age	36.8	37.1	38.3	38.6	38.3	38.4
Household size	5.8	5.2	4.9	4.7	4.6	4.6
Region of residence						
North	14.3	13.8	15.2	14.7	14.4	13.5
Central	24.1	24.0	23.0	22.9	22.2	22.4
East	10.3	10.2	10.2	9.4	9.1	9.3
West	21.0	20.9	22.1	21.7	22.3	22.9
South	28.8	29.2	27.7	29.4	30.1	30.0
North East	1.5	1.9	1.9	1.9	2.0	1.9
Household structure						
Children aged 0–5	42.9	34.3	26.5	24.4	23.7	23.2
Females aged 6–9	27.8	22.5	18.1	16.4	15.7	15.1
Females aged 10–15	34.8	30.4	28.3	25.3	23.5	23.3
Females aged over 50	13.7	11.4	11.2	10.5	10.6	10.7
Males aged 6–9	29.8	25.1	19.3	18.0	18.1	17.1
Males aged 10–15	38.4	33.9	29.9	28.0	29.0	27.9
Males aged over 50	25.2	23.5	25.9	26.9	25.2	25.6
Husband's characteristics						
<i>Education</i>						
No education	23.0	19.1	15.1	14.6	13.2	12.7

Year/Variables	1983	1993	2004	2007	2009	2011
Below primary	13.7	11.6	9.1	7.4	7.2	7.7
Primary	16.7	13.1	13.1	11.5	10.8	10.9
Secondary	31.6	28.3	31.4	34.3	33.3	32.4
Post-secondary	15.0	28.0	31.4	32.2	35.4	36.3
<i>Employment type</i>						
Regular	45.9	45.5	39.9	40.7	40.8	41.2
Self-employed	31.3	32.7	37.9	37.9	36.4	37.6
Casual	11.2	12.2	11.6	12.6	14.4	12.3
Other	11.6	9.6	10.7	8.8	8.4	8.9
<i>N</i>	25,283	28,807	28,365	26,942	26,365	26,251

Source: Authors' estimates using NSS Survey.

Table A2: Change in household size 1983-2011

	1983	1993	2004	2007	2009	2011
All India	5.1	4.8	4.7	4.5	4.4	4.3
Urban	4.8	4.4	4.3	4.2	4.1	4.0
Analytic sample – wives aged 25-55 of urban household head head	5.8	5.2	4.9	4.7	4.6	4.6

**Table A3. Model 1: Odds Ratios of Logistic Regression Predicting Employment of Married Women
Controlling for the Presence of Young Children**

	1983		1993		2004		2007		2009		2011		Pooled	
	or	se	or	se	or	se	or	se	or	se	or	se	or	se
Child aged 0–5	1.128*	0.073	0.985	0.058	0.862*	0.069	0.795**	0.075	0.641***	0.058	0.736***	0.073	0.823***	0.029
Woman's characteristics:														
Below primary	0.470***	0.043	0.499***	0.039	0.608***	0.056	0.722***	0.078	0.684***	0.076	0.768**	0.087	0.634***	0.027
Primary	0.317***	0.027	0.413***	0.031	0.522***	0.047	0.504***	0.047	0.666***	0.067	0.673***	0.068	0.530***	0.021
Secondary	0.323***	0.026	0.285***	0.019	0.289***	0.023	0.340***	0.031	0.403***	0.036	0.399***	0.034	0.348***	0.013
Post-secondary	1.996***	0.175	1.197***	0.074	0.828**	0.066	0.881	0.075	0.796***	0.070	0.703***	0.062	0.835***	0.030
SC	1.870***	0.123	1.816***	0.116	1.692***	0.147	1.668***	0.156	1.869***	0.181	1.352***	0.133	1.715***	0.064
ST	2.551***	0.340	2.000***	0.223	2.439***	0.329	2.605***	0.369	2.336***	0.324	1.686***	0.214	2.223***	0.122
OBC					1.388***	0.092	1.172**	0.085	1.263***	0.093	1.043	0.083	1.231***	0.042
Muslim	0.672***	0.051	0.597***	0.043	0.599***	0.058	0.625***	0.061	0.521***	0.058	0.572***	0.056	0.600***	0.024
Other religion	0.995	0.099	1.130	0.094	1.385***	0.140	1.443***	0.163	1.291**	0.147	1.365***	0.165	1.288***	0.061
Age	1.169***	0.033	1.184***	0.031	1.138***	0.039	1.077*	0.043	1.159***	0.043	1.142***	0.042	1.148***	0.017
Age-squared	0.998***	0.000	0.998***	0.000	0.998***	0.000	0.999**	0.000	0.998***	0.000	0.998***	0.000	0.998***	0.000
Household size	0.945***	0.011	0.962***	0.012	0.987	0.016	0.976	0.017	0.964*	0.019	0.946***	0.018	0.961***	0.007
North	1.039	0.085	0.929	0.082	1.093	0.115	1.217*	0.130	1.041	0.114	1.024	0.105	1.060	0.045
East	0.776**	0.082	0.932	0.082	0.861	0.107	1.320**	0.158	1.137	0.148	1.513***	0.185	1.116**	0.056
West	1.697***	0.129	1.692***	0.112	2.020***	0.188	2.055***	0.194	2.144***	0.233	1.875***	0.180	1.917***	0.075
South	2.507***	0.167	2.477***	0.146	2.853***	0.243	3.057***	0.264	3.083***	0.284	2.714***	0.239	2.753***	0.095
North East	1.340**	0.164	1.117	0.114	1.136	0.154	1.347**	0.188	1.212	0.267	1.172	0.142	1.201***	0.077
Round 50													0.955	0.031
Round 61													1.006	0.040
Round 64													0.821***	0.035
Round 66													0.820***	0.035
Round 68													0.831***	0.038
_cons	0.013***	0.007	0.009***	0.005	0.020***	0.014	0.056***	0.045	0.014***	0.010	0.027***	0.020	0.021***	0.006
<i>N</i>	25,256		28,793		28,341		26,928		26,341		26,250		161,909	

Notes: *** p<0.01, ** p<0.05, * p<0.1

In the NSS, data for OBCs were not available before 2004.

**Table A4. Model 2: Odds Ratios of Logistic Regression Predicting Employment of Married Women
Controlling for Husband's Characteristics**

	1983		1993		2004		2007		2009		2011		Pooled	
	or	se	or	se	or	se	or	se	or	se	or	se	or	se
Child aged 0–5	1.051	0.069	0.947	0.057	0.850**	0.069	0.775***	0.074	0.630***	0.057	0.734***	0.073	0.804***	0.029
Husband's education:														
Below primary	0.774***	0.058	0.809***	0.059	0.859	0.087	0.711***	0.084	0.727**	0.093	1.097	0.130	0.823***	0.036
Primary	0.588***	0.045	0.713***	0.053	0.758***	0.070	0.527***	0.059	0.718***	0.083	0.673***	0.076	0.649***	0.027
Secondary	0.347***	0.031	0.447***	0.036	0.514***	0.050	0.394***	0.045	0.425***	0.046	0.445***	0.047	0.427***	0.018
Post-secondary	0.297***	0.038	0.294***	0.028	0.358***	0.040	0.308***	0.045	0.297***	0.041	0.331***	0.040	0.312***	0.017
Husband's employment:														
Regular	0.476***	0.039	0.445***	0.034	0.444***	0.045	0.526***	0.058	0.582***	0.062	0.595***	0.061	0.518***	0.022
Self-employment	0.655***	0.052	0.593***	0.044	0.517***	0.053	0.596***	0.065	0.561***	0.056	0.648***	0.065	0.589***	0.024
Casual	1.145	0.104	1.075	0.092	0.738***	0.081	0.996	0.122	0.725***	0.078	0.836	0.095	0.874***	0.040
Woman's characteristics:														
Below primary	0.668***	0.065	0.672***	0.055	0.716***	0.069	0.940	0.110	0.845	0.102	0.871	0.103	0.798***	0.037
Primary	0.553***	0.052	0.654***	0.055	0.727***	0.071	0.773**	0.081	0.956	0.105	0.934	0.104	0.796***	0.035
Secondary	0.774***	0.077	0.627***	0.051	0.493***	0.046	0.651***	0.075	0.707***	0.073	0.710***	0.073	0.659***	0.029
Post-secondary	6.057***	0.800	3.780***	0.344	1.875***	0.194	2.110***	0.268	1.919***	0.250	1.682***	0.195	2.122***	0.108
SC	1.632***	0.113	1.589***	0.105	1.548***	0.140	1.439***	0.141	1.661***	0.162	1.247**	0.123	1.529***	0.059
ST	2.155***	0.268	1.790***	0.196	2.219***	0.313	2.261***	0.327	2.162***	0.313	1.633***	0.205	2.017***	0.111
OBC					1.295***	0.088	1.067	0.080	1.172**	0.088	0.979	0.079	1.140***	0.040
Muslim	0.576***	0.046	0.524***	0.039	0.535***	0.053	0.545***	0.056	0.475***	0.053	0.510***	0.050	0.533***	0.022
Other religion	1.012	0.102	1.055	0.091	1.296**	0.132	1.380***	0.154	1.210*	0.140	1.299**	0.147	1.225***	0.057
Age	1.190***	0.034	1.245***	0.034	1.206***	0.044	1.119***	0.046	1.203***	0.045	1.178***	0.044	1.192***	0.018
Age-squared	0.998***	0.000	0.997***	0.000	0.997***	0.000	0.998***	0.001	0.997***	0.000	0.998***	0.000	0.998***	0.000
Household size	0.953***	0.011	0.967***	0.012	0.982	0.016	0.971	0.017	0.960**	0.019	0.939***	0.018	0.959***	0.007
North	1.035	0.086	0.954	0.085	1.125	0.121	1.286**	0.138	1.060	0.119	1.116	0.116	1.111**	0.048
East	0.762**	0.082	0.904	0.081	0.765**	0.096	1.243*	0.150	1.042	0.138	1.424***	0.172	1.046	0.053
West	1.701***	0.133	1.689***	0.115	1.976***	0.186	2.081***	0.201	2.129***	0.234	2.004***	0.196	1.949***	0.078
South	2.236***	0.155	2.154***	0.132	2.632***	0.230	2.852***	0.252	2.840***	0.267	2.650***	0.241	2.561***	0.091
North East	1.342**	0.166	1.107	0.115	1.129	0.153	1.384**	0.192	1.233	0.280	1.211	0.145	1.225***	0.080
Round 50													0.963	0.032
Round 61													1.037	0.042
Round 64													0.851***	0.037
Round 66													0.839***	0.038
Round 68													0.865***	0.040
cons	0.023***	0.013	0.008***	0.004	0.019***	0.013	0.069***	0.057	0.018***	0.013	0.032***	0.025	0.025***	0.007
<i>N</i>	25,001		28,684		28,33		26,928		26,340		26,247		161,536	

Notes: *** p<0.01, ** p<0.05, * p<0.1

In the NSS, data for OBCs were not available before 2004.

**Table A5. Model 3: Odds Ratios of Logistic Regression Predicting Employment of Married Women
Controlling for the Presence of Other Females and Males in the Household**

	1983		1993		2004		2007		2009		2011		ALL	
	or	se	or	se	or	se	or	se	or	se	or	se	or	se
Child aged 0–5	1.119*	0.074	1.003	0.062	0.998	0.083	0.828*	0.083	0.712***	0.066	0.828*	0.088	0.887***	0.033
Females aged 6–9	1.109*	0.065	1.190***	0.068	1.203**	0.088	1.148	0.096	1.219**	0.103	1.330***	0.140	1.202***	0.042
Females aged 10–15	1.299***	0.074	1.363***	0.070	1.542***	0.099	1.250***	0.090	1.261***	0.094	1.213***	0.088	1.305***	0.037
Females aged over 50	1.551***	0.116	1.581***	0.108	1.333***	0.114	1.257**	0.121	1.366***	0.136	1.365***	0.137	1.387***	0.053
Males aged 6–9	1.163***	0.067	1.118**	0.060	1.093	0.079	1.021	0.089	1.115	0.091	1.117	0.094	1.100***	0.035
Males aged 10–15	1.165***	0.064	1.018	0.051	1.421***	0.096	1.113	0.080	1.243***	0.093	1.252***	0.093	1.202***	0.035
Males aged over 50	0.905	0.070	0.935	0.070	1.043	0.102	1.079	0.116	0.903	0.101	0.965	0.096	0.967	0.041
Husband's education:														
Below primary	0.779***	0.058	0.800***	0.058	0.881	0.087	0.715***	0.085	0.732**	0.095	1.106	0.132	0.828***	0.037
Primary	0.593***	0.046	0.705***	0.053	0.766***	0.071	0.536***	0.061	0.715***	0.082	0.680***	0.077	0.652***	0.027
Secondary	0.347***	0.031	0.442***	0.036	0.528***	0.051	0.398***	0.046	0.421***	0.046	0.446***	0.047	0.428***	0.019
Post-secondary	0.299***	0.039	0.291***	0.028	0.364***	0.041	0.308***	0.046	0.296***	0.042	0.329***	0.040	0.312***	0.017
Husband's employment:														
Regular	0.462***	0.037	0.442***	0.034	0.441***	0.045	0.529***	0.059	0.580***	0.061	0.603***	0.063	0.516***	0.022
Self-employment	0.639***	0.051	0.590***	0.043	0.512***	0.052	0.594***	0.065	0.555***	0.056	0.649***	0.067	0.583***	0.024
Casual	1.105	0.099	1.062	0.090	0.715***	0.077	0.988	0.122	0.704***	0.076	0.824*	0.095	0.856***	0.039
cons	0.062***	0.037	0.015***	0.008	0.054***	0.041	0.092***	0.081	0.031***	0.025	0.047***	0.037	0.046***	0.015
<i>N</i>	25,001		28,684		28,336		26,928		26,340		26,247		161,536	

Notes: *** p<0.01, ** p<0.05, * p<0.1

In the NSS, data for OBCs were not available before 2004.

The model also includes controls for the same woman's characteristics as in the previous models.

Table A6. Variables and Their Description

	Variable	Coding
Household structure	Child aged 0-5	At least one household head's child between 0 and 5 years old (inclusively) = 1
	Females and Males by age group: 6-9, 10-15, 50 and over	At least one other female in the household in one of the three age groups = 1 At least one male in the household in one of the three age groups = 1
Husband's Employment type	Regular Self-employed Casual Unemployed or not in the LF	Regular wage employment = 1 Self-employed = 1 Casual labor = 1 Reference: unemployed or not in the labor force
Education	No education (reference) Below primary Primary completed Secondary Post-secondary (and above)	5 Dummies for education categories Reference: no education
Social Group	Scheduled Caste (=1) Scheduled Tribe (=1) Other Backward Caste (=1) Others (General) (reference)	4 Dummies for social group Reference: Others In the NSS, data for OBCs were not available before 2004.
Religion	Muslim Hindu Other religion	Muslim = 1 Other religion = 1 Reference: Hindu
Age	Age Age squared	Age in years Age squared as continuous variable
Household size	Number of family members	Continuous
Region	North East West South NE Central	6 Dummies: East = 1 if West Bengal, Orissa, Andaman and Nicobar Islands West = 1 if Gujarat, Maharashtra, Goa, Dadra and Nagar Haveli, Daman and Diu South = 1 if Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Lakshadweep, Pondicherry North-East = 1 if Manipur, Tripura, Arunachal Pradesh, Sikkim, Assam, Meghalaya, Mizoram, Nagaland Central (reference) = 1 if Bihar, Jharkhand, Uttar Pradesh, Uttaranchal, Madhya Pradesh, Chattisgarh
NSS Round/ Year	38 th round (1983) 50 th round (1993-94) 61 st round (2004-05) 64 th round (2007-08) 66 th round (2009-10) 68 th round (2011-12)	6 Dummies for NSS survey rounds Reference: 38 th round

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