



Contents lists available at ScienceDirect

Social Science Research

journal homepage: www.elsevier.com/locate/ssresearch

Mothers' work patterns and Children's cognitive achievement: Evidence from the India Human Development survey



Kriti Vikram^{a,*}, Feinian Chen^b, Sonalde Desai^{b,c}

^a Department of Sociology, National University of Singapore, Singapore

^b Department of Sociology, 2112 Art-Sociology Building, University of Maryland, College Park, MD 20742, USA

^c National Council of Applied Economic Research, New Delhi, India

ARTICLE INFO

Keywords:

Maternal employment
Children's cognitive skills
Education
India

ABSTRACT

As female labor force participation increases globally, the relationship between maternal employment and children's development remains unclear. Using data from the India Human Development Survey (2005), we investigate the link between maternal employment and children's arithmetic and reading achievement. We develop a work pattern typology that goes beyond standard measures of employment and captures work intensity and its compatibility with child-rearing in a transitional economy. We find that the relationship between maternal employment and children's outcomes is not unidimensional. For example, children of self-employed mothers are not disadvantaged compared to those with stay-at-home mothers, but maternal employment in salaried jobs or wage work outside the home is negatively associated with cognitive skills in children. However, this negative association is reversed at higher levels of maternal education, suggesting greater access to resources and flexibility associated with better jobs mitigate the negative aspects of maternal employment posed by time constraints. Additionally, maternal employment is associated with maternal involvement in schoolwork and financial investment in academic activities, providing evidence that both time and resources devoted to children's education are significant.

1. Introduction

As increasing female labor force participation becomes a global trend, a great deal of public and scholarly attention has been paid to the effects of maternal employment on children's well-being around the world. Among various indicators of children's welfare, including health, education, development, and social functioning, children's cognitive growth has been the research focus for many social scientists. It is critically related to development in later adulthood and has a long term impact on educational achievement and socioeconomic attainment over the life course. However, despite myriad studies on the topic, the direction and the strength of the relationship between maternal employment and children's development prospects remains a topic of debate (Vandell and Ramanan, 1992; Parcel and Menaghan, 1994; Ruhm, 2004; Johnson et al., 2012).

First, maternal employment potentially has both positive and negative consequences for investments in children. Employment may impose demands on women's time that compete with childcare or allocation of time devoted to children's education, but at the same time, it may result in additional income, reduce fertility and create a sense of self-efficacy that may increase overall investments in children (Desai and Jain, 1994). For example, it has been suggested that income in the hands of women is more likely to result in child-focused investments than income in the hands of men (Dwyer and Bruce, 1988; Engle, 1993). However, the stress or fatigue

* Corresponding author. Department of Sociology, National University of Singapore, AS1 #04-28, 11 Arts Link 117570, Singapore.
E-mail address: socvk@nus.edu.sg (K. Vikram).

<https://doi.org/10.1016/j.ssresearch.2018.02.003>

Received 2 December 2016; Received in revised form 18 January 2018; Accepted 12 February 2018

Available online 16 February 2018

0049-089X/ © 2018 Elsevier Inc. All rights reserved.

associated with balancing employment, childcare, and household chores may negatively affect women's interactions with children. While maternal employment may shape direct investments in children, the role of these investments in shaping children's education and learning outcomes depends on a variety of contexts, including inputs from school and childcare arrangements. Finally, in the context of developing countries, women's employment takes many forms, including work in the informal sector and a combination of a range of income-generating activities, including some that are compatible with childcare and others that are not (Lloyd, 1991; Mason and Palan, 1981).

How the positive and negative influences of maternal employment are balanced remains an empirical question. Tracing these diverse influences is particularly important in rapidly developing economies such as India. Using data from the India Human Development Survey (IHDS) of 2004–05, we investigate the link between maternal employment, mothers' contributions to children's school activities, and children's cognitive development for school-going children aged 8–11 years. This is a critical period for the development of cognitive ability and achievement, even more so than early adolescence (Guo, 1998; Boardman et al., 2002). The intellectual and academic development of children at this age has strong implications for future performance and is closely associated with socioeconomic disparities later in life.

The main contributions of this paper include the development of a work pattern typology that goes beyond the standard measures of employment (for example, working versus not working or occupational classification) to highlight the diversity of women's experiences in income-generating activities in a changing economy, particularly within the agricultural sector. We use rich survey data containing direct assessments of child outcomes and specific parental inputs into children's education (for example, involvement with school activities) to trace the mechanisms linking maternal employment with arithmetic and reading achievement. While the effect of social capital at home and school has been examined in Western literature (see Dufur et al., 2013), such analysis is rare for developing countries.

Specifically, we ask the following research questions: 1) Does maternal employment negatively affect children's cognitive achievement? 2) If so, does this reduction depend on the *type* of work mothers do? Is some type of work less compatible with child-specific investments than others? 3) Does maternal education moderate the impact of employment on cognitive achievement? 4) Do women's work patterns affect their investment in children in terms of the time and resources devoted to children's education? To what extent does this reduction (if any), translate into child outcomes? Our work stands to shed light on the intricate process of how maternal employment influences child development. We expect that the effect of maternal employment on children's development outcomes is not unidimensional, and the answer to the question cannot be a simple yes or no. Both positive and negative effects of maternal employment are theoretically plausible, but the context and nature of work is of primary importance. Particularly in the context of a developing country, where the type of employment is diverse and non-standard type of work is pervasive, we believe it is essential to properly characterize the nature of maternal employment and how its effect may manifest through the time and resources devoted to children's educational process.

1.1. Maternal employment and child outcomes

While assessing the relationship between maternal employment and child outcomes, it is important to focus on the following four issues: (1) nature of work, (2) time investments in children, (3) financial investments in children, and (4) role of education. Each has received considerable attention in the global literature. In the following sections, we explore how India's unique social and cultural conditions shape these four issues.

1.1.1. Nature of work

Literature in the Western context draws heavily from developmental psychology and sociology, highlighting the importance of the mother–child relationship and the mother's parenting style in influencing attachment, work–family conflict and role incompatibility, as well as the role of economic and social contexts (see review by Brooks-Gunn et al., 2010; Lucas-Thompson et al., 2010).

Empirical literature on maternal employment and child well-being is extensive but generally inconclusive, and the question of whether maternal employment has detrimental, beneficial, or no effect seems to hinge on a range of factors, including, to name only a few: the developmental context; children's life stage and measurement of child outcomes; the definition and timing of maternal employment; parenting styles; the economic well-being of the family; the quality of childcare arrangements; other family/household characteristics (Brooks-Gunn et al., 2010; Johnson et al., 2012; Zick et al., 2001; Beyer, 1995; Goldberg et al., 2008; Lucas-Thompson et al., 2010).

Among these constellations of factors and mechanisms, how mothers' income-generating work is characterized is of tremendous importance in developing country settings. Although considerable research has been conducted on maternal employment and its impact on cognitive outcomes (e.g. Vandell and Ramanan, 1992; Brooks-Gunn et al., 2002, 2010; Lucas-Thompson et al., 2010; Johnson et al., 2012) less attention has been paid to how maternal employment is measured. Standard measures of work, for example, working versus not working, full-time versus part-time work, formal versus informal work, or standard occupational classifications, often fail to accurately assess mothers' workloads. In rural, less industrialized settings, a large majority of women are engaged in income-earning activities outside the formal sector and often combine multiple activities. Without taking into account these multiple activities, it is difficult to gauge the time demands on mothers and the subsequent implications for children's development.

Previous research has either treated maternal employment as a dichotomous variable or has captured the intensity of work in terms of the hours spent on the job, with the common distinctions being between working full-time and part-time (Brooks-Gunn et al., 2002; Waldfogel et al., 2002; Cooksey et al., 2009). Certain researchers have looked beyond these categories of maternal employment to focus on the nature of employment, such as its complexity (Parcel and Menaghan, 1994; Joshi et al., 2009). In the developing

regions of the world, there is an increased emphasis on capturing the complexity of women's employment by distinguishing between formal and informal sector work (Lloyd, 1991; Desai and Jain, 1994; Donahoe, 1999). Short et al. (2002) have further nuanced the understanding of how maternal employment influences child outcomes by demonstrating how wage versus non-wage work influences the time spent on childcare. Few researchers have considered non-wage workers, but Short et al. (2002) demonstrate the importance of recognizing multiple economic activities and their consequences for both work–childcare compatibility and work intensity in China. In India, as in China, the majority of women live in rural areas and engage in economic activities outside the wage and salary sector, such as agricultural work on family-owned farms or sideline activities such as animal care or running a family business. With the rising rates of non-farm employment for men (Coppard, 2001), women often end up picking up the slack - working on both family farms and as farm laborers.

1.1.2. Time investments in children

Because of the zero sum nature of time use, it is often assumed that a mother's employment leads to some reduction in the time she will spend with her children, but this view has been heavily contested. For instance, research in the US often suggests that a mother's employment does not result in any decreased time with her children; instead, it leads to a re-arrangement of her schedule that affects only her leisure time (Bianchi, 2000; Sayer et al., 2004). Other research suggests that mothers may compensate for the possible negative effects of employment by increasing their level of shared activities or improving the quality of the time they spend with their children (Moorehouse, 1991; Bryant and Zick, 1996).

It is possible, however, that the stress or fatigue associated with employment may affect women's interactions with children negatively. Arguably, maternal employment outside the home weakens the family's social capital, which includes the frequency of interactions and the strength of bonds developed between parents and children (Coleman, 1988). Mothers' labor force participation is thought to contribute to a reduction in time spent with children, limiting the role of the family in the socialization process and therefore potentially leading to behavior problems or negative childhood outcomes (Parcel and Menaghan, 1993).

Research on developed countries tends to focus on maternal time constraints in the context of alternative childcare and often argues that high quality childcare arrangements may make up for some of the negative effects of maternal absence. In this paper, we do not focus on the nature of childcare but on direct investments in children's education. Our exclusion of childcare reflects the unique situation in India. India has few organized childcare programs, particularly for school aged children. Although there are some crèche facilities in metropolitan cities, most are limited to infants and pre-school age children. Most of the childcare is typically provided by the extended family or older siblings, with self-care being common for primary school age children. In our sample, almost 43 per cent of the households with employed mothers are living in joint families, that is, residing with the extended family, which frequently includes paternal grandparents and other relatives. In nuclear households, older brothers and sisters may act as caregivers, and families frequently live adjacent to other family members who may provide childcare.

However, the Indian school system has increasingly begun to demand greater parental involvement in children's education. Children, even those in kindergarten and grade 1, receive daily homework, i.e., school-curriculum based activities to be undertaken at home, and these require parental supervision. Recent legislation has made it mandatory for government schools to organize regular Parent Teacher Association meetings, and private schools have followed suit. Thus, in families where mothers face competing demands on their time, time investments in children may decline, with a negative impact on children's learning outcomes.

1.1.3. Financial investments in children

Women's employment raises a family's income, thus increasing the financial resources available to children. Maternal employment may also increase the share of resources devoted to children. Research on intra-household bargaining notes that men and women frequently have different expenditure preferences, and women's participation in income-generating activities allows them to increase child-specific investments (Agarwal, 1997; Dwyer and Bruce, 1988). Hence, maternal employment could bring additional resources to the family, enhance a mother's autonomy and sense of well-being, increase the resources devoted to children, and, consequently, benefit the children (Beyer, 1995; Vandell and Ramanan, 1992).

One of the ways greater access to financial resources may have a positive impact on children may be via enrollment in a private school. While free universal schooling up to grade 8 is available to all Indian children, studies document that the quality of school instruction is often poor, characterized by teacher absenteeism (Chaudhury et al., 2006), apathy (The Probe Team, 1999), and discrimination (Deshpande, 2011). Given this situation, more parents are seeking admission to private schools for their children, and private school enrollment in rural India had jumped from 10 per cent in 1993–94 (Shariff, 1999) to over 30 per cent by 2014 (ASER Centre, 2015). In urban areas, more than half the children attend private schools (Desai et al., 2009b). Since children in private schools exhibit slightly better educational performance than those in government schools (Desai et al., 2009b; Muralidharan and Kremer, 2008), maternal employment may improve children's educational outcomes by facilitating their enrollment in private schools.

In addition, private coaching is viewed as providing children with an extra advantage. It refers to after-school private lessons where children are taught the school curriculum and helped with specific problems or subjects. It is increasingly seen as an integral part of overall education of the child but is within the reach of a select few – 19 per cent of our sample. However, there is considerable variation in the quality and kind of help students typically receive via private coaching. Some receive tutoring the year round; others are tutored for a short period, such as before exams. Some receive private coaching from school teachers for additional payment, while others attend coaching classes. Students spend more time studying and pursuing curriculum based activities at home when they

have private tutoring lessons (Desai et al., 2010).

1.1.4. Role of education

The role of women's education in shaping their labor force participation is especially noteworthy. Educational achievement among women in India is quite low, with the 2011 census estimating female literacy at 65.5% (Chandramouli and Registrar General, 2011). Even though Indian women have made significant gains in education over time, these gains have not translated into associated gains in employment. In fact, education has a U-shaped relationship with women's labor force participation, with the least educated and the most educated women being most likely to work (Klasen and Pieters, 2012). Srivastava and Srivastava (2010) also show that female labor force participation is higher for illiterate women than for those with higher levels of education; this trend reverses for women with technical or vocational education or college education in India. Klasen and Pieters' (2012) analysis of urban female labour force participation in India finds that below secondary education, female employment is distributed widely across sectors and types of employment (paid and self-employment) but is driven by economic necessity; the large majority of highly educated (secondary and above) women are more likely driven by pull factors and are employed in higher quality, skilled, service sector jobs. Given this, our study is likely to capture employment at the two ends of the education distribution.

1.1.5. Other determinants of Women's employment in India

The issue of whether women participate in the workforce and the kind of work they do is closely linked to their education, household conditions, and regional factors that shape the opportunity and availability of work. These factors also have an independent effect on child outcomes, such as education, making it important to control for certain factors when examining the relationship between maternal employment and child outcomes. A number of background factors affecting women's labor force participation in India deserve particular attention (Klasen and Pieters, 2012). For example, starting with the classic work by Jacob Mincer (1962), a great deal of literature has documented the inverse relationship between a husband's income and a wife's labor force participation. In addition, given the large extended families common in India, the incomes of other household members may affect women's labor force participation (Desai et al., 2010; Jain and Banerjee, 1985; Sharma, 1980). Finally, as we discuss in a later section, caste, religion, and place of residence also shape women's employment and children's educational outcomes.

We control for these observable factors in our analyses. Even though we account for selection into employment by controlling for a wide range of factors, there would be some unobserved characteristics, such as ability or motivation that we cannot control; as these are likely to influence both women's employment as well as children's cognitive scores. Hence, there is a need for caution when interpreting our results.

1.2. Research significance and hypotheses

We make significant contributions to the study of maternal employment and child development on several fronts. First, instead of using the conventional classification of work (work versus non-work, or wage work versus non-wage work), we use a work typology that is more appropriate for the development context of India. Our focus on different types of work is particularly important because different activities have different claims on a woman's time. For example, a woman with a salaried job is most likely to work away from home and may have little flexibility in scheduling. At the same time, her schedule is often fixed and predictable, making it easy to plan activities around work. For someone who engages in agricultural wage work or animal husbandry, the location of work is typically close to home and probably offers flexibility in scheduling. However, the work hours can be long and physically demanding. For women who combine several types of work activities, the work hours can be extended, and the fatigue and stress induced by juggling these multiple activities can take a toll on their time and energy, leaving little room for involvement in academic activities with children. Having several jobs could also indicate a precarious economic situation which compels women to engage in different types of employment to make ends meet. The negative consequences of maternal employment are likely to be apparent in such situations. Based on the above argument, we formulate the following:

H1a: Maternal employment, especially of mothers with employment outside their homes and those with multiple jobs, will disadvantage children in math and reading skills as compared to those children with stay-at-home mothers.

H1b: Self-employment will offer mothers greater flexibility in scheduling activities, and their children will not be more disadvantaged than those with stay-at-home mothers.

Second, instead of testing all possible relevant mechanisms whereby maternal employment can affect child development, we focus on a dimension that is often overlooked in the literature (mostly due to the unavailability of data), that is, a mother's actual involvement with school-related work, in terms of supervision of homework and involvement in parent-teacher associations (PTA). We hypothesize that this involvement is an important pathway for mothers to influence their children's cognitive achievements. Conversely, then, we also hypothesize:

H2: Time constraints associated with different forms of maternal employment will lead to lower participation in children's academic activities such as supervision of homework and involvement in parent teacher meetings.

Third, we postulate that women's participation in the workforce is associated with increased financial resources being made available to children, thereby increasing their educational achievements.

H3: Maternal employment will be associated with increased financial resources available to children, thereby increasing their educational achievements.

Fourth, secondary and higher education is associated with skilled and more remunerative jobs, whereas jobs at the lower end of the educational distribution are primarily driven by economic necessity. Employment at the lower end may not be beneficial to children as it takes away parental time and offers few economic resources for investment in schooling. At the upper end of the educational distribution, jobs may offer greater flexibility and higher pay, enabling mothers to invest in children's academic advancement. For mothers with higher education, maternal employment would enable better cognitive outcomes, compared to employed mothers with lower education:

H4: The impact of maternal employment on children's cognitive scores will be moderated by maternal education.

2. Data and methods

2.1. Data and sample

The IHDS (2004–05) is a nationally representative survey of 41,554 urban and rural households. It covers all the states and union territories of India, with the exception of Andaman and Nicobar and Lakshadweep Islands (Desai et al., 2008). The households are spread across 33 states and union territories, 384 districts, 1503 villages, and 971 urban blocks located in 276 towns and cities. This survey was jointly organized by researchers from the University of Maryland and the National Council of Applied Economic Research, New Delhi, and funded by the National Institute of Child Health and Human Development. The survey was translated into 13 Indian languages and administered by pairs of local interviewers; women respondents were interviewed by women interviewers whenever possible. See Desai et al. (2010, pp. 214–216) for detailed information on sampling.

The survey was specially designed to capture the diversity of women's work patterns, and the interviewers were trained to ensure that women's work in household enterprises and family farms was appropriately captured, along with their labor market work. Most importantly, the IHDS incorporates the direct measurement of reading, writing, and arithmetic skills of children aged 8–11 years, along with parental inputs into children's education. Conducting educational assessments in developing countries—particularly India—is difficult for a variety of reasons: children's abilities vary tremendously and an instrument must capture children at both ends of the distribution; tests must be translated into many different languages with similar difficulty levels; the instrument must be simple and intuitive so that interviewers can administer it easily and it would not frighten children who are not used to standardized tests. The IHDS research team worked with Pratham, a non-governmental organization that has worked in the field of elementary education for several years. They have developed simple assessment tools to measure the effectiveness of their training programs and administered these tools to over 250,000 children in a nationwide survey reported in the Annual Status of Education Report 2005 (Pratham, 2005). The tests were developed in 12 Indian languages, as well as in English, and children were asked to take the test in whichever language they found the most comfortable. The test data are unique, particularly because they are combined with a wealth of household characteristics.

We focus on arithmetic and reading skills attained by children between the ages of 8 and 11 years. We do not use the writing measure; it was recorded as a dichotomous measure and did not capture variations in performance to the same extent as other tests. More information on arithmetic and reading skills is provided in the following section.

Our working sample includes school-going children between the ages of 8 and 11 years, who were administered the cognitive tests and where information about their parents and their household is available. The sample included a total 10,043 children belonging to 8732 households. We adjusted for clustering at the household level by using the cluster command in STATA.

From an original sample of 41,554 households, 17,061 contained children ages 8–11. Of these, 12,306 were administered the arithmetic test and 12,356 were administered the reading test. The survey shows a substantial non-response on learning tests. Primary school enrollment in India is almost universal; in this survey, about 8.5 per cent of the children aged 8 to 11 are currently out of school. An assessment of missing information of reading and arithmetic scores reveals that 82 per cent of those not in school did not even attempt the test. Children were required to be willing participants, and it is likely that out-of-school children did not feel confident to take the test. Even when they did take the test, a majority could not read numbers; for instance, only 20 per cent could identify numbers and less than 2 per cent could do subtraction or division. For reading, the performance was slightly better but still quite low; only 11.4 per cent of the out-of-school sample could read words; 6.8 per cent could read paragraphs and another 6.5 per cent could read a short story. Home schooling is rare in the Indian context, and it is likely that out-of-school children receive no form of instruction. Those who were out-of-school but able to read could have been recent drop-outs. Consequently, we restricted our analysis to the currently enrolled children, 91.5 per cent of the total.

Since the household survey was the main focus of this study, the administration of the reading and arithmetic skills was left to the end. We suspect that household fatigue as well as interviewer fatigue played a small role in the missing data. Additionally, children were not tested because the interviewers were explicitly instructed to obtain parental consent as well as assent from children and were asked not to pressure the children who were reluctant. We have carried out Heckman selection analysis to evaluate if selection is an issue and whether this selection makes a substantive difference to our results. We ran two step Heckman selection models on both arithmetic and reading scores, treating the outcome variables as a continuous variable (See appendix for Heckman selection results). We used three instruments for selection: rainy season, number of interviews carried out in a primary sampling unit (PSU), and whether the child was enrolled in school. It is easier to interview children during peak rainy seasons (July and August in India) as they are less likely to be in school as compared to the rest of the year when season does not obstruct travel to schools. The number of interviews within a PSU should also be a good instrument as the survey teams would be required to be in a village/town for much

longer if they needed to interview a large number of households. This longer time span would give them the opportunity to make several visits to contact children and complete the cognitive tests.

Because our outcome variable is ordinal, we are unable to carry out Heckman selection model on the original analysis.¹ By treating our dependent variables as continuous instead of ordinal, we run the Heckman selection models, which show that the missing data is selective but largely due to enrolment in schools. The substantive results for maternal employment remain unchanged even if we take selection into account (Tables 1 and 2 in the appendix). The coefficients are not directly comparable but the significance tests yield the same result, therefore our interpretation does not change.

After excluding children who were not enrolled in schools or any other academic institution and who had missing data on dependent, independent, and control variables, the final analytic sample comprised 10,043 children. Table 3 in the Appendix shows the steps taken to arrive at the final sample.

The decline in sample size due to the missing data on the independent and control variables is minimal (1.3 per cent). However, 7.65 per cent of the cases had missing values on attendance in parent–teacher meetings. This is not surprising, as some schools in India, especially in the rural areas, may not have parent teacher associations or parents may not be familiar with their existence. In our sample, 90 per cent of the missing data on PTA participation is for rural areas. We coded the missing values to represent 0 and included a variable to indicate missing values on PTA attendance.

2.2. Dependent Variables—Arithmetic and reading skills

We measure arithmetic skills as a four-category ordinal variable: the child 1) has no recognition of written numbers; 2) can read numbers; 3) can subtract a two-digit number from another two-digit number; and 4) can correctly divide a three-digit number by a one-digit number. We code it as 0, 1, 2, and 3, respectively, in the analysis, with a higher score indicating higher arithmetic skill. Close to a quarter of the children can perform division, while less than 20 per cent have no recognition of written numbers.

The reading skills are measured through five categories: the child 1) cannot read at all; 2) can read letters; 3) can read words; 4) can read a short paragraph; and 5) can read a short story. Since in this school-going sample, 80 per cent of the children tested had completed at least Standard 1, and 60 per cent had completed Standard 2; therefore, they were generally expected to be able to read at least a simple paragraph with three sentences; 33.5 per cent can read a one-page story, and 22.4 per cent can read simple two to three sentence paragraphs but not a one-page story. However, 8 per cent cannot recognize letters and about 10 per cent can recognize letters but not read words.

2.3. Typology of work patterns

The IHDS is one of the rare surveys in India to collect information on both income and employment. The survey began by asking about different sources of household income. The respondents were then questioned about which household members participated in each of those income-generating activities over the last one year.

We broadly create four mutually exclusive categories of types of employment:

- Self-employed women, including women who exclusively work on their own farms (4.6 per cent), household business (2.74 per cent), or animal husbandry (16.33 per cent);
- Women employed outside their homes, including women exclusively employed in salaried work (3.55 per cent), non-farm wage work (2.58 per cent), and farm wage work (6.54 per cent);
- Women holding multiple jobs, either self-employed or outside the home: two jobs (20 per cent) and three or more jobs (7.5 per cent) over the year preceding the survey; and
- Those not employed in income-generating activities (36.2 per cent, residual)

This combination of information from different streams of activity presents a holistic picture of the work undertaken by the women during the preceding year. It simultaneously captures the nature and intensity of maternal work. The work schedules of women employed outside their homes are likely to be less flexible than those of self-employed women, while the time and investment in children may be seriously limited if women combine two or more jobs.

2.4. Mother's involvement with school-related activities

We include three variables that represent the pathways that potentially mediate the impact of maternal employment on children's cognitive outcomes: whether women participate in school PTAs, whether women supervise their children's homework, and whether children attend private schools and/or private coaching lessons (see Table 1).

¹ Heckman models have normality assumptions that ordinal logit models are unable to meet. Using maximum-likelihood probit models with sample selection entails that we treat our dependent variable as dichotomous which leads to loss of important information on cognitive scores. Instead, we perform linear regression by treating our outcome variables as continuous instead of ordinal and compare our results with estimates from the Heckman selection model.

Table 1

Weighted descriptive statistics.

Source: IHDS 2004–5 data. N = 10,043

	Mean	Std. Dev	Range
Arithmetic test score	1.553	1.021	0–3
Reading test score	2.563	1.325	0–4
Stay-at-home mothers	0.362	0.481	0–1
Self-employed women	0.237	0.425	0–1
Women employed outside their homes	0.127	0.333	0–1
Women with multiple jobs	0.275	0.446	0–1
Attending parent-teacher meetings	0.444	0.497	0–1
Missing cases on parent-teacher meetings	0.060	0.237	0–1
Supervision of homework	0.382	0.486	0–1
Private schooling and coaching	0.451	0.625	0–2
Log of household income excluding maternal earning	9.794	1.835	0–13.84
Housing index	2.436	1.835	0–6
Maternal education (Higher than 8 years of education)	0.168	0.374	0–1
Years of education for the child	3.049	1.532	0–9
Sex of the child (female)	0.471	0.499	0–1
Age of the child	9.451	1.065	8–11
Number of children under 5	0.463	0.741	0–4
Number of teenagers in the household	0.557	0.859	0–7
Urban	0.253	0.435	0–1
Caste groups: Brahmin	0.055	0.227	0–1
Forward castes	0.223	0.417	0–1
Other backward classes	0.417	0.493	0–1
Dalit (lowest caste)	0.240	0.427	0–1
Adivasis (tribal)	0.066	0.248	0–1
Religions: Hindu	0.816	0.387	0–1
Muslim	0.130	0.337	0–1
Christian	0.018	0.132	0–1
Sikhs	0.017	0.130	0–1
Other religions	0.019	0.135	0–1

2.5. Control variables

Women's participation in the workforce and the kind of work in which they engage is closely linked to a number of factors that shape the opportunity and availability of work. Some of these deserve particular attention in the Indian context, especially as they can have an independent effect on children's cognitive scores.

Maternal Education: We include the education of the mother as a dummy category indicating whether or not she has completed at least eight years of schooling (secondary education). In our view, eight or more years of education may indicate qualification for skilled jobs in a predominantly informal labor market. The education of the mother is of interest, as she is in a position to influence the learning of her children by reviewing material taught in school, helping prepare for exams, taking an interest in school activities, and participating in parent–teacher meetings, among others. We also interact secondary education with maternal employment categories to assess if the impact of employment is moderated by education.

Housing: We include an index of housing amenities ranging from 0 to 6, including piped indoor water, separate kitchen, flush toilet, wall type, floor type and roof type, as these reflect a household's long-term economic well-being. We select this indicator because it is less likely to be associated with a woman's earnings; she most likely married into this particular dwelling. A more detailed household asset score might be associated with maternal employment as a woman is likely to contribute to other aspects of the standard of living.

Household Income Excluding Maternal Earning: We combine income from all sources to develop a composite income assessment for the household. From the total family income, we subtract the income of the mother to exclude the effect maternal earnings may have on cognitive scores. When women were employed either on household farms, household businesses or animal care at home, the data only provided earnings from that source for the entire household. However, the survey has a comprehensive measurement of the amount of time (the average number of hours each day and the number of days spent on this work during the past year) spent on each income-earning activity by each individual in the household. We used this information to determine the proportion of time spent by women compared to the rest of the family and estimated their income using this information.

Caste and Religion: We include the caste and religion of the family as controls. India is predominantly a Hindu nation, albeit with a substantial degree of religious diversity. In the Hindu religion, Hindu society is classified into four *varnas* or castes: *Brahmin* (priest and teacher), *Kshatriya* (ruler and warrior), *Vaishya* (trader), and *Shudra* (servant). The two groups lowest in the social hierarchy, *dalits* and *adivasis*, are outside the caste system. The *dalits*, originally called ‘untouchables’ are also referred to as the ‘Scheduled

Castes' (SCs); the *adivasis* or tribals are called the 'Scheduled Tribes' (STs).² The caste stratification system has tended to dominate Indian society, with a substantial percentage of Muslims, Christians, and Sikhs identifying with the caste groups defined by Hindu tradition.

Caste and religion shape social relations in India in myriad ways. Anthropological literature has suggested that women's 'immurement' is the hallmark of higher caste status (Srinivas, 1977). Immurement or seclusion may be practiced in diverse ways, including through veiling or purdah, familial control of women's physical movement, even not allowing women to go unescorted in public spaces (Desai et al., 2010). These constraints may reduce women's ability to work in public spaces (such as construction work) or to travel to offices. Muslim women are less likely to participate in the labor force than their Hindu sisters (Das, 2005; Desai and Andrist, 2010). Caste and religion also seem closely linked to children's school performance (Desai et al., 2009a; Deshpande, 2011). Children from socially disadvantaged groups such as the SCs and STs are less likely to complete schooling and perform worse than their higher-caste counterparts on learning achievement tests (Desai and Kulkarni, 2008). In contrast, Brahmins have a strong intergenerational advantage, reflected in their higher academic achievement (e.g. Goyal, 1989).

We treated forward castes (22.3 per cent), i.e., higher castes excluding Brahmins, as the reference category. The caste categories include Brahmins (5.5 per cent), other backward classes (OBCs) (41.7 per cent), SCs (24 per cent), and STs (6.6 per cent). We treated Hindus as the reference category (81.6 per cent) for religious groups; the other categories were Muslims (1.3 per cent), Christians (1.8 per cent), Sikhs (1.7 per cent) and the rest (1.9 per cent).

Child-level Controls: We include children's age and sex. We expect a child's age to be positively associated with his or her cognitive scores, and since girls are disadvantaged in India, we expect them to have lower scores (Barcellos et al., 2014). We also include the number of years the child has completed in school.

Household Structure: We include information on the number of siblings under the age of 5 years in the household, as having siblings suggests competition for parents' attention. Additionally, we include the presence of teenagers at home (not necessarily the siblings of the child but other relatives as well) who can be in a position to help with school work and/or relieve the pressure on younger children to help with household chores. Girls may also be called upon to help the mother in her domestic duties. Accordingly, we include interaction terms of these household structure variables with the gender of the child to determine whether girls were expected to shoulder an additional burden of care work.

The presence of grandparents had been included as a control as they may be considered additional caregivers in the family. It was not significant in the analysis; perhaps because grandparents may not be educated enough to help children with school work, among other things. Accordingly, we did not include it in the final analysis.

Regional Controls: Regional diversity in India shapes the labor market opportunities for women and the performance of school systems. Urban women are less likely to be employed (National Sample Survey Office, 2013), but urban children have better educational opportunities and get higher scores on educational tests (Desai et al., 2010). Rural areas offer limited and variable access to educational institutions. Therefore, each model includes controls for the state of residence, measured by a series of dummy variables as well as whether the place is urban.

2.6. Methods

Since our outcome variables are ordinal (math and reading skills), we use ordinal logit regression in our analysis. We start with a model that includes mothers' work patterns and the control variables (Model 1).³ In Model 2, we add interaction terms between maternal employment typologies and completion of secondary education. We then add household SES variables, household income and quality of housing, as potential confounding variables (Model 3). Next we add two pathway variables: mother's involvement with school-related work, in terms of the supervision of homework and involvement in PTAs (Model 4). In Model 5, we add enrollment in private school and private coaching. We expect the maternal employment effect to be attenuated after the introduction of these intervening variables. The results from the ordered logit models for arithmetic and reading scores are presented in Tables 3 and 4 respectively. We present the regression coefficients (log odds) in the table; these can also be expressed as the odds ratio of the chance of attaining higher skill level.

3. Results

We start with a bivariate analysis of the mothers' work pattern categories, arithmetic and reading scores, and their involvement in school-related activities and investments in private schooling and coaching (Table 2). Our findings show children of stay-at-home mothers perform better on arithmetic and reading tests than children of employed women. Stay-at-home mothers are also more involved in children's school activities and make greater financial investments in education. As the *t*-test results show, the children of employed women are significantly different from those of stay-at-home mothers.

Contrary to what was hypothesized, private school enrollment and additional coaching are lower among employed mothers. Interestingly, women who are employed outside their homes are generally more involved in children's school work than those who

² 'Scheduled Castes' and 'Scheduled Tribes' are referred to as such because a list of the castes and groups was drawn and enumerated in two separate schedules of the Constitution of India.

³ Variance inflation factor (VIF) and condition number both reveal that there are no multicollinearity problems in our equation specifications. Mean VIF of all the independent and control variables included in the analysis at 1.86 and condition index is 27.29. Condition number was calculated using the command 'coldiag' in STATA. According to Belsley et al. (1980), a condition number of 30 or higher is suggestive of multicollinearity.

Table 2

Mean of arithmetic scores and parental involvement across maternal employment categories.

Source: IHDS 2004–5 data. N = 10,043; ^ As compared to stay-at-home mothers

	Stay-at-home mothers	Self-employed women	Prob [^]	Women employed outside	Prob [^]	Women in multiple jobs	Prob [^]
Reading Scores	1.756	1.518	***	1.430	***	1.372	***
Arithmetic Scores	2.771	2.452	***	2.440	***	2.442	***
PTA Participation	0.548	0.384	***	0.419	***	0.369	***
Help with homework	0.503	0.308	***	0.384	***	0.286	***
Private school/coaching enrollment	0.675	0.432	***	0.298	***	0.242	***

are self-employed. However, they are still less likely to send their children to private school or to find coaching for them than those who are self-employed. Further, women who hold multiple jobs have the lowest level of PTA participation and spend the least time on home-based school work. The stay-at-home mothers have the highest level of education, most economic resources, spend the most amount of time on school-related activities, and are most likely to send their children to private schools and coaching. Could the effect of employment be confounded by education or economic resources?

Model 1 shows that compared to children with stay-at-home mothers, children whose mothers have outside employment and those with multiple jobs have lower math scores (Table 3). Compared to children with stay-at-home mothers, children whose mothers have outside employment have lower reading scores (Table 4). At the same time, children with self-employed mothers do not suffer a disadvantage over those with stay-at-home mothers. In Model 2, we explore if the association between women's employment and children's cognitive scores varies by her education level. The children of women employed in jobs outside the household or who hold multiple jobs continue to be at a disadvantage over those with stay at home mothers only if the women have less than secondary schooling in both reading and arithmetic skills. The children of mothers with higher education who are employed outside the household have an advantage in reading and arithmetic skills. This suggests that higher education enables mothers to get jobs that do not disadvantage their children, possibly because of higher remuneration, job security or flexibility offered by these jobs. However, it could also be indicative of the effort and resources that more highly educated employed women can bring to bear on their children's academic progress.

Since maternal employment is closely associated with economic resources, we introduce two family SES variables into the models: household income excluding mother's earnings and the quality of their housing (Model 3). Our findings show the coefficients for maternal work patterns are reduced in magnitude for reading and arithmetic scores, suggesting that part of the maternal employment effect is associated with family resources. As expected, children living in families with higher incomes and better housing have greater cognitive scores. The disadvantage associated with holding multiple jobs in reading scores is explained by SES variables, as it is no longer significant in the model. This indicates that combining multiple jobs is a strategy adopted by households who are in financial distress. However, this disadvantage continues to persist as far as arithmetic scores are concerned.

At the same time, the coefficients for mothers' work patterns remain significant for children with mothers with outside employment for both higher and lower educated women. Children of higher educated women employed in jobs outside the household exhibit a positive association with reading and arithmetic scores. The relationship is reversed for children of women with lower education who are employed outside their households.

3.1. Mediating pathways

In Model 4, we introduce two pathway variables measuring mothers' involvement with children's school work. The model shows that involvement with PTAs and helping children with homework are both strongly associated with children's arithmetic and reading skills. Helping with homework is associated with a 36 per cent increase in the odds of having better math skills (log odds of 0.305). Parental involvement in PTAs is associated with a 45 per cent increase in the odds of having better math skills (log odds of 0.369). Similarly, helping with the children's homework is associated with a 32 per cent increase in the odds of having better reading skills (log odds of 0.280), and involvement in PTAs increases the odds by 40 per cent (log odds of 0.340).

Adding these two variables explains away the effect of mothers' employment on reading scores; suggesting the employment effect is mediated by the availability of mothers' time. There is evidence to show that reading frequency is strongly affected by the availability of reading material at home, which, in turn, is associated with reading ability (McQuillan and Au, 2001). Our results also highlight the importance of supervised reading.

However, this is not true for arithmetic score where maternal employment outside the household continues to be significant. The children of higher educated women who are employed outside their homes show a positive association with math scores, but the children of lower educated women working outside their homes continue to be disadvantaged. The association of math scores with multiple jobs is no longer significant, suggesting that lower educated women with multiple jobs may face severe time constraints, limiting their involvement with academic activities.

In Model 5, we see that private school enrollment and private tutoring affects children's arithmetic skills positively and seems to

Table 3
Multivariate ordinal regression on arithmetic scores.

Variables	(1) Control Model	(2) Maternal employment-education interactions	(3) Socio-economic status	(4) Maternal Involvement	(5) Adding Private Enrollment
Self-employed women (Ref: Unemployed women)	−0.103 (0.091)	−0.094 (0.101)	−0.024 (0.100)	0.018 (0.097)	0.044 (0.094)
Women employed outside	−0.335*** (0.092)	−0.424*** (0.104)	−0.269** (0.104)	−0.224* (0.102)	−0.140 (0.101)
Multiple jobs	−0.314*** (0.094)	−0.323** (0.101)	−0.202* (0.100)	−0.154 (0.098)	−0.096 (0.094)
Self-employed women*higher education		−0.152 (0.187)	−0.135 (0.187)	−0.149 (0.188)	−0.144 (0.187)
Women employed outside *higher education		0.630** (0.192)	0.564** (0.192)	0.478* (0.197)	0.416* (0.206)
Multiple jobs*higher education		−0.060 (0.204)	0.035 (0.202)	−0.046 (0.208)	−0.028 (0.211)
Attendance in PTA				0.376*** (0.066)	0.302*** (0.064)
Missing on PTA				−0.032 (0.121)	−0.048 (0.123)
Supervision of home work				0.307*** (0.064)	0.271*** (0.064)
Private school/coaching					0.585*** (0.052)
Log of household income excluding maternal earning			0.034 (0.020)	0.033 (0.019)	0.026 (0.019)
Housing Index			0.164*** (0.020)	0.144*** (0.020)	0.110*** (0.020)
Maternal Education (Secondary and above)	0.755*** (0.070)	0.727*** (0.087)	0.557*** (0.089)	0.441*** (0.090)	0.357*** (0.091)
Years of education	0.513*** (0.024)	0.513*** (0.024)	0.500*** (0.024)	0.501*** (0.024)	0.518*** (0.024)
Sex of the child: Female (Ref: Males)	−0.405*** (0.059)	−0.405*** (0.059)	−0.398*** (0.059)	−0.414*** (0.059)	−0.376*** (0.060)
Age of the child	0.135*** (0.030)	0.136*** (0.030)	0.148*** (0.031)	0.151*** (0.031)	0.139*** (0.030)
Urban	0.467*** (0.066)	0.453*** (0.066)	0.213** (0.073)	0.160* (0.073)	0.020 (0.073)
Brahmin (Ref: Forward caste)	0.549*** (0.163)	0.542*** (0.162)	0.487** (0.165)	0.479** (0.160)	0.465** (0.155)
Other backward classes	−0.157* (0.073)	−0.158* (0.073)	−0.119 (0.073)	−0.094 (0.073)	−0.080 (0.074)
Scheduled caste	−0.551*** (0.086)	−0.553*** (0.086)	−0.485*** (0.087)	−0.443*** (0.086)	−0.380*** (0.085)
Scheduled tribe	−0.561*** (0.118)	−0.557*** (0.118)	−0.420*** (0.119)	−0.390** (0.120)	−0.328** (0.121)
Muslim (Ref: Hindus)	−0.480*** (0.099)	−0.485*** (0.099)	−0.447*** (0.099)	−0.407*** (0.098)	−0.358*** (0.098)
Christian	0.356 (0.187)	0.339 (0.186)	0.365* (0.184)	0.318 (0.179)	0.374* (0.189)
Sikh	0.289 (0.172)	0.295 (0.173)	0.223 (0.173)	0.200 (0.171)	0.216 (0.185)
Others	0.242 (0.188)	0.239 (0.189)	0.236 (0.190)	0.244 (0.190)	0.240 (0.191)
Number of children under 5	−0.157*** (0.047)	−0.157*** (0.047)	−0.134** (0.047)	−0.126** (0.046)	−0.124** (0.044)
Number of teenagers	−0.170*** (0.050)	−0.171*** (0.050)	−0.184*** (0.051)	−0.171*** (0.051)	−0.150** (0.051)
Number of teenagers* girl	0.147* (0.066)	0.146* (0.066)	0.132 (0.068)	0.129 (0.067)	0.129 (0.066)
Constant cut1	0.248 (0.272)	0.222 (0.273)	0.984** (0.344)	1.338*** (0.339)	1.317*** (0.340)
Constant cut2	2.237*** (0.273)	2.212*** (0.274)	2.994*** (0.345)	3.368*** (0.340)	3.379*** (0.341)
Constant cut3	3.793*** (0.275)	3.770*** (0.276)	4.569*** (0.349)	4.957*** (0.344)	5.002*** (0.345)
Observations	10,043	10,043	10,043	10,043	10,043

Robust standard errors in parentheses; state controls not shown; adjusted for clustering in households.

***p < 0.001, **p < 0.01, *p < 0.05. Source: IHDS 2004–05.

Table 4
Multivariate ordinal regression on reading scores.

Variables	(1) Control Model	(2) Maternal employment- education interactions	(3) Socio-economic status	(4) Maternal Involvement	(5) Adding Private Enrollment
Self-employed women (Ref: Unemployed women)	−0.083 (0.080)	−0.096 (0.086)	−0.033 (0.085)	0.009 (0.085)	0.045 (0.084)
Women employed outside	−0.284** (0.094)	−0.353*** (0.105)	−0.218* (0.103)	−0.170 (0.103)	−0.075 (0.103)
Multiple jobs	−0.162 (0.084)	−0.179* (0.088)	−0.067 (0.089)	−0.015 (0.088)	0.051 (0.087)
Self-employed women*higher education		0.025 (0.199)	0.038 (0.203)	0.017 (0.206)	0.025 (0.198)
Women employed outside *higher education		0.517** (0.200)	0.445* (0.197)	0.355 (0.198)	0.263 (0.204)
Multiple jobs*higher education		0.014 (0.219)	0.110 (0.222)	0.057 (0.233)	0.061 (0.240)
Attendance in PTA				0.340*** (0.060)	0.258*** (0.059)
Missing on PTA				−0.158 (0.118)	−0.175 (0.116)
Supervision of homework				0.281*** (0.064)	0.236*** (0.064)
Private school/coaching					0.643*** (0.051)
Log of household income excluding maternal earning			0.035* (0.016)	0.036* (0.015)	0.029 (0.015)
Housing Index			0.144*** (0.019)	0.126*** (0.020)	0.088*** (0.020)
Maternal Education (Secondary and above)	0.874*** (0.074)	0.814*** (0.089)	0.656*** (0.092)	0.550*** (0.093)	0.460*** (0.096)
Years of education	0.512*** (0.023)	0.511*** (0.023)	0.498*** (0.023)	0.500*** (0.023)	0.521*** (0.023)
Sex of the child: Female (Ref: Males)	−0.230*** (0.059)	−0.230*** (0.059)	−0.223*** (0.059)	−0.236*** (0.060)	−0.192** (0.060)
Age of the child	0.148*** (0.029)	0.149*** (0.029)	0.160*** (0.030)	0.164*** (0.029)	0.151*** (0.029)
Urban	0.386*** (0.063)	0.378*** (0.063)	0.169* (0.069)	0.122 (0.069)	−0.027 (0.069)
Brahmin (Ref: Forward caste)	0.562*** (0.141)	0.555*** (0.141)	0.509*** (0.142)	0.491*** (0.139)	0.480*** (0.136)
Other backward classes	−0.056 (0.072)	−0.057 (0.072)	−0.024 (0.072)	−0.004 (0.072)	0.016 (0.073)
Scheduled caste	−0.388*** (0.082)	−0.388*** (0.082)	−0.327*** (0.083)	−0.295*** (0.082)	−0.237** (0.082)
Scheduled tribe	−0.390*** (0.107)	−0.386*** (0.107)	−0.254* (0.109)	−0.228* (0.110)	−0.175 (0.110)
Muslim (Ref: Hindus)	−0.279*** (0.082)	−0.283*** (0.083)	−0.248** (0.083)	−0.214** (0.083)	−0.152 (0.083)
Christian	0.166 (0.202)	0.155 (0.202)	0.160 (0.202)	0.112 (0.197)	0.175 (0.201)
Sikh	0.327 (0.260)	0.328 (0.260)	0.272 (0.256)	0.251 (0.248)	0.245 (0.232)
Others	0.278 (0.184)	0.274 (0.184)	0.263 (0.183)	0.258 (0.183)	0.284 (0.183)
Number of children under 5	−0.146*** (0.039)	−0.146*** (0.039)	−0.126** (0.039)	−0.117** (0.038)	−0.117** (0.038)
Number of teenagers	−0.190*** (0.041)	−0.190*** (0.041)	−0.204*** (0.041)	−0.192*** (0.041)	−0.178*** (0.041)
Number of teenagers* girl	0.154** (0.058)	0.153** (0.058)	0.144* (0.058)	0.138* (0.057)	0.138* (0.057)
Constant cut1	−0.275 (0.275)	−0.294 (0.276)	0.433 (0.323)	0.780* (0.325)	0.725* (0.323)
Constant cut2	0.943*** (0.273)	0.924*** (0.274)	1.659*** (0.322)	2.016*** (0.323)	1.978*** (0.321)
Constant cut3	2.194*** (0.274)	2.176*** (0.275)	2.922*** (0.323)	3.290*** (0.325)	3.277*** (0.322)
Constant cut4	3.364*** (0.278)	3.348*** (0.279)	4.104*** (0.327)	4.481*** (0.330)	4.498*** (0.327)
Observations	10,043	10,043	10,043	10,043	10,043

Robust standard errors in parentheses; state controls not shown; adjusted for clustering in households.

***p < 0.001, **p < 0.01, *p < 0.05. Source: IHDS 2004–05.

explain the negative association between math scores and outside employment among lower educated women. Even the positive effect for higher educated women with outside employment is reduced in magnitude, suggesting the positive role of private schooling and coaching in children's skill development. Employed mothers seem to be directing greater financial resources towards quality of education as this is captured by private education and additional coaching.

Having mothers who have completed more than eight years of schooling is also associated with an advantage in the final model, suggesting the involvement of these mothers in academic activities that go beyond assistance with schoolwork, involvement in PTAs, or the use of financial resources to promote educational activities. More educated mothers possibly bestow their children a life course advantage by having greater 'educational' interactions with their children in the pre-school years and providing assistance not captured by our models.

Among the control variables, child's age has a positive association with math and reading skills. Girls have lower scores than boys. The presence of younger siblings (under the age of 5) at home is negatively associated with arithmetic and reading scores of children. The presence of teenagers at home (not necessarily the siblings of the child) is also negatively associated with arithmetic and reading scores, indicating that the higher the number of children in the household, the lower the performance on cognitive tests. However, the presence of teenagers at home is beneficial for girls. Girls may be more likely to seek academic help from their older and more educated siblings or other relatives in the household. It is also possible that the presence of teenagers relieves the pressure on younger girls, between the ages of 8 and 11 years, to perform household chores. Children from disadvantaged castes, scheduled castes and tribes, perform poorly on the cognitive tests as compared to children belonging to forward castes. Muslims have poorer scores as compared to Hindus.

4. Discussion and conclusion

Much of the research on the relationship between maternal employment and child outcomes in the United States and Europe has focused on whether or not the mother works, the age of the child when she began working, and whether she works full-time or part-time. A study on India allows us to contribute to previous work by adding a focus on the type of work performed. Employment in a transitional economy typically features a range of activities, including office work, agricultural or non-agricultural daily labor, work on family farm, and work in family business. Several studies on the conflict between women's work and fertility in developing countries note that when women have greater control over work settings (for example, on a family farm or in a family business), the conflict between work and child rearing is less than it is for women who are wage workers in the formal sector (Ho, 1979; Lloyd, 1991; Mason and Palan, 1981). Moreover, it has recently been recognized that in developing economies, many women occupy multiple locations in the employment landscape, often combining paid work with home-based employment (Short et al., 2002). These women may be particularly vulnerable to severe time pressures as they try to juggle multiple responsibilities.

Research on women's employment in developing countries and its implications for childcare has alluded to challenges in this sphere and to potential implications for children but the lack of data makes it difficult to examine the consequences for child outcomes. Our study fills this niche by focusing on employment characteristics in a transitional economy, India, and combining this with a focus on children's cognitive outcomes.

The analytical results clearly demonstrate that the relationship between maternal employment and children's math and reading skills depends on the nature of mothers' work. The great majority of working women in India are engaged in the informal sector and are often undercounted, making it essential to capture the complexity of their economic activities. While working mothers in India are less likely to be involved with school-related activities, and their children are disadvantaged in math and reading skills, this simple dichotomy does not capture the diversity of maternal employment experiences. The children of women who are self-employed and work on their own farms, in household businesses, or in sideline activities such as animal care, perform at the same level as those of stay-at-home mothers. At the same time, the children of women who work outside their homes or who hold more than one job show deficits in math and reading skills.

In an attempt to capture the diverse landscape of India, we segregate this relationship further by the education status of the mother. The results are starkly different for employed women at higher levels of education, suggesting that employed women, who are presumably in better paying jobs with greater benefits and flexibility, are able to give their children an advantage in both reading and arithmetic skills. In other words, how employment impacts children's development in India is complex – it is hard to predict by sector data alone how employment might impact a child's cognitive scores, because jobs within a sector can be varied.

We parse the maternal employment effect by maternal education (with higher education defined as more than eight years of education) with the underlying assumption that higher educated women are more likely to have access to better jobs. By introducing interaction terms between education and employment typologies, we find that higher educated women who are working in jobs outside their household positively affect their children's outcomes. However, employment outside the household is a heterogeneous category, which includes salaried work and wage work in agriculture and non-agricultural sectors. We even tried to assess if one of these sectors was driving the results by including separate variables for employment in each sector but we did not find a significant result. Arguably, categorization by sector cannot capture the varied working conditions of women in India. It is likely that higher educated women within each sector of employment have access to better, more flexible and higher paying jobs.

Overall, our analytical results suggest that maternal employment influences child development through various mechanisms. First, our findings are in line with the time constraint perspective. It is not about *any* decrease in time, but about time specifically related to school activities central for children's cognitive development. Our work typology acknowledges the heterogeneity of

women's employment in India. In the case of work that is more flexible in nature, such as family farm work or animal care, it may not be so difficult to combine work and child-rearing activities. In the case of wage or salaried employment, the inflexible schedule and location of work may restrict the availability of time for mothers for activities such as PTA meetings held in school during work hours. Further, for women who combine multiple jobs, the long and extended hours of work could be too physically demanding, resulting in less involvement in their children's school work. Finally, children of educated women, especially those engaged in employment outside the household, show an advantage in their cognitive outcomes. The results suggest that these mothers attempt to adjust their schedule to accommodate tasks such as attending PTA meetings and assisting with homework. Research in the US suggests that working mothers try to spend quality time with children by cutting back on leisure, sleep, and time spent on personal care (Bianchi, 2000). Our analysis identifies maternal involvement in school-related work as an important mechanism that links maternal employment and child outcomes.

This analysis presents two distinct narratives – one is a story of time constraints and disadvantages associated with employment at the lower end of the educational distribution where the mother is more likely pushed into the labor force due to economic necessity and is engaged in casual, low-skill work (Srivastava and Srivastava, 2010). Kabeer (2012) discusses the phenomenon of 'time poverty' where poor women, especially in rural areas, spend long hours in domestic chores such as cooking, collecting water and firewood. This 'time poverty' is exacerbated for working mothers. In such a scenario, not only does employment take time away from childcare but the lack of resources leaves children bereft of any other benefits. At the other end of the education distribution, maternal employment is characterized by increased investments in children's academic activities. The time constraints of well-educated employed mothers do not interfere with academic activities, and their employment permits greater investment in private schooling and additional coaching.

Second, economic resources clearly matter. Controlling for family economic resources considerably reduces the negative associations of maternal employment. Research has shown that scholarly culture at home, measured by the number of books available at home, has a strong and positive influence on children's education (Evans et al., 2010). We also see that well-to-do families substitute mothers' time with private classes and tutors, essentially a trade-off for less time spent with children. These additional resources result in better academic performance.

These results highlight the dilemma facing Indian public policy. With increasing crowding in agriculture (Papola, 2012), salaried work remains the primary avenue of increasing women's income but it also imposes great time constraints. Additionally, the juggling of multiple roles, especially when the mother is employed outside the home, takes a toll on children's development. These conflicts can be addressed in two ways. First, time demands on mothers can be reduced by promoting time-saving technologies and services, such as increased access to gas stoves to reduce time in firewood gathering and cooking, improved transportation systems to reduce commuting time, and expanded reliable access to electricity to allow evening supervision of children's homework. Second, demands for supervision of schoolwork at home can be reduced and parent-teacher meetings can be scheduled for evenings or weekends. There is a clear recognition that the Indian school system has failed to provide high quality education to children, leaving parents and private tutors to pick up the slack (Pritchett, 2013; Desai et al., 2009b). Improvements in the educational system may reduce the reliance on parental input to improve children's educational outcomes.

The study is not without its limitations. First, we focused on school-going children aged 8–11 years. With the IHDS data, it is not possible to document the effect of maternal employment in early childhood, often identified as a critical period. Second, our study is cross-sectional, thus limiting our ability to establish time order and make causal inferences. We are thus cautious in our interpretations and explain the mechanisms as associational rather than causal. Third, we use step-by-step regression models to examine the mediating effects of homework supervision, PTA involvement, and private school enrollment, but we have been unable to account for other relevant mechanisms, given the lack of data on them. Fourth, while we have tried to control for many theoretically relevant variables that affect both maternal employment and child outcomes, unobserved heterogeneity in terms of who works and who does not may bias our results.

In sum, we caution against making easy assumptions about the implications of maternal employment on children's cognitive development. In a developing economy like India, where the nature of work is complex, it is important to consider the heterogeneity of work experiences. Our study suggests investment in school-related activities as one important way through which maternal employment may affect children's development outcomes. Future research should investigate other mechanisms, such as parental social networks and connections that may facilitate school family interactions, maternal work conditions, and the role of other caregivers, as all of these could potentially shape children's cognitive outcomes.

Acknowledgements

An earlier version of this paper was presented at the 2013 Annual Meeting of the Population Association of America at New Orleans, LA. We are grateful to Reeve Vanneman, Liana Sayer and Wei-Jun Jean Yeung for their helpful comments. We gratefully acknowledge support from the Eunice Kennedy Shriver National Center for Child Health and Human Development grant R01HD041455 and R01HD046166, and R24-HD041041, Maryland Population Research Center, University of Maryland. Kriti Vikram also received support from the faculty start-up grant at the National University of Singapore.

Appendix

Table 1

Comparison of estimates (Heckman selection model, OLS and Ordinal logit) for arithmetic scores.

	Heckman Equation		For comparison of estimates	
	Selection equation	Main equation	OLS analysis	Ordinal Logit
	Not missing on Math	Math score	Math score	Math score
Self-employed women (Ref: Unemployed women)	0.096** (0.035)	−0.034 (0.026)	−0.009 (0.024)	−0.014 (0.053)
Women employed outside their households	0.114** (0.042)	−0.147*** (0.032)	−0.122*** (0.031)	−0.245*** (0.067)
Multiple jobs	0.122*** (0.035)	−0.068** (0.026)	−0.034 (0.025)	−0.072 (0.055)
Self-employed women*higher education	−0.096 (0.080)	0.036 (0.060)	0.012 (0.057)	0.053 (0.126)
Women employed outside their households*higher education	0.043 (0.097)	0.264*** (0.071)	0.279*** (0.067)	0.634*** (0.152)
Multiple jobs*higher education	0.185* (0.094)	−0.003 (0.065)	0.032 (0.061)	0.065 (0.135)
Log of household income excluding maternal earning	−0.006 (0.006)	0.017*** (0.005)	0.017*** (0.004)	0.039*** (0.010)
Housing Index	0.005 (0.008)	0.086*** (0.006)	0.090*** (0.005)	0.194*** (0.012)
Maternal Education (Secondary and above)	−0.009 (0.036)	0.191*** (0.027)	0.190*** (0.026)	0.420*** (0.057)
Years of education	−0.002 (0.009)	0.214*** (0.007)	0.224*** (0.006)	0.501*** (0.015)
Sex of the child: Female (Ref: Males)	−0.015 (0.022)	−0.126*** (0.016)	−0.135*** (0.015)	−0.293*** (0.034)
Age of the child	−0.009 (0.012)	0.073*** (0.009)	0.059*** (0.009)	0.128*** (0.019)
Number of children under 5	0.027 (0.016)	−0.061*** (0.012)	−0.056*** (0.011)	−0.121*** (0.025)
Number of teenagers	−0.009 (0.012)	−0.034*** (0.009)	−0.036*** (0.009)	−0.081*** (0.019)
Brahmin (Ref: Forward caste)	−0.057 (0.055)	0.173*** (0.040)	0.163*** (0.038)	0.367*** (0.086)
Other backward classes	−0.024 (0.031)	−0.064** (0.023)	−0.071** (0.022)	−0.175*** (0.047)
Scheduled caste	0.011 (0.035)	−0.251*** (0.026)	−0.254*** (0.025)	−0.564*** (0.055)
Scheduled tribe	−0.073 (0.050)	−0.219*** (0.039)	−0.244*** (0.037)	−0.559*** (0.082)
Muslim (Ref: Hindus)	−0.129*** (0.036)	−0.186*** (0.027)	−0.222*** (0.026)	−0.472*** (0.057)
Christian	0.141 + (0.081)	0.024 (0.062)	0.056 (0.059)	0.062 (0.130)
Sikh	0.091 (0.091)	−0.029 (0.068)	−0.005 (0.065)	−0.062 (0.140)
Others	−0.005 (0.088)	0.008 (0.064)	0.011 (0.061)	0.004 (0.135)
Urban area	0.105*** (0.031)	0.076*** (0.022)	0.093*** (0.021)	0.224*** (0.047)
Rainy season	0.121* (0.047)			

Number of interviewers	– 0.001 (0.002)			
Child in school	1.754*** (0.048)			
Mills Lambda		– 0.556*** (0.051)		
Constant	– 1.498*** (0.147)	0.510*** (0.107)	0.205* (0.099)	
Constant cut1				1.001*** (0.218)
Constant cut2				2.985*** (0.219)
Constant cut3				4.597*** (0.221)
Observations	17,028	17,028	12,306	12,306
R-squared			0.319	

Standard errors in parentheses $p < 0.001$, $**p < 0.01$, $*p < 0.05$; state controls not shown. Source: IHDS 2004–05.

Table 2

Comparison of estimates (Heckman selection model, OLS and Ordinal logit) for reading scores.

	Heckman Equation		Comparison of Estimates	
	Selection equation	Main equation	OLS	Ordinal logit
	Not missing on Reading	Reading score	Reading score	Reading score
Self-employed women (Ref: Unemployed women)	0.095** (0.035)	– 0.044 (0.035)	0.001 (0.032)	0.020 (0.053)
Women employed outside their households	0.128** (0.042)	– 0.194*** (0.043)	– 0.144*** (0.040)	– 0.205** (0.066)
Multiple jobs	0.128*** (0.035)	– 0.024 (0.036)	0.038 (0.033)	0.072 (0.054)
Self-employed women*higher education	– 0.077 (0.080)	0.151 + (0.081)	0.118 (0.074)	0.132 (0.130)
Women employed outside their households*higher education	0.026 (0.097)	0.337*** (0.096)	0.356*** (0.088)	0.620*** (0.160)
Multiple jobs*higher education	0.183 + (0.095)	0.057 (0.089)	0.117 (0.080)	0.184 (0.144)
Log of household income excluding maternal earning	– 0.006 (0.006)	0.025*** (0.006)	0.024*** (0.006)	0.041*** (0.009)
Housing Index	0.007 (0.008)	0.102*** (0.008)	0.111*** (0.007)	0.179*** (0.012)
Maternal Education (Secondary and above)	– 0.008 (0.036)	0.231*** (0.037)	0.229*** (0.034)	0.465*** (0.059)
Years of education	0.002 (0.009)	0.282*** (0.009)	0.301*** (0.008)	0.511*** (0.015)
Sex of the child: Female (Ref: Males)	– 0.017 (0.022)	– 0.084*** (0.022)	– 0.101*** (0.020)	– 0.154*** (0.034)
Age of the child	– 0.008 (0.012)	0.083*** (0.012)	0.060*** (0.011)	0.119*** (0.019)
Number of children under 5	0.029 + (0.017)	– 0.098*** (0.016)	– 0.088*** (0.015)	– 0.129*** (0.025)
Number of teenagers	– 0.007 (0.012)	– 0.052*** (0.013)	– 0.055*** (0.012)	– 0.091*** (0.019)
Brahmin (Ref: Forward caste)	– 0.049 (0.055)	0.200*** (0.054)	0.186*** (0.049)	0.439*** (0.090)
Other backward classes	– 0.014	– 0.055 +	– 0.062*	– 0.101*

	(0.031)	(0.031)	(0.028)	(0.048)
Scheduled caste	0.016	– 0.230***	– 0.232***	– 0.383***
	(0.035)	(0.035)	(0.033)	(0.055)
Scheduled tribe	– 0.063	– 0.219***	– 0.256***	– 0.412***
	(0.050)	(0.052)	(0.048)	(0.079)
Muslim (Ref: Hindus)	– 0.133***	– 0.144***	– 0.206***	– 0.309***
	(0.036)	(0.037)	(0.034)	(0.056)
Christian	0.157 +	– 0.053	0.009	0.074
	(0.081)	(0.084)	(0.078)	(0.132)
Sikh	0.091	– 0.044	– 0.003	0.008
	(0.091)	(0.092)	(0.085)	(0.150)
Others	– 0.008	0.078	0.082	0.179
	(0.088)	(0.088)	(0.080)	(0.133)
Urban area	0.110***	0.070*	0.103***	0.179***
	(0.031)	(0.030)	(0.028)	(0.047)
Rainy season	0.115*			
	(0.047)			
Number of interviewers	– 0.001			
	(0.002)			
Child in school	1.758***			
	(0.048)			
Mills Lambda		– 0.963***		
		(0.066)		
Constant	– 1.534***	1.462***	0.917***	
	(0.148)	(0.145)	(0.129)	
Constant cut1				0.351
				(0.217)
Constant cut2				1.572***
				(0.216)
Constant cut3				2.786***
				(0.217)
Constant cut4				3.961***
				(0.218)
Observations	17,028	17,028	12,356	12,356
R-squared			0.296	

Standard errors in parentheses $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; state controls not shown. Source: IHDS 2004-05.

Table 3
Final Sample Calculation

	Total sample	Dropping cases
Children in the ages of 8–11 in the sample	17,036	
Sample with valid cases on the dependent variable	12,288	4748
Eliminating children not in school	12,041	247
Eliminating cases who are not children of women who answered the empowerment questionnaire which contained the question on help with homework	10,352	1689
Eliminating the missing cases on homework assistance	10043	309
Final sample	10043	

Source: India Human Development Survey (IHDS) 2004-05.

References

- Agarwal, Bina, 1997. "Bargaining" and gender relations: within and beyond the household. *Fem. Econ.* 3 (1), 1–51.
- ASER Centre, 2015. ASER 2014: Annual Status of Education Report. ASER Centre, New Delhi.
- Barcellos, Silvia H., Carvalho, Leandro S., Lleras-Muney, Adriana, 2014. Child gender and parental investments in India: are boys and girls treated differently? *Am. Econ. J. Appl. Econ.* 6 (1), 157–189.
- Beyer, Sylvia, 1995. Maternal employment and children's academic achievement: parenting styles as mediating variable. *Dev. Rev.* 15 (2), 212–253.

- Bianchi, Suzanne M., 2000. Maternal Employment and time with children: dramatic change or surprising continuity? *Demography* 37 (4), 401–414.
- Boardman, Jason D., Powers, Daniel A., Padilla, Yolanda C., Hummer, Robert A., 2002. Low birth weight, social factors, and developmental outcomes among children in the United States. *Demography* 39 (2), 353–368.
- Brooks-Gunn, Jeanne, Han, Wen-Jui, Waldfogel, Jane, 2002. Maternal employment and child cognitive outcomes in the first three years of life: the NICHD study of early child care. *Child Dev.* 73 (4), 1052–1072.
- Brooks-Gunn, Jeanne, Han, Wen-Jui, Waldfogel, Jane, 2010. First-year maternal employment and child development in the first seven years. *Monogr. Soc. Res. Child Dev.* 75 (2), 7–9.
- Belsley, David A., Kuh, Edwin, Welsch, Roy E., 1980. *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity*. John Wiley & Sons.
- Bryant, W. Keith, Zick, Cathleen D., 1996. An examination of parent–child shared time. *J. Marriage Fam.* 58 (1), 227–237.
- Chandramouli, C., Registrar General, 2011. *Census of India 2011. Provisional Population Totals*. Government of India, New Delhi.
- Chaudhury, Nazmul, Hammer, Jeffrey, Kremer, Michael, Muralidharan, Karthik, Rogers, F. Halsey, 2006. Missing in action: teacher and health worker absence in developing countries. *J. Econ. Perspect.* 20 (1), 91–116.
- Coleman, James S., 1988. Social capital in the creation of human capital. *Am. J. Sociol.* 94, S95–S120.
- Cooksey, Elizabeth, Joshi, Heather, Verropoulou, Georgia, 2009. Does mothers' employment affect Children's Development? Evidence from the children of the british 1970 birth cohort and the american NLSY79. *Longitudinal and Life Course Studies* 1 (1), 95–115.
- Coppard, Daniel, 2001. *The Rural Non-farm Economy in India: a Review of the Literature*. NRI Report No. 2662. Natural Resources Institute, Chatham, UK Available at. <http://r4d.dfid.gov.uk/Output/189327/Default.aspx>, Accessed date: 2 December 2015.
- Das, Maitreyi B., 2005. Muslim women's low labour force participation in India: some structural explanations. In: Hasan, Zoya, Menon, Ritu (Eds.), *A Minority: Essays on Muslim Women in India*. Oxford University Press, New Delhi, pp. 189–221.
- Desai, Sonalde, Jain, Devaki, 1994. Maternal employment and changes in family dynamics: the social context of Women's work in rural south India. *Popul. Dev. Rev.* 20 (1), 115–136.
- Desai, Sonalde, Dubey, Amaresh, Joshi, B.L., Sen, Mitali, Shariff, Abusaleh, Vanneman, Reeve, 2008. *India Human Development Survey (IHDS) [Computer File]*. ICPDR22626v1. University of Maryland and National Council of Applied Economic Research, New Delhi [producers], 2007. Inter-university Consortium for Political and Social Research, Ann Arbor, MI [distributor], 2008-07-30.
- Desai, Sonalde, Kulkarni, Veena, 2008. Changing educational inequalities in India in the context of affirmative action. *Demography* 45 (2), 245–270.
- Desai, Sonalde, Adams, Cecily D., Dubey, Amaresh, 2009a. Segmented schooling: inequalities in primary education. In: Thorat, Sukhadeo, Newman, Katherine S. (Eds.), *Blocked by Caste: Discrimination and Social Exclusion in Modern India*. Oxford University Press, New Delhi, pp. 230–252.
- Desai, Sonalde, Dubey, Amaresh, Vanneman, Reeve, Banerji, Rukmini, 2009b. Private schooling in India: a New educational landscape. In: Bery, Suman, Bosworth, Barry, Panagariya, Arvind (Eds.), *India Policy Forum 2008-09, vol. 5*. Sage Publications, New Delhi, pp. 1–38 (1).
- Desai, Sonalde, Dubey, Amaresh, Joshi, B.L., Sen, Mitali, Shariff, Abusaleh, Vanneman, Reeve, 2010. *Human Development in India: Challenges for a Society in Transition*. Oxford University Press, New Delhi.
- Desai, Sonalde, Andrist, Lester, 2010. Gender scripts and age at marriage in India. *Demography* 47 (3), 667–687.
- Deshpande, Ashwini, 2011. *The Grammar of Caste: Economic Discrimination in Contemporary India*. Oxford University Press, New Delhi.
- Donahoe, Debra A., 1999. Measuring Women's work in developing countries. *Popul. Dev. Rev.* 25 (3), 543–576.
- Dufur, Mikaela J., Parcel, Toby L., Troutman, Kelly P., 2013. Does capital at home matter more than capital at School? Social capital effects on academic achievement. *Res. Soc. Stratif. Mobil.* 31 (2013), 1–21.
- Dwyer, Daisy, Bruce, Judith, 1988. *A Home Divided: Women and Income in the Third World*. Stanford University Press, Stanford, CA.
- Engle, Patrice L., 1993. Influences of mothers' and fathers' income on Children's nutritional status in Guatemala. *Soc. Sci. Med.* 37 (11), 1303–1312.
- Evans, Mariah D.R., Kelley, Jonathan, Sikora, Joanna, Treiman, Donald J., 2010. Family scholarly culture and educational success: books and schooling in 27 nations. *Res. Soc. Stratif. Mobil.* 28 (2), 171–197.
- Goldberg, Wendy A., Prause, JoAnn, Lucas-Thompson, Rachel, Himsel, Amy, 2008. Maternal employment and Children's achievement in context: a meta-analysis of four decades of research. *Psychol. Bull.* 134 (1), 77.
- Goyal, Santosh, 1989. Social background of officers in the indian administrative service. In: Frankel, Francine R., Rao, Madhugiri S.A. (Eds.), *Dominance and State Power in Modern India: Decline of a Social Order, vol. 2*. Oxford University Press, Delhi, pp. 425–433.
- Guo, Guang, 1998. The timing of the influences of cumulative poverty on Children's cognitive ability and achievement. *Soc. Forces* 77 (1), 257–287.
- Ho, Teresa J., 1979. Time costs of child rearing in the rural Philippines. *Popul. Dev. Rev.* 5 (4), 643–662.
- Jain, Devaki, Banerjee, Nirmala (Eds.), 1985. *Tyranny of the Household: Investigative Essays on Women's Work*. Shakti, New Delhi.
- Johnson, Rucker C., Kalil, Ariel, Dunifon, Rachel E., 2012. Employment patterns of less-skilled workers: links to children's behavior and academic progress. *Demography* 49 (2), 747–772.
- Joshi, Heather, Cooksey, Elizabeth, Verropoulou, Georgia, 2009. Combining Childrearing with Work: Do Maternal Employment Experiences Compromise Child Development. Working Paper 2009/1. Centre for Longitudinal Studies Institute of Education, University of London, London.
- Kabeer, Naila, 2012. Women's economic empowerment and inclusive growth: labour markets and enterprise development. *International Development Research Centre* 44 (10), 1–70.
- Klasen, Stephan, Pieters, Janneke, 2012. *Push or Pull? Drivers of Female Labor Force Participation during India's Economic Boom*. IZA Discussion Paper 6395. Bonn, Germany: IZA. Available at. <https://ssrn.com/abstract=2019447>, Accessed date: 10 June 2017.
- Lloyd, Cynthia B., 1991. The contribution of the world fertility surveys to an understanding of the relationship between Women's work and fertility. *Stud. Fam. Plann.* 22 (3), 144–161.
- Lucas-Thompson, Rachel G., Goldberg, Wendy A., Prause, JoAnn, 2010. Maternal work early in the lives of children and its distal associations with achievement and behavior problems: a meta-analysis. *Psychol. Bull.* 136 (6), 915.
- Mason, Karen O., Palan, V.T., 1981. Female employment and fertility in peninsular Malaysia: the maternal role incompatibility hypothesis reconsidered. *Demography* 18 (4), 549–575.
- McQuillan, Jeff, Au, Julie, 2001. The effect of print access on reading frequency. *Read. Psychol.* 22 (3), 225–248.
- Mincer, Jacob, 1962. Labor force participation of married women: a study of labor supply. In: Lewis, H.Gregg (Ed.), *Aspects of Labor Economics*. Princeton University Press, Princeton, pp. 63–97.
- Moorehouse, Martha J., 1991. Linking maternal employment patterns to mother-child activities and children's school competence. *Dev. Psychol.* 27 (2), 295.
- Muralidharan, Karthik, Kremer, Michael, 2008. Public and private schools in rural India. In: Chakrabarti, Rajashri, Peterson, Paul E. (Eds.), *School Choice International: Exploring Public Private Partnerships*. MIT Press, Cambridge, Mass, pp. 91–110.
- National Sample Survey Office, 2013. *Employment and Unemployment Situation Among Major Religious Groups in India, NSS 66th Round*. vol. 552 National Statistical Organization, Government of India, New Delhi Available at. <http://www.minorityaffairs.gov.in/publications/employment-and-unemployment-situation-among-major-religious-groups-india-nsso-66th-round>.
- Papola, T.S., 2012. Structural Changes in Indian Economy: Emerging Patterns and Implications. ISID Working Paper Series 2012/2. Institution for Studies in Industrial Development, New Delhi.
- Parcel, Toby L., Menaghan, Elizabeth G., 1993. Family social capital and children's behavior problems. *Soc. Psychol. Q.* 56 (2), 120–135.
- Parcel, Toby L., Menaghan, Elizabeth G., 1994. Early parental work, family social capital, and early childhood outcomes. *Am. J. Sociol.* 99 (4), 972–1009.
- Pratham, 2005. *Annual Status of Education Report*. Pratham Documentation Center, New Delhi.
- Pritchett, Lant, 2013. *Rebirth of Education: Schooling Ain't Learning*. Center for Global Development, Washington DC.
- Ruhm, Christopher J., 2004. Parental employment and child cognitive development. *J. Hum. Resour.* 39 (1), 156–192.
- Sayer, Liana C., Bianchi, Suzanne M., Robinson, John P., 2004. Are parents investing less in Children? Trends in mothers' and fathers' time with children. *Am. J. Sociol.* 110 (1), 1–43.
- Shariff, Abusaleh, 1999. *India Human Development Report*. Oxford University Press, New Delhi.
- Sharma, Ursula, 1980. *Women, Work and Property in North-West India*. Tavistock Publications, London.
- Short, Susan E., Chen, Feinian, Entwisle, Barbara, Fengying, Zhai, 2002. Maternal work and childcare in China: a multi-method analysis. *Popul. Dev. Rev.* 28 (1), 31–57.
- Srinivas, Mysore Narasimhachar, 1977. The changing position of indian women. *Man* 12 (2), 221–238.

- Srivastava, Nisha, Srivastava, Ravi, 2010. Women, work, and employment outcomes in rural India. *Econ. Polit. Wkly.* 45 (28), 49–63.
- The Probe Team, 1999. *Public Report on Basic Education in India*. Oxford University Press, New Delhi.
- Vandell, Deborah L., Ramanan, Janaki, 1992. Effects of early and recent maternal employment on children from low-income families. *Child Dev.* 63 (4), 938–949.
- Waldfogel, Jane, Han, Wen-Jui, Brooks-Gunn, Jeanne, 2002. The effects of early maternal employment on child cognitive development. *Demography* 39 (2), 369–392.
- Zick, Cathleen D., Bryant, W. Keith, Österbacka, Eva, 2001. Mothers' employment, parental involvement, and the implications for intermediate child outcomes. *Soc. Sci. Res.* 30 (1), 25–49.