Effect of Female Employment on Child Educational Outcomes: Evidence From an Employment Guarantee Program

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This paper examines how the child's educational outcomes are impacted by the mother's participation in an employment guarantee program versus mother's participation in the regular labor force in India. Using the survey data from India Human Development Survey I and II, I estimate this effect by analyzing the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005. I use household specific and parent specific characteristics as controls. Regression analysis and propensity score matching techniques are used to determine the causal relationship. The results show that the participation of mothers in MGNREGA work leads to a decrease in the test scores of the children. While MGNREGA is an important source of employment for households in the rural areas, especially women, this paper shows that increased participation can lead to negative spillover effects for the children.

Keywords: employment guarantee, Female Labor Force Participation, children's education, India, MGNREGA

INTRODUCTION

According to the 2012 World Bank Report focused on gender equality (The World Development Report), women's share in the global labor force has increased, though the progress has been limited. Gender equality in labor force participation is important as it advances developmental outcomes such as the educational outcomes of children, which is the focus of this paper. This is crucially important given that educational access is one of the factors that can equalize differences in society. For example, Afridi et al. (2012) find that an increase in the female labor force participation (FLPL) leads to the mother's preferences having more weight in the household decision making. This increased power within the household has a positive impact on the child's welfare (Thomas 1990; Thomas et al. 2002).

The World Bank estimates that FLFP in India in 2018 was 27% compared to the world average of 48%. Past studies attribute this disparity to various reasons, such as increased enrollment in education, increased household income, occupational segregation by gender and lack of employment opportunities for women (Kapsos et al. 2014; Klasen and Pieters 2015; Sorsa et al. 2015). Clearly, there is a huge need for instituting government policies to encourage female participation in India which could have a large impact on the economic growth. According to Lawson (2008) if the gender gap in labor force participation were halved in India, the per-capita income would rise by 10% by 2020 and could be 20% higher by 2030 compared to the status quo.

This paper focuses on one of these policies in India- The Mahatma Gandhi National Rural Employment Guarantee Act of 2005 (MGNREGA), a labor law and social security measure that provides guaranteed

employment. The main purpose of this scheme is to enhance rural livelihood and income by providing guaranteed paid work for 100 days to every rural household, which has the capacity to empower rural women through higher employment and income by guaranteeing a reservation of one-third of the work-days for women and provision of the minimum wage. Past studies like Li and Sekhri (2014) postulate that there are two channels through which the employment guarantee schemes influence schooling decisions of the children of the household: (1) direct impact via the income effect, i.e. an increase in the income of the household due to employment would lead to more expenditure on the education of the children, and (2) indirect substitution effect, where increased employment would lead to an increased burden on children's time to either work on farms or in the household. The prior works conclude that the net effect of mothers working is ambiguous and depends on which of these effects dominate the decision making of the household. My work in this paper explores the impact of the reallocation of the household's resources, because of employed opportunities provided by MGNREGA, on the schooling outcomes of children.

There is a vast literature studying the impact of public works programs and the impact they have on various aspects of the targeted households. In the context of MGNREGA, there have been studies that have shown that the policy has had a positive impact on the educational outcomes of the children who have parents working under the policy[1]. However, other work like Das and Singh (2014) uses a difference-in-difference strategy and finds weak evidence that MGNREGA has not led to any improvements in the educational outcomes of the children. They also find that the older children especially girls substitute education with work.

Further studies by Islam and Sivasankaran (2014) use the National Sample Survey (NSS) data for three states to assess the impact of adults working in MGNREGA on children and find that participation in the program leads to increased time spent in school by the young children, but increased time spent working outside the household for the older children. They argue that though this policy is not directed towards child educational outcomes, it has huge spillover effects leading to increased participation in the labor force by the older children. Mani et al. (2014) summarize that though the policy had no impact on enrollment rates, it did lead to large positive impacts on children's performance on reading comprehension test, math test and Peabody Picture Vocabulary Test (PPVT). They find that employment guarantee programs can be highly useful in the improvement of the human capital of the next generation and thus have inter-generational impact which should be considered.

According to a field study across three states, conducted by the Centre for Social Protection (Sudarshan, 2011), the women's participation in MGNREGA work leads to substitution of the younger children, especially girls, for household chores. This study employed qualitative methods and fieldwork which involved semi-structured questionnaires for the different parties involved, with a focus on both the demand and the supply side of the participation question. The study found that MGNREGA led to increase in women who started participating in the labor force for the first time due to proximity to home, no cost involved in the job search, the government being a trusted employee, etc. However, the study also found that despite child-care being one of the stipulated requirements under the policy, it is not always available. The women then end up either bringing their children to the work sites or the older kids are required to stay at home to babysit for the younger children. The women working under MGNREGA are also found to come from households where the other family members do not provide sufficient child-care support which leads the women to rely on the older children. These factors impact the education of the older children and thus affect the test scores.

This paper uses data available from the Indian Human Development Survey for a longitudinal sample of rural and urban areas in India for the years 2004-2005 and 2011-2012. I control for a set of households and individual characteristics, including participation by mothers in MGNREGA to analyze impact on educational outcomes of the children in the sample. The sample consists of approximately 2500 children between the ages of 8- 11 years. Using the child, parent, and household specific characteristics this paper uses the matching techniques to identify households which are similar and try to understand the impact of mothers' work status on the education of the children. Controlling for the differences across states and comparing across mothers who work under MGNREGA (whom I will refer to as policy- employed mothers) and mothers who work in the regular workforce (whom I will refer to as independently employed mothers),

I find that the children with policy-employed mothers have test scores which are lower by 6.4% and spend 1.3 hours more at school per week. These results seem to suggest that though mother's labor force participation increases the household income, it negatively impacts the learning of the children, which could be due to the substitution effect.

This paper adds to the debate regarding the impact of the mother's participation under MGNREGA on the educational outcomes of the children by estimating a multivariate regression and a propensity score model. I use child, parent and household characteristics like the past studies but add information about the mother's work status during 2005, which accounts for the endogeneity associated with the mother's willingness to participate in the labor force.

Like Mani et al. (2014), I use the test scores of the children surveyed to measure their educational ability. Based on the study conducted by the Centre for Social Protection, I expect to find a negative causal relationship between the mother's employment and the child's test scores. Analogous to the estimation strategy used by Jalan and Ravallion (2003), to analyze the impact of an anti-poverty program in Argentina, I use the propensity score matching methodology.

BACKGROUND: MGNREGA

MGNREGA is the largest employment guarantee scheme in the world and was introduced by the Government of India in 2005. The Act provides 100 days of guaranteed employment per household at a minimum wage in all areas except where 100% of the population is urban. The scheme was rolled out in three phases. It was initially restricted to 200 of the "poorest" districts[2] of India, was eventually extended to 130 additional districts in 2007, and all the districts were finally covered by April 2008.

According to Wray (2007), work under MGNREGA is physically demanding manual work and is referred to in the literature as "employment of the last resort". The program provides childcare for all children under the age of 6 years of age, if there are more than five at any given work-site. Every household can apply for the job card, which is the primary document issued which identifies households as beneficiaries under MGNREGA. The job card is issued within 15 days of the application with one or more members of the household on each card. Any member of the household willing to do unskilled manual labor can apply for a job under the program. Once a member of the household applies for a job under the program (they apply to the village council, also referred to as the Gram Panchayat), they are supposed to receive work within 15 days and are otherwise entitled to unemployment benefits, which are provided by the state. The projects undertaken focus on the improvement of the local infrastructure, such as building roads, canals, wells, etc.

According to the scheme, wages are set by the state governments, while the central government covers the wage cost and 75% of the material cost. The state government also takes care of the unemployment allowance that is provided in case jobs are not available (Ministry of Rural Development, 2008). The wage to material ratio of 60:40 needs to be maintained and no machinery is allowed in the jobs provided under the scheme. According to the Ministry of Rural Development, MGNREGA was allocated approximately 7 billion USD under the budget for the financial year 2018-19 and provided employment in approximately 700 districts in India. The program generated 2.68 billion-person days of employment in 2018-19, with approximately 52 million households benefiting from the guaranteed employment scheme.

DATA

The source of data for this analysis are the first and the second rounds of the Indian Human Development Survey (IHDS) conducted in 2004-2005 and 2011-2012, respectively. IHDS is jointly organized by researchers from University of Maryland and National Council of Applied Economic Research (NCAER)[3]. IHDS is a nationally representative, multi-topic survey of 41,554 households in 1503 villages and 971 urban neighborhoods across India. Approximately 83% of the households were interviewed for IHDS-I were reinterviewed for IHDS-II. Two one-hour interviews in each household covered topics concerning health, education, employment, economic status, marriage, fertility, gender

relations, social capital, village infrastructure, wage levels, and panchayat (village council) composition. Children aged 8-11 completed short reading, writing and arithmetic tests (IHDS). The survey is divided into modules – 1) Interview with the household representative (knowledgeable/head of household) that covered topics like income, employment, education, consumption expenditure, and other socio-economic indicators of the household. 2) Reading, writing and math tests were administered to all children aged between 8 and 11. 3) Interview with an ever-married woman aged between 15-49 that covered topics like health, education, fertility, family planning, marriage, gender relations, etc. 4) Assessment of the village infrastructure and employment opportunities. 5) Facilities and infrastructure of one private and one public school in the area.

My sample is restricted to the children aged 8-11 years, who took the test. The sample size includes approximately 2500 children, of which 48% are female. The observations are restricted to children whose mothers and household information is available from both the rounds of the survey, including information about the mother's work activities. The survey data has information regarding the school enrollment of the children, the years of education completed and detail about the school type, hours spend at school, distance to school, etc.

All children aged 8-11 in the household are administered a test to assess their skills in reading, math, and writing. The test was conducted in thirteen languages across the country. For the reading test, the children had to recognize letters of the alphabet, read a word, a paragraph and then a story. If they could not read at all, they were given 0 points. 1 point was given for letters; 2 points if they could read a word. Reading a paragraph was assigned 3 points and a story was given 4 points. In the math test, the children had to identify numbers, and solve subtraction and division problems. If they could not read or understand at all, they were given 0 points; 1 point was given for identifying numbers; 2 points were given for subtraction and 3 points were given for division.

For the writing test the children were assigned 1 point if they could write a paragraph with 2 or less mistakes, and 0 points otherwise. Thus, a child could score a maximum of 9 points (4 - reading, 3 - math, 2 - writing) and a minimum of 0 points. The main variable of interest is the total score of the children. Additionally, the hours spent at school every week (which is a self-reported variable in the survey) is used as a variable of interest.

The household questionnaire includes information about all the members of the household and individual characteristics like educational attainment, employment, health etc. It also includes detailed information about the household income and assets, demographic information, and economic characteristics of the household. The questionnaire based on the eligible women includes questions regarding the woman's economic activity and educational attainment. The sample is restricted to children living in rural areas where the MGNREGA policy is more prevalent, and to children who live in a two-parent household. Additionally, the sample only includes children that have data for the mother's work status during 2005 (IHDS-I) and have mothers who are working during 2012 (IHDS-II), either under MGNREGA or otherwise. Finally, any children that are missing data for any of the covariates utilized during the analysis are excluded from the sample. The final sample consists of 2427[4] children with corresponding information about the mother and the household from both the surveys.

Table 1 provides the summary statistics for the main variable of interest and the controls used. The test scores of the children with independently- employed mothers are on average higher by approximately .40 points compared to the test scores of the children with policy-employed mothers. Children with policy-employed mothers spend on average one more hour in school per week compared to the children with independently-employed mothers. Column 3 presents the details for the group of mothers who are non-employed, it is significantly different from the employed mothers. Thus, I use the independently employed mothers as the control group for my analysis.

Policy-employed mothers are more likely to have worked during 2005 and are less educated than the independently employed mothers. Independently- employed mothers have 1.43 more years of education than policy-employed mothers.

Further, independently employed mothers have more educated spouses, more household assets, and higher household size. Higher household size implies presence of more caregivers which reduces dependence on mothers.

EMPIRICAL STRATEGY

Multiple Linear Regression

The empirical specification used is as follows:

$$Y_i = \alpha + \beta_1 NREGA_i + \beta_2 X_i + \gamma_1 Parent_i + \gamma_2 HH_i + \varepsilon_i, \quad (1)$$

where Y_i is the main variable of interest, test scores on the test administered under the survey for a child i and hours spent in school per week by child i. $NREGA_i$ is an indicator for whether the child i's mother is policy-employed or independently employed. X_i is a vector of child specific characteristics like age, sex, and distance to school. Dummies for states and the caste[5] of the family are used. $Parent_i$ is a vector of the characteristics of the parents including the mother's work force participation during time period t-1 (2005), education and the father's education and work force participation during time period t (2012).

HH_i is a vector of household-specific characteristics discussed including house- hold size, assets owned (in levels), and number of children in the household.

Propensity Score Matching

I use the quasi-experimental technique Propensity Score Matching (PSM) which aids in comparing across the two groups which here are children with policy-employed mothers and those who have independently-employed mothers. Matching weights observations differently than OLS in calculating the expected counterfactual for each treated observation. In OLS, all the untreated units play a role in determining the expected counterfactual for any given treated unit. In contrast, in matching only untreated units like each treated unit have positive weight in determining the expected counterfactual. This may mean that you must throw away some data, but you get less bias in exchange for higher variance which is why matching is sometimes preferred to OLS.

Using a logit and probit models, I ensure that participants in MGNREGA are matched with non-participants over a common region of the matching variables to construct a counterfactual group. Any remaining bias in the matching estimator can be attributed to unobserved characteristics. Reliability of the estimates depends on the participants and the controls having the same distribution of unobserved characteristics. Failure of this condition to hold refers to the problem of" selection bias". Moreover, the support for the comparison and the program participants should be equal which gives matching estimates a causal interpretation (Angrist and Pischke 2009).

Matching helps to control for the observable differences. Rosenbaum and Rubin (1983) show that matching can be performed conditioning on P(X) alone, instead of X, where P(X) is defined as Prob(D=1—X) which is the probability of participating conditional on X or the" propensity score" of X. The propensity score is estimated for each observation in the participant and the non-participant groups using standard discrete choice models (Logit and probit models are used here). PSM then uses the estimated P(X)'s to select comparison observations.

Pre-intervention variables should be included in the regression estimated according to PSM. The survey data has substantial information regarding the individual and spousal characteristics, along with household characteristics. These variables were used to estimate various logistic models to help predict participation in the program. The basic model is:

$$NREGA_i = \alpha + \beta_1 X_i + \gamma_1 Parent_i + \gamma_2 HH_i + \varepsilon_i, \quad (2)$$

where $NREGA_i$ is an indicator with value 1 if the child's mother is policy- employed. This is the treatment in this analysis and the matching is done based on the score calculated from this model. The coefficients are defined as in equation (1).

After estimating the propensity scores for the two groups, I plotted them to check for the common support condition. (Figure 1, Figure 2, and Figure 3).

Another methodology used is to trim the regression based on the score calculated of being treated to ensure common support. This could be used to ensure that covariate cells which have some treated and control observations are the ones that are used for the regression analysis.

RESULTS

Results From the Linear Regression Analysis

To evaluate the impact of participation by mothers in MGNREGA on the child's educational outcomes, the specifications discussed in the earlier section are tested. Table 2 Column (1) presents the basic equation (1) specification where only the mother's work status is controlled for. Children with policy-employed mothers have 8.4% lower test scores. Addition of child specific characteristics and the state dummies decreases the test score of children of policy-employed mothers by 12.4% (Column 2). Female children are found to have worse test scores compared to the male children, the difference being around 6.6%.

Column (3) and Column (4) present the results from the specifications with addition of parent and household specific characteristics. The negative impact of the mother's participation in MGNREGA on test scores reduces once more controls are added, though the difference is still statistically significant. According to column (4), the test scores of children with policy-employed mothers are 6.4% lower than the test scores of the children with independently-employed mothers. Given that the mean test score for the sample used is 4.94 and the maximum test score is 9, this result implies that the children with policy-employed mothers are significantly worse off in educational outcomes.

Column (3) and column (4) show that the parents' education has positive and significant impact on the test scores of the children. The more educated parents can help their children with schoolwork and are more focused on their children's education compared to parents who are not educated. In addition, the female literacy rate in rural areas is 59% compared to the male literacy rate of 79%. Therefore, educated women do not have to rely on public safety programs and have a positive effect on the education of their children.

The negative impact of policy-employed mothers on test scores of the children implies that though the policy helps women gain employment, the burden of home production is shifted to young children.

Table 3 presents the linear regression results with the different specifications using the school hours per week as the dependent variable. Table 3, column (1) presents the basic equation (1) specification with no controls. Children with policy-employed mothers spent 1.32 hours more at school per week.

Propensity Score Estimation Results

Table 4, column (1) presents the results from the propensity score matching which includes child-specific characteristics. The results from the different models used to calculate the propensity score are given. The effect of the mother's participation in MGNREGA as estimated using the logit regression implies that children who have policy-employed mothers have 10.2% lower test scores compared to the children with independently-employed mothers. The results from the matching are less negative than the coefficient estimated by the linear regression analysis. Column (2) shows that the test score is 2.8% lower for the children with policy-employed mothers when we add child and parent characteristics to the estimation of the p-score, although these results are insignificant. However, using the linear probability estimation returns a significant coefficient, test scores of children with policy-employed mothers are 9.4% lower than those of the children with independently-employed mothers.

The linear regressions are trimmed based on the propensity score that is calculated using the different controls and the results are reported in Table 4. The results from the trimming are close to the linear regression results with the calculated effect being equal to -.61 in column 1. This implies that the test score of children with mothers working under MGNREGA is 12.2% lower. Given that the mean test score is 4.94,

this result implies that the educational outcomes of children are significantly impacted by the employment choice of the mothers. This is like the estimated result from the untrimmed linear regression.

Table 5 reports the results from the propensity score matching using the time spent at school per week as the main variable of interest. The results for the school hours per week are found to be positive and statistically insignificant across all the specifications and methods used. According to the PSM results, children with policy-employed mothers spend .71 hours at school per week, which is not significant.

The PSM is a great methodology, given the data that I have, but I do not find enough common support for my treatment and control groups, and I find that the results from the linear regression are more robust.

CONCLUSION

The female labor force participation in India, specifically in the rural areas has been decreasing in the recent years. Mother's work activities have direct impact on the children's educational outcomes. This paper estimates the effects of the Mahatma Gandhi National Rural Employment Guarantee Act of 2005 on the test scores of the children. Specifically, the test scores of the children with mothers who are policy-employed are compared with the test scores of the children who have independently-employed mothers. A linear regression model and propensity score matching is used to calculate this effect. In contrast to the earlier studies, I compare policy-employed mothers to independently-employed mothers instead of comparing them to mothers who do not work. The decision to join the labor force impacts the educational outcomes of the children and I try to estimate how these outcomes are different across the different kinds of work done by the mothers.

This paper finds a negative relationship between the mothers who work under MGNREGA and the test scores of the children which implies that the substitution effect is stronger. The paper finds that the children who have independently-employed mothers do better on the tests administered on an average. The children with policy-employed mothers are estimated to be worse in the tests administered by 6.4%. The propensity score matching finds a similar result where the test scores of the children who have policy- employed mothers are lower.

Given these results, there is evidence that though the policy may help aid women participate in the labor force, it can lead to a decline in the quality of education of the children. In contrast, the children with independently- employed mothers have better scores. Thus, the negative impact of the mother working is stronger than the increased income of the household, the children need to substitute for the mother's time in the household. This means that older, especially female children end up staying at home and looking after their younger siblings and doing the household chores. This implies that along with a focus on female participation under MGNREGA, there should be provision of childcare facilities which will provide support for the women who are working and help to improve the educational outcomes of the children. This reinforces the idea that the negative spillovers of employment opportunities, especially for women need to be factored into the formulation of public programs.

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ENDNOTES

1. Afridi et al (2012); Li and Sekhri (2013)
2. A district refers to an administrative unit of a state or territory in India
3. https://www.ihds.umd.edu

4. Additionally, any states where all the mothers in the sample were either working under MGNREGA or working in the labor force were dropped because they couldn't be included in the logit/probit regression and the propensity score estimation.
5. A form of social stratification in the Indian society based on religion and familial status.

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APPENDIX

TABLE 1
SUMMARY STATISTICS FOR WORKING AND NON-WORKING MOTHERS

Variable	Working		Not Working
	MGNREGA	**Independent**	
Child Characteristics			
Test Score	4.65	5.03	5.44
	(2.74)	(2.73)	(2.66)
Sex (Male = 0, Female=1)	.48	.48	.46
Age (Yrs)	9.51	9.50	9.52
	(1.12)	(1.11)	(1.11)
Distance to School (Kms)	1.76	1.93	2.10
	(4.55)	(2.30)	(2.62)
Hours in School/Week	34.22	33.11	32.37
	(7.80)	(7.34)	(7.96)
Mother's Characteristics			
Worked During IHDS-I	0.42	0.26	0.09
Age (Yrs)	34.51	34.48	34.32
	(5.88)	(5.70)	(5.46)
Education Completed	2.45	3.88	5.41
	(3.42)	(4.39)	(4.51)
Father's Characteristics			
Education Completed	4.93	6.47	7.71
	(4.34)	(4.66)	(4.76)
Work	.98	.99	.93
Household Characteristics			
Household Size	5.95	6.48	6.77
	(1.91)	(2.42)	(2.92)
Assets Owned by HH	11.21	12.87	15.88
	(4.77)	(5.91)	(6.14)
# Children in the HH	2.86	2.99	2.98
	(1.19)	(1.37)	(1.48)
Observations	582	2005	960

Note: Standard deviations in parentheses. The sample consists of children 8-11 in rural areas. 22% of the mothers in the sample work under the MGNREGA policy.
Source: IHDS-I and IHDS-II

FIGURE 1
PROPENSITY SCORE USING LOGIT WITH CHILD-SPECIFIC CONTROLS

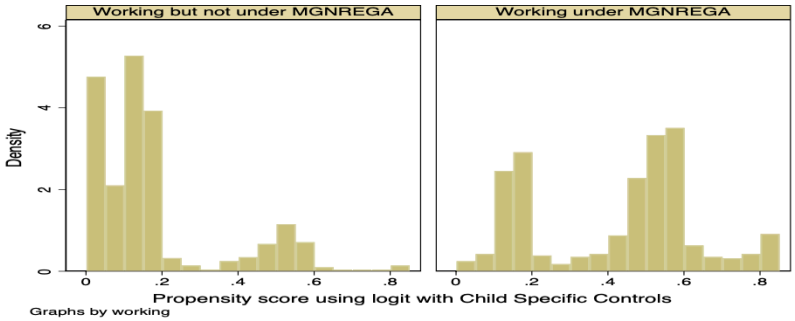

FIGURE 2
PROPENSITY SCORE USING LOGIT WITH CHILD AND PARENT CONTROLS

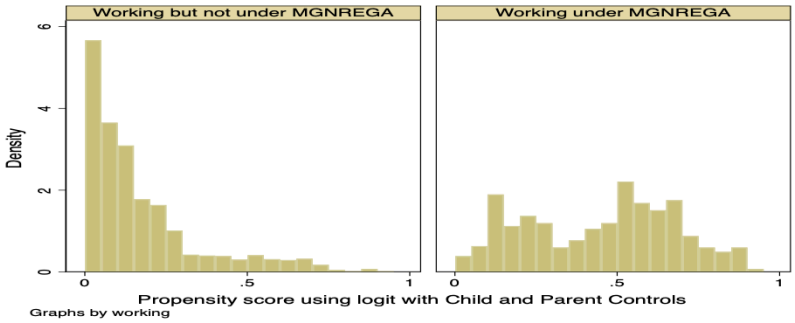

FIGURE 3
PROPENSITY SCORE USING LOGIT WITH CHILD, PARENT, AND HH CONTROLS

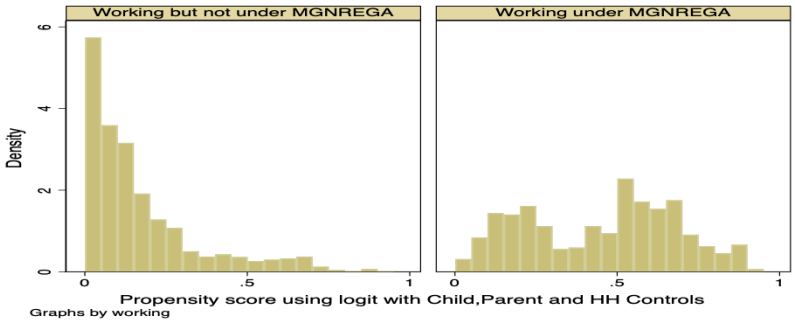

TABLE 2
DETERMINANTS OF CHILD TEST SCORE USING OLS

	Dependent variable: Test Scores				
	(1)	(2)	(3)	(4)	(5)
Mother working under MGNREGA	-0.42**	-0.62***	-0.29*	-0.32	-0.17
	(0.13)	(0.14)	(0.13)	(0.13)	(0.13)
Child's Sex		-0.33**	-0.33***	-0.30**	-0.27**
		(0.10)	(0.10)	(0.10)	(0.10)
Child's Age		0.59***	0.61***	0.60***	0.60***
		(0.05)	(0.04)	(0.04)	(0.04)
Distance to School (Kms)		0.34***	0.18**	0.20***	0.12*
		(0.06)	(0.06)	(0.06)	(0.06)
Mother Worked during 2005			0.02	-0.01	0.06
			(0.12)	(0.12)	(0.12)
Mother's Age (Yrs)			-0.02*	-0.02*	-0.02*
			(0.01)	(0.01)	(0.01)
Mother's Education			0.09***	0.08***	0.05**
			(0.02)	(0.02)	(0.02)
Father's Education			0.12***	0.12***	0.09***
			(0.01)	(0.01)	(0.01)
Father Working			0.94*	0.98*	1.10*
			(0.43)	(0.42)	(0.43)
Household Size				-0.08***	-0.12***
				(0.02)	(0.02)
Assets Owned by the HH					0.11***
					(0.012)
State Dummies	N	Y	Y	Y	Y
Caste Dummies	N	N	Y	Y	Y
Observations	2427	2427	2427	2427	2427
R- Squared	0.004	0.16	0.26	0.27	0.29

Note: Ordinary Least Square method of estimation is used. Robust standard errors in parentheses. The sample includes children between the age of 8-11 years.
*p<0.05, **p<0.01, ***p<0.001
Source: IHDS-I and IHDS-II

TABLE 3
DETERMINANTS OF TIME SPENT AT SCHOOL USING OLS

	Dependent variable: School Hours/Week				
	(1)	(2)	(3)	(4)	(5)
Mother working under MGNREGA	1.32***	0.65	0.61	0.60	0.53
	(0.37)	(0.40)	(0.40)	(0.40)	(0.39)
Child's Sex		0.41	0.39	0.40	0.39
		(0.28)	(0.29)	(0.29)	(0.29)
Child's Age		0.21	0.17	0.17	0.17
		(0.13)	(0.13)	(0.13)	(0.13)
Distance to School (Kms)		-0.25	-0.22	-0.22	-0.18
		(0.20)	(0.20)	(0.20)	(0.20)
Mother Worked during 2005			1.18**	1.17**	1.14**
			(0.37)	(0.37)	(0.38)
Mother's Age (Yrs)			0.03	0.03	0.03
			(0.03)	(0.03)	(0.03)
Mother's Education			0.02	0.02	0.04
			(0.05)	(0.05)	(0.05)
Father's Education			-0.01	-0.01	-0.01
			(0.04)	(0.04)	(0.04)
Father Working			1.01	1.01	1.00
			(1.44)	(1.44)	(1.44)
Household Size				-0.02	0.01
				(0.06)	(0.07)
Assets Owned by the HH					-0.06
					(0.04)
State Dummies	N	Y	Y	Y	Y
Caste Dummies	N	N	Y	Y	Y
Observations	2427	2427	2427	2427	2427
R- Squared	0.01	0.11	0.12	0.12	0.12

Note: Ordinary Least Square method of estimation is used. Robust standard errors in parentheses. The sample includes children between the age of 8-11 years.
*p<0.05, **p<0.01, ***p<0.001
Source: IHDS-I and IHDS-II

TABLE 4
TREATMENT EFFECTS BASED ON TEST SCORES USING PROPENSITY SCORE STRATIFICATION

Methodology	Child Controls	Child, Parent Controls	Child, Parent and HH Controls	Obvs
	(1)	(2)	(3)	
Logit Propensity estimation	-0.51	-0.14	-0.17	2427
	(0.14)	(0.17)	(0.16)	
Logit Propensity estimation Keep if prop score 0.01-0.99	-	-	-0.16	2260
			(0.16)	
Probit based score	-0.51	-0.13	-0.17	2427
	(0.16)	(0.17)	(0.13)	
Linear probability score	-0.47	-0.18	-0.19	2427
	(0.14)	(0.17)	(0.17)	
Linear Regression	-0.62	-0.29	-0.32	2427
	(0.14)	(0.13)	(0.13)	
Trimmed linear reg				
Keep if prop score 0.01-0.99	-0.61	-0.27	-0.30	2260
	(.14)	(0.13)	(0.13)	
Keep if prop score 0.01-0.99	-0.51	-0.23	-0.27	1536
	(0.15)	(0.14)	(0.14)	
State Dummies	Y	Y	Y	
Caste Dummies	N	Y	Y	

Note: The dependent variable is the test score of the children. The propensity score is based on the whether the mothers work under MGNREGA or not. Bootstrapped standard errors in parentheses. Different specifications of the models are used to calculate the propensity scores. The child specific controls include age, sex of the child and distance to school. Parent specific controls include whether mother worked during 2005, age and education of the parents and whether the father is working or not. Household controls include the size of the household.
Source: IHDS-I and IHDS-II

TABLE 5
TREATMENT EFFECTS BASED ON SCHOOL HOURS/WEEK USING PROPENSITY SCORE STRATIFICATION

Methodology	Child Controls	Child, Parent Controls	Child, Parent and HH Controls	Obvs
	(1)	(2)	(3)	
Logit Propensity estimation	0.73	0.71	0.66	2427
	(0.50)	(0.50)	(0.52)	
Logit Propensity estimation	-	-	0.69	2260
Keep if prop score 0.01-0.99			(0.38)	
Probit based score	0.73	0.70	0.65	2427
	(0.48)	(0.55)	(0.55)	
Linear probability score	0.82	0.72	0.70	2427
	(0.46)	(0.48)	(0.47)	
Linear Regression	0.65	0.61	0.60	2427
	(0.40)	(0.40)	(0.40)	
Trimmed linear reg				
Keep if prop score 0.01-0.99	0.65	0.58	0.56	2260
	(0.40)	(0.40)	(0.40)	
Keep if prop score 0.01-0.99	0.80	0.84	0.78	1536
	(0.43)	(0.43)	(0.43)	
State Dummies	Y	Y	Y	
Caste Dummies	N	Y	Y	

Note: The dependent variable is the hours spent at school per week by the children. The propensity score is based on the whether the mothers work under MGNREGA or not. Bootstrapped standard errors in parentheses. Different specifications of the models are used to calculate the propensity scores. The child specific controls include age, sex of the child and distance to school. Parent specific controls include whether mother worked during 2005, age and education of the parents and whether the father is working or not. Household controls include the size of the household.
Source: IHDS-I and IHDS-II