Female Literacy and Access to Drinking Water in Rural India

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Abstract

Women and girl children spend considerable time to collect water for meeting the domestic needs of the households in rural areas of many developing countries. Thus, scarcity of water can have disproportionate effect on the welfare of women and girl children. In this paper, I use data from villages in India to examine whether access to water affects literacy among women. I find that literacy rates are almost 5 percent higher for women in villages with access to water, whereas there is no difference in the literacy rates of men. I also examine the effect of distance to the source and the type of source of drinking water on literacy rates. Female literacy rates decrease as the distance to the source increases. Sources that require more time to collect water such as manual wells and rivers have a negative and significant effect on women's literacy rates. These patterns suggest that longer hours spent on collecting water impact literacy rates of women.

JEL classification: O10, O13, Q54

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1 Introduction

Women and children tend to spend considerable time on collecting water for meeting the domestic water needs of the households in rural areas of many developing countries. According to UNFPA (2002), women in Africa on the average walk 6 kilometers a day to water sources and back in order to fetch water. In India, average time taken to walk to a water source is 20 minutes (National Family Health survey, III).[1] This can influence women's welfare in several ways. First, the hours spent collecting water are non-productive, and take time away from more productive activities like acquiring human capital, or working for wages. Second, women can be more susceptible to water-bourne diseases if the water source is not clean. Third, walking far from home, as is the case in many African countries, the women might face a heightened risk of appropriation in terms of targeted crimes. Consequently, water stress or scarcity can effect women disproportionately. In spite of being a very important policy question, very little systematic evidence exists on how water stress effects women. Most of the previous research has focussed on health impacts of clean water (Merrick, 1985; Jalan and Ravallion, 2003; Galiani, Gertler and Schardrogsky, 2005; Kremer et al, 2008; Gamper-Rabindran, Khan and Timmins, 2010). Devoto et al (2011) investigates the effects of getting piped water on household welfare in urban Morroco, and Ilahi and Gramard (2000) show that poor water infrastructure reduces time spent on market oriented activities. Nauges and Strand (2011) consider the effect of water access on girls schooling. Other research has focused on benefits of irrigation water (Duflo and Pande, 2007; Hornbeck and Keskin, 2011; Sekhri(2011a); Sekhri (2011,b)).

In this paper, I focus on examining the effect of access to drinking water on literacy rates of women.[2] I use kernel based propensity score matching to address endogeneity concerns and find that literacy rates among women in villages with access to water are 5 percent higher. However, there is no difference in the literacy rates among men. Devoto at el (2011) find no effect of providing access to piped water on labor force participation

[1] Approximately 4-5 trips are required to fetch water for meeting the households's daily needs.

[2] In complementary work, I evaluate how water stress effects crimes against women and their time allocation decisions.

of individuals or schooling outcomes of children in Morroco. But the population in that study is urban and already connected to the piped water grid. Thus, they have access to public taps in the communities. Children were not engaged in collecting water in the baseline survey, hence the schooling outcomes do not change. Also, the end line survey was conducted after 5 months which might be too short to discern effects on labor force participation. In contrast, in rural India women and children spend a significant time on collecting water. Therefore, in this setting, access to drinking water has an effect on productive outcomes such as human capital acquisition. This paper complements the findings of Ilahi and Gramard (2000) and Nauges and Strand (2011). While Illahi and Gramad (2000) examine the effects of water infrastructure on women's time allocation in Pakistan, Nauges and Strand Explore the schooling outcomes of girl children in Ghana. This study is focussed on studying the impact of water scarcity on women's literacy in India. In doing so, this paper also addresses endogeneity concerns by using a kernel based matching estimator.

In order to shed light on whether time spent on collecting water drives lower literacy rates, I explore the effects of sources of water and distance to the source of water on literacy rates.[3] Sources such as rivers and manual wells which require more time to fetch water have a negative effect on female literacy, whereas access to hand-pumps and tube wells have a positive effect. An increase in the distance to the source of water also has a statistically significant negative effect on female literacy rates. This effect can operate through marriage markets where more literate women do not marry into water scarce areas, or it can operate though an adverse effect on time available to acquire human capital. The data does not allow me to parse these mechanisms. But I show suggestive evidence that time spent on fetching water has a negative effect on schooling outcomes of children including enrolment, attendance, dropping-out, and hours spent doing homework. I also show that children who spend longer on fetching water perform poorly on tests of basic skills in Math, reading and writing. From a policy perspective, access to drinking water is likely to result in welfare gains such as improved human

[3]Lower literacy rates can also arise from worse health outcomes that water scarcity can cause. That channel cannot be ruled out with this data.

capital outcomes of girls in rural settings where females and children spend substantial time collecting water.

Rest of the paper is organized as follows. Section 2 describes the data used in the analysis. Section 3 discusses the estimation strategy. Section 4 provides the results. Mechanisms are discussed in Section 5 and Section 6 concludes.

2 Data

There are two main sources of data that I employ in the empirical analysis. The literacy rates for women and men are from the *Primary Census Abstract* of the *Population Census of India* for year 2001 for state of Uttar Pradesh. A number of demographic variables including total literacy rate, employment rate, total population, adult sex ratio, fraction of scheduled caste population, and number of households are also taken from the *Primary Census Abstract*. Village level infrastructure including education facilities, distance to nearest town, and expenditure of the local village council (panchayat)are taken from the *Village Directory* of the *Population Census of India*. Elevation and slope data has been extracted from the Digital Elevation Model of India (SRTM at 1 km resolution).[4]

There are 8261 villages in the main sample. Out of these, 104 villages do not access to drinking water. Table I provides the overall summary statistics, and Table II provides the summary statistics by access to water status. In this sample, female literacy rate is close to 30 percent and male literacy rate is 54 percent. Almost 70 percent of the villages have a primary school within the village. Most villages do have access to drinking water in some form. Around, 98 percent villages do have access to drinking water. Female literacy rate in villages where drinking water is not available is 22 percent and is significantly lower than the villages where drinking water is available (Table II). However, male literacy rates are comparable in these villages. The villages without access to drinking water are more remote and also lack other infrastructure like schooling facilities. These villages are also less densely populated. I control for

[4]The source for this data is the Global Land Cover Facility, www.landcover.org.

these characteristics in the empirical analysis. A higher proportion of females work in villages with access to water and average cultivated land is higher.

3 Estimation Strategy

The empirical goal is to evaluate the effect of access to drinking water on female and male literacy rates. The empirical model is specified as follows:

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 W_i + \epsilon_i \tag{1}$$

where Y_i the literacy rate in village i , X_i are the characteristics of the village that effect literacy rate, W_i is an indicator variable equal to 1 if the village has access to drinking water and ϵ_i is a random error term. The coefficient β_2 on access to drinking water W_i, is the parameter of interest.

The terrain or the geography may be correlated with access to drinking water and female literacy rates. It may affect women's literacy through direct (harder to provide schools or access schools), or indirect channels. For instance, provision of electricity might be affected by the slope as in Dinkelman, 2011 and that may affect women's literacy rates. Therefore, I condition on these variables.

3.1 Propensity Score Matching

I use propensity score matching methods to evaluate causality. I use the non-parametric kernel regression method proposed by Heckman, Ishimura, and Todd (1998) for the analysis. I use a Gaussian kernel in the non-parametric density estimation. In the kernel based approach, the entire sample of control villages is used to construct a weighted match for each village that does not have access to drinking water. Outcome in each village i without access to drinking water is associated with a matched outcome given by kernel-weighted average of the outcomes of all villages with access to drinking water where the weight given to the village j with access to drinking water is in proportion to the proximity between i and j in terms of propensity scores.

$$\widehat{y}_i = \frac{\sum_{J \epsilon D} K(\frac{p_i - p_j}{h}) y_j}{\sum_{J \epsilon D} K(\frac{p_i - p_j}{h})} \tag{2}$$

Outcomes for villages with access to drinking water are weighted by:

$$\frac{K(\frac{p_i - p_j}{h})}{\sum_{J \epsilon D} K(\frac{p_i - p_j}{h})} \tag{3}$$

Standard errors are bootstrapped. A common support has been used to carry out the matching estimation.[5]

4 Results

The empirical objective is to examine whether access to drinking water affects women's literacy rates. Table III reports the Ordinary Least Square estimates of specification in equation 1. Column (i) reports the effect of access to drinking water on female literacy rates. The OLS coefficient is 0.07 and is highly statistically significant. Access to drinking water results in a 7 percent increase in female literacy rate. In Column (ii), results are reported with robust standard errors. Column (iii) reports the effect of access to drinking water on male literacy. The coefficient 0.024 and is not statistically significant. Access to drinking water is not correlated with male literacy rates. Columns (iv) and (v) show the correlation with overall literacy rates, which is statistically insignificant. A rich set of controls are added to the specifications and results are reported in Table IV. The control characteristics include demographic variables like number of households, sex ratio and fraction of scheduled caste population; economic variables like total working population, total cultivated land, and per capita expenditure of the panchayat; infrastructure variables like availability of educational facilities s and distance from nearest town and finally geographical variables like slope, and elevation. Women's literacy is statistically significantly correlated with access to drinking water, whereas men's literacy rates do not exhibit such correlation even after controlling for a rich set of co-variates. Access to drinking water increases female literacy by 5.1 percent.

[5] Propensity score of all villages without drinking water are smaller than the largest propensity score in the pool of villages with drinking water.

The estimates reported in Table IV cannot be interpreted as causal but indicate strong correlations. I use propensity score matching to isolate causal effects. Propensity scores are calculated using a probit model. The regressors include number of households, sex ratio, fraction of scheduled caste population, total working population, total cultivated land, total expenditure of the panchayat, availability of educational facilities, distance from nearest town, slope, and elevation. Result from the propensity score matching are reported in Table V. I use 50 replications for bootstrapping the standard errors for each outcome. Drinking water results in 5 percent increase in literacy of females (Column (i)) and this effect is statistically significant at 5 percent significance level. However, the effect on males is not significant at conventional levels of significance (Column(ii)). Overall literacy rate shows an increase but is marginally significant at 10 percent level.

4.1 Main Sources of Water

The *Village Directory* from the *Census of India* also reports the major sources of drinking water for each village. I use this information to determine how various sources of drinking water affect female literacy. The results from the estimation of an ordinary least square specification are reported in Table VI. I find that sources that consume more time like wells, where you have to queue up and manually pull water and rivers which may be farther from the house have a negative and statistically significant effect on women's literacy. However, sources which are not time intensive like tube-well and hand pump actually have a statistically significant positive effect on women's literacy.[6] These patterns are consistent with the hypothesis that an increase in the time spent on collecting water leads to lower female literacy rates in rural areas.

4.2 Distance to the Source of Water

Besides the source, the Census data also reports the distance to the source. This is recorded as a categorical variable which has 4 values. The value 0 indicates that the

[6]This may reflect the erratic supply of piped water through taps which is the excluded category.

source is within the village. Value 1 indicates that the source is within 5 KMs of the village, 2 indicates that the source is within 5-10 KMs of the village and 3 represents that the source is at a distance greater than 10 KMs. Table VII reports the results from a regression of rural literacy rates on the distance to the source controlling for several characteristics of the village. In column (i), I report the OLS estimates for female literacy rate. Distance has a negative and statistically significant effect on female literacy. Column (ii) reports the estimates for male literacy. Distance to the source of water does not affect male literacy rates. This is consistent with the previously reported results.

5 Plausible Mechanisms

There are two plausible mechanisms that can explain these findings. The first possibility is that access to water affects the ability of the girl children to attend school. Since they cannot devote time to school activities, they do not find it worthwhile to attend school or drop out very early. This can also affect women who are considering adult education programs in a similar manner. If this is the case, then increasing access to water would be welfare enhancing and would increase women's literacy rates. One other possibility however is that households who internalize the welfare of their educated daughters actively avoid to marry them in areas without access to water.[7] Dinkelman (2011) evaluates the effect of electricity provision on women's labor market participation in rural South Africa and finds that educated and highly employable women migrate to areas with electricity. In India, migration rate of women in age group of 18-25 is 43.8 percent and is on account of marriage (Census of India, 2001). Hence, the effect of access to drinking water on literacy rates may operate through marriage markets.[8] In this scenario, increasing access to water only reallocates the

[7] In India, most of the marriages in rural areas are arranged by the parents. In a survey of youth, 95 percent of the 50,848 respondents reported getting arranged married (International Institute for Population Sciences and Population Council, 2010).

[8] Improvement in sanitation and increase in toilet provision through this kind of a channel has been demonstrated in Stopnitzky (2011).

fraction of literate women from one area to another and may not necessarily be welfare enhancing. Due to data limitations, I cannot discern these two mechanisms. However, I provide suggestive evidence that the educational outcomes of children who fetch water are negatively associated with time taken to fetch water. I use data from the India Human Development Survey which contains 29,263 children. Among them, 9126 children are between ages 8 to 11 and were given a test to assess basic math, reading and writing skills. Children were classified according to their ability to read, in one of the following five categories: (a) Cannot read at all; (b) Can recognize letters but cannot read words; (c) Can read words but cannot read entire sentence; (d) Can read a short paragraph of two to three sentences but cannot read a short story; (e) Can read a one page short story. The mathematical skill of the children were classified into four categories: (a) Cannot read numbers above 10; (b) Can read two digit numbers but unable to do more complex number manipulations; (c) Can subtract a two digit number from another; (d) Can divide a three digit number by a single digit number. The writing scores were classified into two categories: (a) Unable to write; (b) Can write with two or less mistakes. I regress test scores in each subject on time it takes to fetch water (one way expressed in minutes) for girl children and report the results in Table VIII. In each subject, the time taken to fetch water has a negative effect on the scores. In Table IX, I examine how enrollment in school, attending school and dropping out are affected by time it takes to fetch water. Time taken to fetch water has a negative and highly statistically significant effect on probability of enrollment (Column (i)) and ever attending school (Column (ii)) and a positive and significant effect on dropping out (Column (iii)). Column (iv) reports the effect on time spent on doing homework and Column (v) on availing tutoring services. Both these decrease in time taken to fetch drinking water. These results suggest that the principal mechanism mediating female literacy might be reduction in time spent at attaining better educational outcomes. Isolating these underlying mechanisms is an important area for future research.

6 Conclusion

Resource scarcity can have a significant effect on women's welfare. This paper presents evidence that water scarcity can affect women's human capital acquisition. Using a propensity score matching framework, the paper finds that literacy rates are almost 5 percent higher for women in villages with access to water, whereas there is no difference in the literacy rates of men. I also examine the effect of various sources of access to drinking water on literacy rates. While wells and rivers have a negative and significant effect on women's literacy rates, hand pumps and tube wells have a positive effect. Distance to source of water also negatively affects female literacy rates. These patterns suggest that longer hours spent on collecting water impact literacy rates of women. Children's educational outcomes worsen with time spent on fetching water. From a policy perspective, assured access to water can potentially result in an increase in women's literacy rates.

References

[1] Bennett, Daniel (2008), "Clean Water Makes You Dirty: Water Supply and Sanitation Behavior in the Philippines," forthcoming *Journal of Human Resources*

[2] Devoto, F., E. Duflo, P. Dupas, W. Parienté, and V. Pons (2011), " Happiness on the Tap: Piped Water Adoption in Urban Morocco", Working Paper

[3] Dinkelman, T.(2011), "The effects of rural electrification on employment: New evidence from South Africa" *American Economic Review*, 101(7), pp. 3078-3108

[4] Duflo, E. and R. Pande (2007) , " Dams", *Quarterly Journal of Economics*, Vol. 122(2), 601-646

[5] Galiani, S., P. Gertler, and E. Schargrodsky (2005), "Water for Life: The Impact of Privatization of Water Services on Child Mortality," *Journal of Political Economy*, 113(1), pp. 83- 119

[6] Gamper-Rabindran, S., S. Khan, and C. Timmins (2010), "The Impact of Piped Water Provision and Infant Mortality in Brazil: A Quantile Panel Data Approach," *Journal of Development Economics*, 92(2): 188-200.

[7] Heckman, J.J., Ichimura, H. and Todd, P.E. (1998), "Matching as an Econometric Evaluation Estimator", *Review of Economic Studies*, 65, pp. 261-294

[8] Hornbeck, R. and P. Kekin (2011), " The Evolving Impact of the Ogallala Aquifer: Agricultural Adptation to Groundwater and Climate", Mimeo, Harvard University

[9] International Institute for Population Sciences and Population Council (2010), *Youth in India: Situation and Needs 20062007*

[10] Jalan, J., and M. Ravallion (2003) "Does piped water reduce diarrhea for children in rural India?" *Journal of Econometrics*, 112, pp. 153-173

[11] Jalan, J., E. Somanathan, and S. Chaudhuri (2003), "Awareness and the Demand for Environmental Quality: Drinking Water in Urban India," ISI Discussion Paper 03-05

[12] Kremer, M., J. Leino, E. Miguel, and A. Zwane (2011), "Spring Cleaning: Rural Water Impacts, Valuation, and Institutions," *Quarterly Journal of Economics*,126(1), pp. 145-205

[13] Merrick, T.(1985), "The Effect of Piped Water on Early Childhood Mortality in Urban Brazil, 1970 to 1976", *Demography*, 22(1), pp. 1-24

[14] Ilahi, N. and F. Grimard (2000), "Public Infrastructure and Private Costs: Water Supply and Time Allocation of Women in Rural Pakistan" *Economic Development and Cultural Change*, Vol. 49(1), pp. 45-75

[15] Nauges, C. and J. Strand (2011), "Water hauling and girls' school attendance: some new evidence from Ghana," mimeo, World Bank.

[16] Sekhri, S. (2011,a), " Missing Water: Agricultural Stress and Adaptation Strategies in Response to Groundwater Depletion among Farmers in India", Mimeo, University of Virginia

[17] Sekhri,S. (2011,b), " Wells, Water, and Welfare: The Impact of Access to Groundwater on Rural Poverty", Mimeo, University of Virginia

[18] Stopnitzky, Y. (2012), " The Bargaining Power of MissingWomen: Evidence from Indian Sanitation Policy" Working Paper

[19] United Nations Population Fund (UNFPA) (2002). Water: A Critical Resource

Table I: Summary Statistics of Village Characteristics

Variable	Mean	Std dev.
Fraction of Literate Females	0.3	0.12
Fraction of Literate Males	0.54	0.13
Fraction of Literates in Population	0.42	0.125
Drinking Water Availability	0.987	0.11
Sex Ratio	0.974	0.151
Cultivated Area	150.8	128
Fraction Scheduled Caste	0.202	0.17
No. of Households	205.8	215.8
Total Population	1342.2	1384.3
Density (Population/area)	18.9	89
Distance to Nearest Town	9.17	7.7
Expenditure of the Village Panchayat	29620.13	82493.81
Fraction of Population that Works	0.33	0.115
Schooling Facilities in Village	0.69	0.45
Elevation	88.9	19.9
Slope	87.62	11.4

Table II : Summary Statistics of Village Characteristics by Water Availability

Census Year: 2001	Drinking Water Available		Drinking Water not Available	
Variable	**Mean**	**Std dev.**	**Mean**	**Std dev.**
Fraction of Literate Females	0.3	0.128	0.223	0.2
Fraction of Literate Males	0.54	0.13	0.52	0.27
Sex Ratio	0.97	0.14	0.9	0.5
Fraction Scheduled Caste	0.2	0.17	0.18	0.28
No. of Households	207.36	215.6	84.85	198.42
Distance to Nearest Town	9.14	7.67	12.16	9.4
Expenditure of the Village Panchayat/capita	31.6	94.6	9.14	59
Fraction of Working Population	0.33	0.001	0.41	0.02
Schooling Facilities in Village	0.7	0.45	0.23	0.42
Cultivated Area	151	128	136.35	109
Elevation	89	19.9	84.85	20.72
Slope	87.65	11.4	84.81	19.1
Observations	8157		104	

Table III: Effect of Availability of Drinking Water on Rural Literacy

OLS estimates of the effect of availability of drinking water on rural literacy by gender

Dependent Variable: Fraction Literate

	Females		**Males**		**Overall**	
	(i)	**(ii)**	**(iii)**	**(iv)**	**(v)**	**(vi)**
Drinking Water Available	0.0713***	0.07***	0.024*	0.024	0.016	0.016
	(.012)	(.019)	(.0135)	(.027)	(.012)	(.023)
Robust Std Errors	No	Yes	No	Yes	No	Yes
Observations	8261	8261	8261	8261	8261	8261

Notes:
Fraction literate is calculated by dividing the literate population in each category by the total population in that category .
Drinking Water Available is an indicator for whether the village has any drinking water facilities.
*** denotes significance at 1 percent, ** at 5 percent and * at 10 percent.

Table IV: Effect of Availability of Drinking Water on Rural Literacy

OLS estimates of the effect of availability of drinking water on rural literacy by gender

	Dependent Variable: Fraction Literate		
	Females	**Males**	**Overall**
	(i)	**(iv)**	**(vi)**
Drinking Water Available	0.051***	0.01	0.007
	(.017)	(.025)	(.02)
Controls	YES	YES	YES
Observations	8261	8261	8261
R-sqaured	0.16	0.18	0.16

Notes:
Fraction literate is calculated by dividing the literate population in each category by the total population in that category .
Drinking Water Available is an indicator for whether the village has any drinking water facilities.
Columns (ii), (iv), and (vi) report results from regressions that control for fraction of scheduled caste population, sex ratio, whether the village has any educational faciltities, total cultivated land, number of households, distance to nearest town, fraction of the polution that works, the expenditure of the village panchayat, and geographical controls including slope and elevation. Robust std errors are reported in parentheses.
*** denotes significance at 1 percent, ** at 5 percent and * at 10 percent.

Table V: Propensity Score Matching Estimates of the Effect of Avalibility of Drinking Water on Rural Literacy

Gaussian Kernel Based Matching Estimates

Dependent variable: Fraction Literate			
	Females	**Males**	**Overall**
	(ii)	**(iv)**	**(vi)**
Drinking Water Available	0.051** (.02)	0.04 (0.025)	0.044* (.022)
Boostrapped Std Errors	Yes	Yes	Yes
Replications	50	50	50

Notes:
Fraction literate is calculated by dividing the literate population in each category by the total population in that category .
Drinking Water Available is an indicator for whether the village has any drinking water facilities.
*** denotes significance at 1 percent, ** at 5 percent and * at 10 percent.

Table VI: Effect of Different Sources of Drinking Water on Rural Female Literacy

	Dependent Variable: Fraction of Literate Females	
Source	Coefficient **(i)**	Std. Err **(ii)**
Well	-0.036***	0.003
Tubewell	0.038***	0.003
Handpump	0.03***	0.008
Tank	-0.006	0.004
River	-0.03***	0.005
Lake	-0.011	0.01
Spring	-0.007	0.031
Canals	0.004	0.004
Observations	8261	
R-Sqaured	0.18	

Notes:
Fraction of literate females is calculated by dividing the literate female population by the total female popultaion. Excluded category is taps. Robust standard errors are reported in column (ii).
*** denotes significance at 1 percent, ** at 5 percent and * at 10 percent.

Table VII : Estimates of the Effect of the Distance to the Source of Drinking Water on Rural Literacy

OLS estimates of the effect of the distance to drinking water facilities on rural literacy by gender

	Dependent Variable: Fraction Literate	
	Females	**Males**
	(i)	**(ii)**
Distance to the Water Facilities	-0.04**	-0.013
	(0.018)	(0.021)
Socio-Economic and Geographical Controls	Yes	Yes
Observations	8261	8261
R-sqaured	0.16	0.18

Notes:
Fraction literate is calculated by dividing the literate population in each category by the total population in that category . Distance to the Water Facilities measures the distance in KMs to the source of water from the village boundary and is a categorical variable. It takes value 0 if water is available within the village, 1 if it is within 5 KMs, 2 if it is available within 5-10 KMS and 3 if it is available at a distance greater than 10 KMS. Each regression controls for fraction of scheduled caste population, sex ratio, number of households, total cultivated land, whether the village has any educational facilities, distance to nearest town, total popluation that works, expenditure of the village panchayat and geographical controls including slope, and elevation. Robust Std. errors are reported in parenthesis.
*** denotes significance at 1 percent, ** at 5 percent and * at 10 percent.

Table VIII: Effect of Time Taken to Fetch Drinking Water on Test Scores of Girls

	Dependent variable: Categorical Test Scores		
	Reading	**Math**	**Writing**
	(i)	**(ii)**	**(iii)**
Time Spent to Fetch Drinking Water	-0.016***	-0.013***	-0.005***
t-statistics	-8.19	-8.7	-7.05
Observations	5580	5560	5548

Note: Reading Scores are out of 5 point scale, Math scores are out of a 2 point scale and writing scores are out of a 2 point scale. Tests were administered to ages 8-11.
*** denotes significance at 1 percent, ** at 5 percent and * at 10 percent.

Table IX: Effect of Time Taken to Fetch Drinking Water on Schooling Outcomes of Girls

	Enrolled in School	Attended School	Drop Out	Hours Spent on Home Work	Hours spent on Tuition
	(i)	(ii)	(iii)	(iv)	(v)
Time Spent to Fetch Drinking W Water	-0.0011***	-0.003***	0.0004***	-0.056***	-0.022***
t-statistics	-5.76	-8.5	3.98	-10.55	-6.09
Observations	19931	31327	31445	17722	17347

Note: *** denotes significance at 1 percent, ** at 5 percent and * at 10 percent.