Determinants of schooling and academic achievements: Comparison between children with and without disabilities in India

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ABSTRACT

Using nationally representative data from the 2005 India Human Development Survey, we identified the determinants of children's school progression and academic achievements. Results revealed important dynamics of disability and income, both negative in educational attainment, completion, dropout and academic achievements. The effect of father's education was small when it interacted with children's disability whereas mother's education had a positive association in secondary school completion as well as reading and writing skills. Policies addressing disability based discrimination, accessibility of school environment and social protection schemes are recommended to improve the education of children with disabilities.

1. Introduction

Numerous studies in different countries have found that gender, family income, and parental education are some of the factors associated with educational attainment (Badr et al., 2012; Campbell et al., 2005; Deding and Hussain, 2002; De Serf, 2002; Kingdon, 2005; Sawada and Lokshin, 2009; Simkins, 2006; Suryadarma and Suryahadi, 2010). Some of the few studies that looked at the effect of household determinants on the education of children with disabilities in developing countries revealed low school enrollment rates and a great disability disparity in education (Filmer, 2008; Lamichhane, 2015). In Bangladesh, Lamichhane and Kawakatsu (2015) found a negative correlation between disability and school participation for the total study sample. When the sample was restricted to the population with disabilities, a positive correlation was observed between school participation and variables such as monthly expenditure, working-age members, and the household head's educational level.

Conversely, some descriptive studies in African countries such as Zimbabwe (Eide et al., 2003a), Namibia (Eide et al., 2003b), Malawi (Loeb and Eide, 2004), and Zambia (Eide and Loeb, 2006) reported no significant gaps between the education of children with and without disabilities. However, these reports did not perform any econometric analysis to determine the association between household characteristics and children's school progression.

While exact figures on children with disabilities are not available, out of the 5.7 million out-of-school children in the world (UNESCO, 2012), an estimated one third are children with disabilities (UNESCO, 2009) and majority of them are still not enrolled in schools (Mizunoya et al., 2016). Despite efforts to achieve Education for All (EFA) and the Millennium Development Goals (MDGs), which ended in 2015, the task of ensuring that children with disabilities are able to access school remains unfinished. Even if these children are enrolled in school, the quality of the education they receive remains relatively low (Mizunoya et al., 2016)

However, there has been a shift in the international policy trends of education provision for children with disabilities. Following the Salamanca World Conference focusing on Special Needs Education, UNESCO (1994) education of persons with disabilities gave way to inclusive education, which is slowly being implemented in both developed and developing countries.

In the Incheon Declaration signed at the World Education Forum in South Korea in 2015, paragraph seven clearly recognizes the inclusion and equity in education of people with disabilities and states that "no education target should be considered met unless met by all" (UNESCO,

2015). Likewise, the post-2015 Sustainable Development Goals (SDGs) have also clearly incorporated the inclusion of people with disabilities (United Nations, 2015). More specifically, SDG 4 reflects the international commitment to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. SDG 4.5 in particular mentions vulnerable persons including people with disabilities. But SDG 4 cannot be achieved without improving education access and quality for children with disabilities. Without quality education, people with disabilities will be unable to develop their full educational and employment potential.

Despite these commitments and progress at the international level, universal and inclusive education of people with disabilities is yet to be achieved, especially in low-income countries (Lamichhane, 2017). To promote and successfully implement inclusive education, identifying the factors associated with the schooling of children with disabilities is necessary.

Therefore, in this paper, we attempt to identify the effect of disability on school enrollment, school completion and academic achievements of children in India. The research questions posed here are: are there any gaps on school enrollment, school completion and academic achievements between children with and without disabilities? What are the factors affecting the schooling of children with disabilities? In this paper, we defined school enrollment and school completion as "educational attainment". Similarly, test performance is defined as "academic achievements", which can be developed through schooling opportunities in the children's early years. These skills strongly predict wages and other outcomes later in life (Heckman et al., 2006; Kautz et al., 2014). In this sense, there is a difference between educational attainment and academic achievements as the former is related to achieving years of schooling whereas we have considered scores in reading, writing and maths as academic achievements. To the best of our knowledge, studies on how children's disability status affects their academic achievements are limited, particularly for developing countries.

India is an ideal choice for this study due to its context as a developing country and the availability of a disability-inclusive, nationally representative dataset, namely the 2005 India Human Development Survey (IHDS). As education is an important determinant of future earnings, our study contributes to the growing literature on disability and education in developing countries.

We found two important studies in India, examining the relationships between the labor market participation of people with disabilities and selected factors including education in the states of Tamil Nadu (Mitra and Sambamoorthi, 2008) and Uttarpradesh (Mitra and Sambamoorthi, 2009). Both studies emphasized on the positive impact of education for the employment of people with disabilities. Despite the use of dataset collected in a similar timeframe as the dataset used in our study, their scope limited to only one state, lacking representativeness. Similarly, a study by Kurosaki et al. (2006) used a dataset collected in a similar timeframe as the IHDS dataset. Their study found that economic conditions of the household are the main determinants of children's schooling in India. As the IHDS was collected during a similar period, our results focusing on disability can give a comparative perspective with those studies.

2. Data and definition of disability

We used data from the nationally representative, disability-inclusive IHDS 2005, which was collected by researchers from the University of Maryland and the National Council of Applied Economic Research, New Delhi, between December 2004 and November 2005, with financial support from the U.S. National Institute of Health (Desai et al., 2009). The random sampling technique was applied to select households in the urban and rural areas of 33 states and union territories of India (except for the small-population states of Andaman, Nicobar, and Lakshadweep). Part of the sample was taken from an earlier household

survey. The IHDS involved face-to-face interviews with members of 41,554 households.[1] The survey collected information on income, consumption, employment, education, health, and different aspects of gender and family relationships from both male and female respondents. It provided information on the lives of 215,753 individuals, of which 87,749 were under 18 years old and 63,435 were school-age children (aged 6 to 18 years). In our analysis, we used both household and children's information, including data on school education.

The survey also collected students' test results for academic achievements in reading, math, and writing, even though the age range of the test takers was limited. While the assessment of test scores is crucial, the test performance of children with disabilities may be problematic if the tests are not provided in an accessible manner. In the present study, we could not judge whether the tests used in the dataset were provided in an accessible manner. Nevertheless, as a preliminary attempt, it is worthwhile to evaluate the test results of students with and without disabilities and identify the factors associated with their academic achievements. The questions asked to participants to test their academic achievements are described in Section 3.

Similarly, questions asked to identify people's disability are presented in Table 1. The survey identified respondents' disability status with the adaptation of questions from the Washington Group on Disability Statistics. The questions mostly focused on activities of daily living; they asked about the difficulties that respondents faced in seeing, hearing, walking, self-care, and speaking. However, they lacked a question on remembering and concentration. In our study, A person is considered to have a disability if he or she has difficulty in any of the aforementioned domains. The questionnaire of IHDS asked interviewee to identify whether their household members have any type of difficulty. Disability status is measured with 2 scales: "can do with difficulty", and "unable to do it" for each difficulty. We combined "can do with difficulty" and "unable to do it" to make disability status as binary choice (no difficulty is reference value).

3. Empirical strategy

Binary probit regression was used for the school enrollment, school completion, and dropout models. Previous studies (e.g., Rachlel and Zhenzhen, 2003; Rasheda and Russell, 2011) also utilized this technique to examine the determinants of schooling in general; Lamichhane and Kawakatsu (2015) used this technique to examine the determinants of schooling among children with disabilities as well. The following specifications were estimated:

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

where Y is the outcome, X is a set of covariates, and ϵ stands for the error term. β represents the effect of disability status on educational outcome Y. The dependent variable Y varies in accordance with the estimation models. The dependent variables used in the study are as follows:

(1) For the model of school enrollment, a dummy variable for school enrollment (1 = have ever attended school, 0 = otherwise) was used. For school completion, a dummy variable for whether participants had completed 10 years of secondary education (1 = completed, 0 = otherwise) was used.

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[1] The IHDS sample was a combination of two types of randomly selected samples: a re-interviewed sample (13,900 households) and a newly collected sample (27,654 households). The re-interviewed sample was the sample of the earlier Human Development Profile of India (HDPI) 1994–1995, which targeted only rural areas; households that still existed at the time the IHDS was conducted were re-interviewed. The newly collected sample consisted of a replacement sample (replacing households with insufficient information within the same village), a refresher sample (adding two villages for each district), an extension sample (adding 10 new states and territories to the HDPI sample and applying three-stage stratified sampling to select households), and an urban sample (newly selected urban towns and cities).