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Employment status and educational attainment among disabled Ghanaians

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Abstract: People with disabilities in Ghana and other developing economies are discriminated against in many fundamental elements of human empowerment such as education and employment. While some employers are unwilling to hire, the educational systems do not provide enabling environment for a good education. This paper explores employment and educational attainment among people with disabilities. Although, people with disabilities have low employment probabilities, our finding suggests that education increases their chance of employment. Moreover, while women with disabilities are dually disadvantaged in the labour market, educational facilities far from home lead to improvement in disabled children's educational achievements.

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1   Introduction

The World Health Organization (WHO) defines disability as a condition or function judged to be significantly impaired relative to the usual standard of an individual or group. Per this definition, disability is organized into eight categories: mobility and physical impairment, spinal cord disability, head injuries (brain disability), vision disability, hearing disability, cognitive or learning disabilities, psychological disorders, and invisible disabilities (disabilities that are not immediately apparent to others) (WHO 2001).

It is estimated that more than one billion people, about 15 per cent of the world's population, have some form of disability, while between 2.2 per cent and 3.8 per cent of persons aged 15 years and older have significant difficulties in functioning (WHO 2015). This increasing trend according to the WHO (2015) can be attributed to population ageing and increases in chronic health conditions, among other causes. Over the years, there have been a number of interventions such as laws and policies aimed at reducing the long history of discrimination against people with disabilities (PWDs). Ghana adopted the national Disability Policy in 2000, as a further step in protecting rights of PWDs. Hitherto, the Children's Act of 1998 was passed and section 8 (Act 560) clearly spells out the rights of children with disabilities: 'A disabled child has a right to special care, education and training wherever possible to develop his maximum potential and be self-reliant' (Mensah et al. 2008: 44). Ghana proclaimed and reaffirmed the right of the disabled child through its participation at the United Nations Educational, Scientific and Cultural Organization (UNESCO) conference in Salamanca, Spain in 1994 (UNESCO 1994). In 2006, the UN adopted the Convention on the Rights of Persons with Disabilities (CRPD) in response to discrimination, exclusion, and dehumanization of PWDs. Article 24 of this convention echoes the right of PWDs by indicating that States Parties shall have an inclusive education system at all levels and lifelong. Also, prominent in this Article is sub-section 27, which puts forward that States' Parties recognize the right of PWDs to work, on an equal basis with others; this includes the right to the opportunity to gain a living by work freely chosen or accepted in a labour market and work environment that is open, inclusive, and accessible to persons with disabilities (UN 2006).

A number of countries including Ghana have ratified this convention and its optional protocol to safeguard the rights of PWDs. Understanding the experience of PWDs with particular reference to education and employment opportunities is important for policy drafting, implementation, and assessment. The Disability Act (Act 715) adopted in 2006 has an objective of ensuring access of PWDs to education and training at all levels, and facilitating the employment of PWDs in all sectors of the economy. This notwithstanding, PWDs suffer discrimination in accessing education and employment opportunities in Ghana, as evident in other developing countries. Mitra (2008) documents that in South Africa; there was a decline in employment and labour force participation among PWDs during the period 1998–2006. Similarly in Uganda, Hoogeveen (2005) reveals that there were lower employment rates for persons with disabilities than those without disabilities. The evidence therefore suggests lower employment among PWDs.

In the education sector, PWDs face many constraints, which affect their educational attainments. Studies in Ghana have shown that a number of families ostracize their disabled people who end up on the streets living on alms. This stems from the fact that PWDs have been refused entry into mainstream schools by school authorities mainly due to the absence of legislation on special needs

education and management (Asamani 2000; Avoke 2001; Agbenyega 2003). Despite the efforts put in place to improve the wellbeing of the disabled, PWDs in Ghana are still considered one of the largest disadvantaged groups (UNDP 1993; Schriner 2001). While the labour market does not work in their favour, the educational system has been to their neglect. Available statistics indicate that there were between 679,000–804,000 children with disabilities in Ghana and out of which only six per cent receive any form of education (GES 2004). The high level of stigmatization, humiliation, and the social exclusion that children with disabilities experience in schools may have greatly contributed to such low enrolment.

The Ghana Education Strategy policy for 2003–15 was adopted with the goal of providing equitable educational opportunities to all children. The policy was to ensure that children with less severe special or mild educational needs or disabilities are incorporated into mainstream schools while children with severe and profound disabilities are enrolled in segregated special schools or special units attached to mainstream schools (MoE 2013). Despite the existence of this policy, Appiagyei (2006) and Kassah (2008) found that many disabled Ghanaians are not only poor, have little education, limited medical care, and have difficulties feeding themselves; they also have limited employment opportunities. A comprehensive study by Mitra, Posarac, and Vick (2013) in fifteen selected developing countries including Ghana revealed that disability was significantly associated with higher multidimensional poverty, lower educational attainment, and lower employment rates, coupled with higher medical expenditures.

Although, these studies provide insightful descriptive information on disability situation in Ghana, they do not provide information on how PWDs can be empowered to improve employment and education. This study fills the gap by providing an analysis of the effects of the various types of disability on educational attainment and employment status while exploring other covariates that enhance job opportunities and education among this disadvantaged group of persons. Such analysis is very important in that, it enhances objectivity in ascertaining the effect of policy interventions. Specifically, this study tests two main hypotheses: (1) disability affects employment opportunities in Ghana, and (2) disability affects educational attainment in Ghana.

The rest of the paper is organized as follows. Section 2 contains the overview of employment and educational system in Ghana. Section 3 presents the empirical models for the study as well as appropriate estimation techniques. Section 4 presents data used and its sources. Section 5 analyses the data and Section 6 presents the conclusion of the study.

2 Overview of labour market and educational system in Ghana

The labour market in Ghana is characterized by informality of employment and employment relationships of youthful labour force. Moreover, more than half of all Ghanaian adults are said to be self-employed or own-account workers. Even those with wage employment, more than 80 per cent of them do not have contracts or formal employer-employee relationship (GSS 2014). This undermines the provision of any form of social and legal protection. Furthermore, it is estimated that about 250,000 young people enter the labour market every year, out of which the formal sector employs about 5,000 (2 per cent). The remaining 98 per cent are compelled to seek employment in the informal economy. Labour markets function through an interaction of workers and employers. The supply-side of a labour market involving a decision by individuals on how to allocate their time,

is equally dependent on its demand side, which pertains to a decision on the part of an employer to offer individual a job (Wamuthenya 2010). Thus, the final employment decision is in the hand of the job evaluators (employers). Sections 12 and 87 of the Labour Act of the 1992 constitution (amended in 1996) of Ghana, prohibits the employment of young persons in hazardous work (ILO 2006). A person is expected to have completed basic education by age 16 and the retirement age is also legally set at 60 years. In view of this, in estimating employment, defined as paid work, we define working population as all persons aged 16 to 60 years.

2.1 Educational system in Ghana

The Ghanaian education system is categorized into three parts: basic education, secondary, and tertiary education. The basic educational level, according to the 1992 Constitution of Ghana is supposed to be compulsory and free. Basic education begins at age four and ends at age 15. It is divided into Kindergarten (two years), Primary school (six years) and Junior High school (three years). The Junior High School (JHS) ends with a Basic Education Certificate Examination (BECE). Thus, it is structured for 11 years. Even though the private sector has increasingly been involved in the provision of education especially at the basic level, the public sector is the main provider and maintenance of education at the primary level (Nsiah-Peprah 2004). The government through the Ministry of Education (MoE) formulates and develops policies and programmes regarding education in the country. The Special Education Department, the main division within the Ghana Education Service, has the core mandate to develop and administer policies that would ensure the social inclusion of and a quality education for children with special needs and disabilities. Thus, the Special Education Department has the primary responsibility for meeting the education needs of persons with disabilities (MoE 2013).

Currently, the dualism of education where individuals with disabilities attend segregated residential schools while others attend mainstream schools is firmly rooted in the primary school system. According to GES (2015), the total number of disabled children in primary school is about 3,925. Of this number, 437 are visually disabled, 2,835 have hearing disability, and 653 are intellectually disabled. Basic education is an important requirement to foster development in low- and middle-income economies. It promotes economic growth by increasing a country's productivity and human capital (Hanushek and Woessmann 2008; Cooray 2009). This study therefore focuses on basic educational attainment among children between the ages four to 15 years in Ghana.

3 Empirical models

Two empirical models are specified according to the two main hypotheses of this paper. The first is a logit model that investigates employer decisions to employ a randomly chosen individual and what characterizes those hiring decisions, while the second is a tobit equation that investigates the effect of disability status on educational attainment. The models are explained in turn.

3.1 Disability and employment status

In the logit model, we consider a situation where an employer chooses to employ a disabled person or not. Let $L_i^* > 0$ be a latent variable capturing the expected net benefits from hiring a disabled person. The logit model of hiring a disabled person is thus specified as:

$$L^* = \hat{\alpha}_i D^* + X \hat{\beta}_i + u_i \quad \text{with } L_i = \begin{cases} 1 & \text{if } L_i^* > 0 \\ 0 & \text{otherwise,} \end{cases} \tag{1}$$

where L is a dummy variable, which takes the value of 1 if the employer chooses to employ a disabled person; D^* is a dummy variable for disability type; $\hat{\beta}$ is a vector of the coefficients of the control variables; $\hat{\alpha}$ is coefficient of the disability types; and $\hat{\mu}$ is an error term with mean zero and variance of σ_η^2. In estimating equation 1, the maximum likelihood estimation (MLE) techniques, specifically a logit model, which has flatter tail compared to probit model, will be adopted to estimate the parameters in Equation 1. This estimation technique is deemed appropriate because it satisfies the assumptions underlying the MLE; key for such assumptions is that the estimable variable (Paid work) must be dichotomous (Cameron and Trivedi 2010). The main variable here is the disability type of the individual captured as a categorical variable. The other potential variables that could characterize employers' choice of labour include educational attainment of the person, gender of the individual, the age of the person to be hired, and place of residence of the individual among others. The main hypothesis in equation 1 is $\hat{\alpha} < 0$. Equation 1 is estimated for cohort of individuals aged 16–60 years.

3.2   Disability and educational attainment

Basic education is measured by the years of schooling completed and hence, a continuous variable. A tobit model is specified due to the fact that educational attainment is left censored with zeros for many children. It is therefore left censored as shown in Figure 1. The ordinary least squares technique is inappropriate because its assumption that the dependent variable (educational attainment) is normally distributed is violated. Hence, to obtain consistent estimates, the maximum likelihood estimation of the tobit model is used.

Figure 1: Censored educational attainment
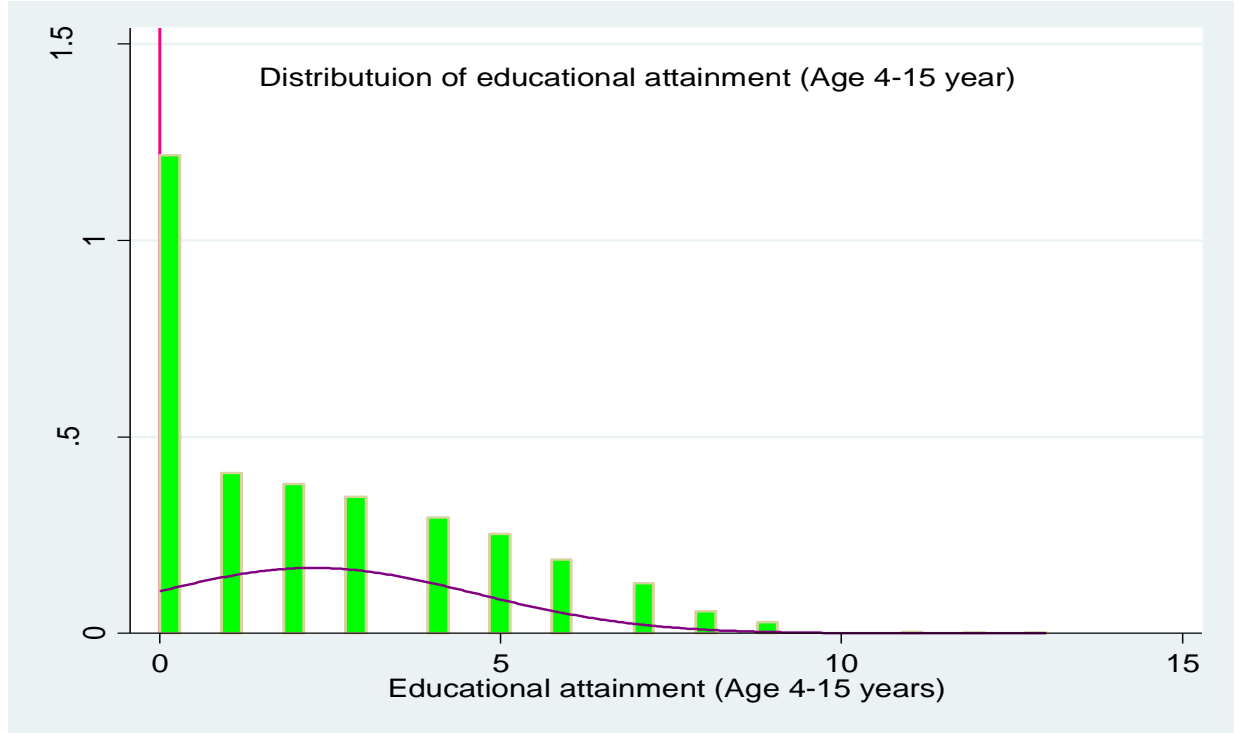
Source: Authors' computations based on data obtained from GLSS 6 (GSS 2014).

The tobit model is therefore specified as:

$$Y_i^* = \beta' X + \varepsilon_i, \tag{2}$$

$$Y_i = 0 \ \text{if} \ Y_i^* = 0, \tag{3}$$

$$Y_i = Y_i^* \ \text{if} \ Y_i^* > 0 \tag{4}$$

where Y_i^* is the latent variable and Y_i is its observed counterpart. X is a vector of child's disability status, parental education, and child household characteristics. β is the vector of parameters to be estimated. ε is an independent and identically distributed error term (i.e. $\varepsilon_i \sim N\left(0, \sigma^2_\varepsilon\right)$). There are two marginal effects on the observed Y (McDonald and Moffitt 1980; Maddala 1983):

$$\partial E(Y) / \partial X_j = F(z)\beta_j, \tag{5}$$

$$\partial E(Y_i \mid Y_i^* > 0) / \partial X_j = \beta_j (1 - (z)\lambda - \lambda^2), \tag{6}$$

5

Where $\lambda = f(z)/F(z), z = \beta' X_i/\sigma,$ σ is the standard error of the error term, f and F are the probabilities' cumulative density functions, respectively. These expressions give the marginal effects with and without the information that the observed variable is positive. They are also known as unconditional and conditional marginal effects respectively. For robustness check, OLS results are presented in Table A1 in the Appendix.

4   Data type and sources

Despite the paucity of up-to-date accurate information on the labour market, the Ghana Living Standards Surveys (GLSSs) serve as the key data source for analysing labour market issues. The GLSSs are nation-wide surveys, which have some information on labour market issues and other socio-demographic characteristics of the labour force (GSS 2014). The study was based on the current round of the Ghana Living Standards Survey (GLSS 6), which was collected in 2012–13. It contains information on disability, type of disability, as well as employment, and other educational variables. The GLSS 6 contains information on about 70,990 individuals of which about 1,242 are physically, emotionally, visually, or intellectually disabled. Also included in this national data is the category of disability, which is deaf or dumb (GSS 2014). Dumb persons are dropped in the analysis because of the problem of multicollinearity. In this study, we limit ourselves to these five main categories due to lack of information on the other categories of disability in our main data source (GLSS 6). A focus group discussion with members of the Ghana Society of the Physically Disabled (GSPD) and Ghana Blind Union (GBU) was also undertaken. The essence is to present qualitative information to support the quantitative findings. Six participants from the Ghana Society of the Physically Disabled (GSPD) and the Ghana Blind Union (GBU) were involved in the discussion. Other information was sourced from the Ghana Federation of the Disabled and the Ministry of Education.

5   Results

Results on educational attainment among PWDs is presented first before we consider their employment status, since reduced education could be a channel through which PWD may not obtain paid employment.

5.1   Descriptive statistics for variables used in the tobit regression

Table 1 presents summary statistics of the covariates used in the tobit regression model. The statistics show that on average, a child aged 4 to 15 years has two years of formal education out of the maximum 11 years of expected education. There is no significant difference in terms of educational attainment between these two categories of persons, as their mean educational attainment is the same.

This suggests a very low level of education among children in Ghana especially as the average age of these children is two years. With a very low standard deviation indicating that the data is not spread about, one can conclude that a nine-year-old Ghanaian child has two years of formal education. This corroborates the statistics from the Basic Education Division that only 6 per cent of about 679,000–804,000 children with disabilities in Ghana receive any form of education (GES 2004). According to

Hillman and Jenkner (2004), many school children, especially girls, drop out of school before completing their primary education mostly due to unwanted pregnancy.

Regarding children's disability status, we observed that a greater percentage of children (99 per cent) do not have any form of disability. Of the remaining 1.00 per cent with disabilities, about 47 per cent of them are physically disabled, 43.1 per cent are deaf, and 39.8 per cent, 39.1 per cent, and 21.6 per cent are visually, intellectually, and emotionally disabled, respectively. This reiterates the fact that physical disability is the most predominant form of disability in Ghana.

With regards to time spent to and from school, the study found that on average, PWDs spend about 19 minutes travelling to and from school while pupils without disability spend an average of 18 minutes travelling to and from school. This suggests that PWDs are mostly in schools farther from their homes than their colleagues who are not disabled in any form.

Table 1: Summary statistics of variables used in investigating determinants of educational attainment among children aged 4–15 years in Ghana

	Variable Description/Definition	Pooled		Disability		No disability		T-stats
		Mean N=19108	SD	Mean N=72	SD	Mean N=19036	SD	
Educational attainment	Continuous variable for years of formal education	2.274	2.411	2.094	2.291	2.261	2.413	-0.147
Disabled	Dummy for whether the child is disables in any form (1=yes; 0=no)	0.006	0.073					
Disability dummies								
Visually	Visually disabled or not (1=yes; 0=no)			0.195	0.398			
Deaf	Deaf or not (1=yes; 0=no)			0.244	0.431			
Physical	Physically disabled or not (1=yes; 0=no)			0.325	0.470			
Intellect	Intellectually disabled or not (1=yes; 0=no)			0.187	0.391			
Emotion	Emotionally disabled or not (1=yes; 0=no)			0.049	0.216			
Father's education	Continuous variable for years of formal education of the father of the child	2.457	4.337	2.026	4.559	1.987	4.335	-0.924
Mother's education	Continuous variable for years of formal education of the mother of the child	1.01	2.527	0.768	2.744	0.699	2.517	-1.220
Female	Dummy variable for whether the individual is a female or not (1=yes; 0=no)	0.490	0.499	0.606	0.490	0.489	0.500	-1.78*
Rural	Dummy variable for whether the individual resides in a rural area or not (1=yes; 0=no)	0.655	0.475	0.710	0.455	0.654	0.476	-1.629
Age	Age of the child; continuous variable	9.347	3.426	9.781	3.593	9.347	3.424	-2.189**
Father	Dummy variable for whether father alone pays educational expenses (1=yes; 0=no)	0.547	0.498	0.542	0.500	0.548	0.498	0.519
Mother	Dummy variable for whether mother alone pays educational expenses (1=yes; 0=no)	0.154	0.361	0.188	0.392	0.153	0.360	-0.896
Both parents	Dummy variable for whether both parents pay educational expenses (1=yes; 0=no)	0.175	0.380	0.094	0.293	0.176	0.381	1.744*
Others	Dummy variable for whether other persons pay educational expenses (1=yes; 0=no)	0.123	0.328	0.177	0.384	0.122	0.328	-1.827*
Minutes	Minutes spent in going to and from school; continuous variable	18.259	13.866	19.144	12.299	18.256	13.874	-0.561
Per capita income	Net income per household member; continuous variable	1750.607	5770.443	1476.718	3340.664	1747.135	5808.755	1.236
Regional dummies								
Western	Western region or not (1=yes; 0=no)	0.094	0.292	0.116	0.321	0.105	0.306	-1.045
Central	Central region or not (1=yes; 0=no)	0.084	0.277	0.045	0.208	0.068	0.251	1.102
Greater Accra	Accra region or not (1=yes; 0=no)	0.076	0.265	0.045	0.208	0.094	0.291	2.168**
Volta	Volta region or not (1=yes; 0=no)	0.093	0.290	0.161	0.369	0.081	0.274	-3.310***
Eastern	Eastern region or not (1=yes; 0=no)	0.095	0.292	0.065	0.246	0.100	0.299	1.130
Ashanti	Ashanti region or not (1=yes; 0=no)	0.100	0.300	0.129	0.336	0.116	0.321	-1.720*
Brong Ahafo	Brong Ahafo region or not (1=yes; 0=no)	0.101	0.302	0.084	0.278	0.116	0.321	0.706
Northern	Northern region or not (1=yes; 0=no)	0.144	0.351	0.148	0.357	0.128	0.334	-0.589
Upper West	Upper West region or not (1=yes; 0=no)	0.094	0.292	0.123	0.329	0.097	0.296	-0.128
Upper East	Upper East region or not (1=yes; 0=no)	0.119	0.324	0.084	0.278	0.096	0.294	1.855*

Notes: *,**,*** significant at 10, 5, and 1 per cent, respectively.

Source: Authors' computations based on data obtained from GLSS 6 (GSS 2014).

5.2 Tobit regression for educational attainment

A Chow-test in Table 2 suggests that separate models for each of the two categories of persons (PWDs and Persons without disabilities) fits the data better than a single model from a pooled data. The corresponding F-statistics is significant at 1 per cent level.

As shown in Table 2 the set of explanatory variables included in the model explain about 37.9 per cent of the variability of educational attainment for PWDs while about 31.8 per cent of educational attainment is explained by the set of right hand side variables in the model for people without disabilities. In addition, the Chi-square statistics in the two models indicate that the regression line is a good fit at 1 per cent significance level. The variables that have statistically significant coefficients include disability type, minutes to and from school, child specific characteristics, parental education, as well as some household level characteristics. These significant variables are discussed below.

The study found that all else being equal, visual and intellectual disability negatively impact educational attainment more than physical disability does. Thus, the predicted value of educational attainment is 1.344 points lower for a child who is visually disabled than for a child who is physically disabled. Similarly, educational attainment for a child who is intellectually disabled is about 0.950 points lower compared to a child who is physically disabled. These variables are statistically significant at 1 per cent and 5 per cent levels respectively. This low educational attainment among PWDs more specifically, visually and intellectually disabled, could be attributed to the fact that PWDs have been refused entry into mainstream schools by school authorities (see e.g. Asamani 2000; Avoke 2001; Agbenyega 2003) and also most of the educational infrastructure are not disability friendly, thereby reducing their taste for formal education. This finding is consistent with other findings in Ghana (see e.g. Appiagyei 2006; Kassah 2008) as well as similar studies done in other developing economies (see e.g. Bacolod and Ranjan 2008; Mitra et al. 2013). The negative effect of intellectual disability on educational attainment may have roots from the human capital theory, which postulates that high cognitive skills positively affect schooling decisions because it improves a child's learning efficiency (Suryadarma et al. 2006). Thus, disability itself is a major constraint to basic educational attainment.

Gender differences are controlled for in this model. The reason being that, parents are assumed to have different preferences for their sons' and daughters' education. This differential preference may be due to prevailing social norms, household resource constraints, or a response to labour market conditions in terms of the actual or perceived differences in returns to daughters and sons. The finding suggests that female children have higher educational attainment compared to male children. At 1 per cent significance level, the predicted value of educational attainment for a female child is higher than a male child is among persons without disabilities. However, among PWDs, there is no significant difference in educational attainment among males and females. Among persons without disability, the predicted value of educational attainment for a female child is 0.126 higher than for male children. Even though this is consistent with findings by Akyeampong et al. (2007) that female attendance rates at Junior High School levels are significantly higher than males especially in urban areas, it contradicts Rosenzweig and Schultz's (1982) assertion that parents may not see daughters as future providers, or the labour market returns for men's education may be higher than women's education. Thus, although females are worse off in the labour market, they are better off in terms of basic educational attainment in Ghana. The intuition here is that females perform better at the basic education level but may drop out at the secondary or perhaps tertiary levels, which reduces their

probability of being employed. This suggests that females may benefit from some form of mentorship at the secondary and tertiary levels. For PWDs, this finding suggests that an all-inclusive policy, which is not biased toward certain gender groups, can help promote basic education among this disadvantaged group.

It is revealing to note that among PWDs, while mother's education positively predicts child education, father's education has no significant effect. This is an indication that mother's education is crucial for education of children with disabilities. This is consistent with the findings of Tansel (1997), which opines that mother's education represents a number of factors including taste for schooling, efficient household production, and opportunity cost of mother's time in the labour market, permanent income, parental role modelling, genetic endowments of abilities, and source of motivation. A different story is found among people without disabilities; both parents' education positively predicts child's education at 1 per cent significance levels. While father's education increases the predicted value of educational attainment by 0.031 points, mother's education increases the predicted value of child education by 0.020 points. The difference in coefficient estimates suggests that father's education has a relatively greater impact on the education of their children than the educational attainment of the mother. Educated parents are more aware of the possible returns to their children's education. As a result, they are more likely to have access to information, and social networks necessary to support their children to engage in relatively capital-intensive activities that yield high returns for education (Leclercq 2001). There are ample evidence confirming that in developing countries, children from better-educated parents not only are more likely to go to school but also have lower dropout rates (see e.g. Baluch and Shahid 2008; Mike et al. 2008).

Furthermore, the study found distance to schools used as an indirect measure of the cost of attending school (see e.g., Tansel 1997), to have an overall negative effect on basic educational attainment. Comparing PWDs to persons without disabilities, distance negatively affects basic education for persons without disabilities but had a positive effect on PWDs. Abled children who live farther away from school have lower education compared to their counterparts who live closer to their educational facility. It is interesting to note that disabled children whose schools are far from their homes perform better academically than those who live closer to the school. While the underlying reason could be that schools far away may have the required environment with special teachers for disabled children, it could also be that children with disabilities are able to bear the ostracizing associated with their disability in an environment where they are not well known compared to their own environment. Asamani (2000) has noted that having a disabled member of the family may result in stigmatization and social exclusion of the family within several communities in Africa. This may cause families to ostracize their disabled children. It stands to reason therefore that parents will therefore feel less intimidated to lend support to and are willing to be associated with their disabled children when they attend school far from home.

Another finding from this study is the fact that single parenting as well as child neglect, negatively affects the child's education. When the child's educational expenses are borne by a single parent or any other person besides both parents, the child is likely to have very low education. The situation is even worse when the child has any form of disability and the father solely bears his/her educational expenses. The higher negative coefficient estimates of these variables among PWDs shows the effect of single parenting on the child's educational attainment. This finding is in line with other studies, which suggest that single parenting can lead to negative academic outcome (see Pong et al. 2003).

This means that resource pooling especially among couples with disabled children is very important for their ward's education.

At 1 per cent significance levels, rich households are able to educate their children irrespective of the disability status of the child. Thus, per capita income positively affects basic educational attainment among all persons irrespective of their disability status. Children from families with more economic resources are more likely to have basic education than children from families with less socioeconomic resources are. Disabled children from households with lower incomes are likely to enter primary school at an older age compared to those from households in higher incomes, and they are also more likely to drop out of school. This explains that household wealth is an important predictor of access and participation in basic education. This finding supports the findings of other studies conducted in other developing economies (see e.g. Mingat 2007; Huisman and Smits 2009; Gelli et al. 2014).

For both children, with and without disabilities, the study found a positive relationship between educational attainment and age of the child. This is statistically significant at 1 per cent levels. In line with the a priori expectation, educational attainment among children is an increasing function of age all else being equal. Older children without disabilities have higher educational attainment compared to older children with disabilities. This may suggest that PWDs do not start schooling at their tender age, or some children with disabilities repeat classes compared with those without disabilities.

Children in rural areas are found to have lower levels of education compared to urban dwellers. Among PWDs, rural children have an average of 0.482 predicted educational attainment less than urban children. Also among children without disabilities, rural children are significantly less likely than urban children are to be enrolled in school. For persons without disabilities, rural children have predicted value of their education about 0.597 lower than urban children do, all else being equal. These variables are statistically significant at 10 per cent and 1 per cent levels respectively. Despite the plethora of policies aimed at improving rural education, such as School Feeding Programme, Capitation Grant, among others, rural children still have low levels of education. While some children in the rural communities attend school under trees, some do so in an open space, a situation, which undermines children's interest in education.

Table 2: Tobit regression of determinants of educational attainment among children in Ghana (age cohort 4–15 years)

Explanatory variables	Pooled Coefficients	Disability Coefficients	No Disability Coefficients
Disability	-0.732(0.101)***	Base=Physical disability	
Type of Disability			
Visual		-1.344(0.295)***	
Deaf		-0.083(0.337)	
Intellect		-0.950(0.419)**	
Emotion		0.441(0.429)	
Who pays for education expenses: (Base= both parents)			
Father alone	-0.044(0.017)***	-1.008(0.388)**	-0.041(0.017)***
Mother alone	-0.170(0.021)***	-2.191(0.471)***	-0.162(0.022)***
Others	-0.384(0.023)***	-0.844(0.399)**	-0.384(0.023)***
Child characteristics			
Female (1/0)	0.126(0.021)***	0.127(0.198)	0.126(0.012)***
Age (in years)	0.852(0.002)***	0.846(0.041)***	0.852(0.002)***
Parent characteristics			
Fathers educational attainment (in years)	0.031(0.002)***	-0.002(0.024)	0.031(0.002)***
Mothers educational attainment (in years)	0.020(0.003)***	0.052(0.029)*	0.020(0.002)***
Household characteristics			
Minutes	-0.001(0.0004)***	0.031(0.009)*	-0.001(0.0004)***
Log(per capita income)	0.112(0.011)***	0.373(0.208)*	0.111(0.101)***
Rural(1/0)	-0.597(0.014)***	-0.482(0.268)*	-0.597(0.014)***
Regional dummies (Base= Greater Accra)			
Western	-0.321(0.029)***	0.540(0.738)	-0.324(0.029)***
Central	-0.290(0.030)***	-1.137(0.837)	-0.293(0.030)***
Volta	-0.620(0.030)***	0.718(0.718)	-0.628(0.030)***
Eastern	-0.398(0.029)***	0.653(0.681)	-0.396(0.029)***
Ashanti	-0.064(0.028)**	2.294(0.725)***	-0.075(0.028)***
Brong Ahafo	-0.663(0.029)***	-0.130(0.718)	-0.665(0.029)***
Northern	-0.454(0.029)***	-0.335(0.794)	-0.457(0.029)***
Upper East	-0.550(0.031)***	-1.264(0.780)	-0.550(0.031)***
Upper West	-0.646(0.030)***	-3.164(0.977)***	-0.647(0.030)***
Constant	-6.020(0.058)***	-10.102(1.391)***	-6.011(0.058)***
N	19108	72	19036
Prob > chi2	897.13***	33.66***	1097.7***
Pseudo R2	0.314	0.379	0.318
Number of left-censored observations	7059	26	7033
Number of uncensored observations	12049	46	120003
Corresponding F-statistic	10.934***		

Notes: Robust standard errors are in parentheses.*,**,*** significant at 10, 5, and 1 per cent, respectively.

Source: Authors' computations based on data obtained from GLSS 6 (GSS 2014).

5.3 Information from focus group discussion on the challenges PWDs' face in the education system

5.3.1 *Stereotypes and stigmatization*

Stereotypes and stigmatization were identified as some of the challenges affecting the education of PWDs in Ghana. Participants mentioned that teachers and other pupils discriminated against them and mocked them because of their disability. They stated that teachers sometimes do not give them the chance to answer questions in class and during discussions; their views are considered less important and often considered as inferior. PWDs are also denied the opportunity to take up

leadership positions (e.g. school prefect). One of the participants (name withheld) recalled, 'My teachers did not call on me to answer questions in class and whenever there is a discussion, the teachers and other pupils would not listen to me, much less take my views. They often refer to my disability and look down on me. I often isolate myself from other pupils because when I try to mingle with them, they make me feel inferior because of my disability'.

5.3.2 Derogatory remarks

Derogatory remarks from teachers and other pupils affect educational attainment among PWDs. Participants noted that they are sometimes labelled as cursed children from the gods for sins committed by a parent or some ancestors. They are often labelled as evil and witches. Unable to cope with such situations, they drop out of school. A gentle man (name withheld) shared his friend's ordeal, 'My friend who is lame in both legs was called pistons in school because his friends claim he walks like "pistons". When he complained to his father, he was told that he is worthless and he could have sold him if it was possible for him to do so. This demoralized my friend and he stopped schooling'.

5.3.3 Inadequate disability friendly educational facilities

The participants indicated that school facilities were inaccessible to PWDs, hence PWDs experience mobility challenges. Some important equipment that can facilitate their participation in school lessons, subjects, and other activities are not provided by the school. They are also not allowed to learn certain vocational training subjects like cooking, carpentry, and sewing, and participate in physical education because equipment or facilities for training were not user-friendly.

5.3.4 Lack of funding or support for PWDs education

It was revealed that lack of parental investment in the education of PWDs was an impediment to educational attainment. According to the participants, most parents do not see the potential of PWDs. Thus, they are unwilling to send them to school or even fund their education. As a result, most of their colleagues have dropped out of school, as experienced by a woman (name withheld), 'I was a brilliant student and was always first in my class. As a result, everyone including the teachers liked me so much but I dropped out of school in class 5 because my parents did not support my education anymore. My father once told me that he does not see any prospect in my education. Instead, I should stop schooling so that he can support my able body siblings' education'.

5.4 Descriptive statistics for variables used in the logit regression

Table 3 presents the descriptive statistics of the variables used in the logit regression. The table contains the descriptive statistics of the pooled data for people with disability and those without disability. The results show that about 17.5 per cent of individuals work paid jobs. This implies that about 82.6 per cent of Ghanaians are without contract work, a figure that exceeds the global average of 60 per cent according to the ILO (2015). With respect to PWDs, about 11.5 per cent are engaged in paid work while about 17.5 per cent of people without disability are engaged in paid work. This suggests that people with disability are less likely to be employed compared to people without disabilities. Persons with disabilities face extraordinary constraints in finding employment. This is evident in their significantly higher levels of unemployment than the general population.

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The study shows that about 1.3 per cent of Ghanaian adults live with disability. Of this percentage, 0.3 per cent is visually disabled, 0.1 per cent is hearing impaired (deaf), and 0.6 per cent is physically disabled, while 0.2 per cent and 0.1 per cent are intellectually and emotionally disabled respectively. This means that physical disability is most common form of disability among the working population. On average, the number of years of education among PWDs and those without any disabilities are eight and nine years respectively.

While 44 per cent of PWDs are female, about 49 per cent of non-PWDs are female. In terms of residence, about 61.7 per cent of PWDs live in rural areas and about 50.9 per cent of non-PWDs reside in rural areas. This suggests that PWDs are predominant in the rural areas where access to good health care is often a challenge. Disability is found to be among middle-aged working population as the average age of people with disability is 37 years while that of people without any disability is 31 years. This suggests that PWDs are about six years older than non-PWDs in Ghana. Considering the fact that the World Bank estimates life expectancy to be about 61 years in Ghana, the number of years lived with disability is expected to be 24 years, all else being equal (World Bank 2012). This suggests that the number of years lived with disability is very high, a situation which is very worrisome. In terms of regional dynamics, most PWDs are in the southern part of Ghana, with about 16.7 per cent in the Ashanti region, 14.6 per cent in the Eastern region, and 14.4 per cent of them in the Volta region. The region with the least number of PWDs is the northern region.

Table 3: Summary statistics of variables used in investigating determinants of paid employment in Ghana

	Variable Description/Definition	Pooled		Disability		No disability		T-stats
		Mean N=26717	SD	Mean N=347	SD	Mean N=26370	SD	
Employed (paid work)	Dummy for whether the indicating whether the individual is doing a paid work (1=paid work; 0= not)	0.175	0.380	0.115	0.320	0.175	0.380	3.656***
Disabled	Dummy for whether the individual is disabled in any form.	0.013	0.110					
Disability dummies								
Visually	Visually disabled or not (1=yes; 0=no)			0.239	0.427			
Deaf	Deaf or not (1=yes; 0=no)			0.095	0.294			
Physical	Physically disabled or not (1=yes; 0=no)			0.438	0.497			
Intellect	Intellectually disabled or not (1=yes; 0=no)			0.147	0.355			
Emotion	Emotionally disabled or not (1=yes; 0=no)			0.081	0.273			
Education	Years of formal education	9.346	4.202	8.251	4.451	9.360	4.196	4.924***
Female	Dummy variable for whether the individual is a female or not (1=yes; 0=no)	0.488	0.499	0.444	0.498	0.489	0.499	1.848*
Rural	Dummy variable for whether the individual resides in a rural area or not (1=yes; 0=no)	0.510	0.500	0.617	0.487	0.509	0.500	-4.251**
Age	Age of the individual; continuous variable	30.902	12.075	37.414	13.561	30.817	12.031	-11.716***
Age square	The square of the age of the individual	1100.751	854.355			1094.401	849.913	
Illness	Dummy variable for whether the individual has suffered any illness 2 weeks prior to the survey (1=yes; 0=no)	0.146	0.381	0.239	0.447	0.144	0.379	-6.247***
Regional dummies								
Western	Western region or not (1=yes; 0=no)	0.117	0.321	0.063	0.244	0.117	0.321	3.359***
Central	Central region or not (1=yes; 0=no)	0.097	0.296	0.089	0.286	0.097	0.296	0.148
Greater Accra	Greater Accra region or not (1=yes; 0=no)	0.133	0.340	0.057	0.233	0.134	0.341	4.577***
Volta	Volta region or not (1=yes; 0=no)	0.096	0.295	0.144	0.352	0.095	0.294	-3.234***
Eastern	Eastern region or not (1=yes; 0=no)	0.116	0.320	0.146	0.373	0.116	0.319	-1.100
Ashanti	Ashanti region or not (1=yes; 0=no)	0.129	0.334	0.167	0.374	0.128	0.334	-1.920*
Brong Ahafo	Brong Ahafo region or not (1=yes; 0=no)	0.099	0.298	0.098	0.298	0.099	0.299	0.769
Northern	Northern region or not (1=yes; 0=no)	0.066	0.249	0.055	0.228	0.066	0.249	1.808*
Upper West	Upper West region or not (1=yes; 0=no)	0.075	0.263	0.101	0.301	0.074	0.262	-2.458**
Upper East	Upper East region or not (1=yes; 0=no)	0.072	0.258	0.078	0.268	0.072	0.259	-2.383**

Notes: *,**,*** significant at 10, 5, and 1 per cent, respectively.

Source: Authors' computations based on data obtained from GLSS 6 (GSS 2014).

5.5 Logit regression for determinant of employment in Ghana

The role of education in enhancing employment among PWDs as well as people without disabilities cannot be overemphasized; hence, the second empirical section investigates its effect on paid employment. A Chow-test revealed that separate models for each of the two categories of persons fits the data better than a single model from a pooled data. The corresponding F-statistics is significant at 1 per cent level. The logit regression for PWDs presented in Table 4, shows that the set of explanatory variables included in the model explain about 19.7 per cent of the variability of employment, while about 22.8 per cent of employment is explained by the independent variables included in the model for people without disability. The Chi-square statistic indicates that the regression line is a good fit at 1 per cent significance level for both models. The variables that significantly explain paid employment among PWDs include type of disability, education, whether the individual is female or not, whether they reside in rural area or not, and some regional dummies. These significant variables are discussed in turn.

As explained earlier, persons without disabilities have higher paid work compared to PWDs. In the employment model for PWDs, all the types of disability explain employment at either 1 per cent or 5 per cent significance levels. These variables negatively correlate with paid employment. Although, employment among PWDs is very low, it is relatively high among emotionally disabled persons. Persons who are visually disabled, deaf, physically, or intellectually disabled have lower chance of getting a paid job compared to emotionally disabled persons. While people with visual disability have a negative probability of 0.396 of being employed, their colleagues who are deaf, physically, or intellectually disabled have negative probabilities of 0.404, 0404, and 0.352 respectively of securing paid work compared to emotionally disabled persons.

An individual's type of disability and how it relates to their occupation may impose negative effect on employment, particularly when the marginal cost of labour increase in a context where employers are mandated to pay for reasonable facilities such as accommodations in the workplace. This effect may lead to less employment for persons with disabilities (Mizunoya and Mitra 2012). Even though PWDs have lower chances of getting paid work, they stand higher chance when disability interacts with education. Persons with visual or physical disability as well as persons who are deaf have positive probabilities of 0.039, 0.038, and 0.045 respectively of getting job offers when they have higher education. Education, however, does not affect the chances of being employed among persons with intellectual disability. This is confirmed by the finding of Baer et al. (2011). Although, emotionally disabled persons have higher employment probability, they do not have the highest educational attainment among the types of PWDs. Exploring the educational attainment among the categories of disability, we observed that persons with intellectual disability and those with emotional disability have the lowest educational attainment as shown in Figure 2. This means that job evaluators consider the visibility of a person's disability vis-à-vis the unseen disability of the person, before they decide whom to employ.

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Figure 2: Educational attainment and disability
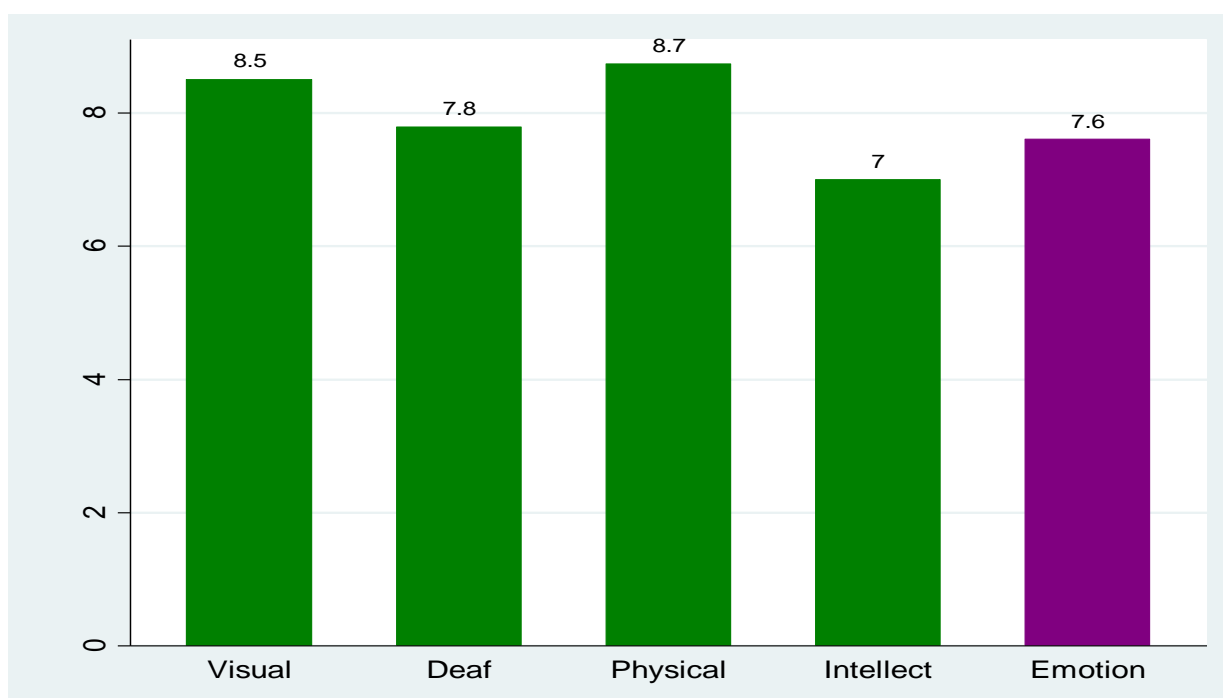
Source: Authors' computations based on data obtained from GLSS 6 (GSS 2014).

In light of the fact that educational attainment among PWDs is very low (about eight years); a conscious effort to make education accessible to the disadvantaged will increase their chances of being employed. As expected, among persons without disabilities, education increases their chance of getting paid work by 0.019, all else being equal. The independent negative effect of education on employment among PWDs suggests that education does not enhance the employability of all disabled persons. However, education favours persons with visual, physical, or hearing disability.

In general, female employment is found to be very low in Ghana. At 10 per cent and 5 per cent significance level respectively, females have employment probability of 0.067 lower than males with disability, while that of a female without any disability is 0.106 lower than males without disability, all else being equal. The higher negative probability value for females when gender interacts with disability is an indication that women with disabilities are dually disadvantaged in the labour market. It is therefore not surprising that unemployment rate in Ghana is high among females (5.7 per cent) than among males (5.2 per cent) (GSS 2014). This finding lends support to a study, which found that disabled females have low employment chances (Fulton and Sabornie 1994).

Rural dwelling adversely affects one's chances of getting a paid job. PWDs are not exempted from such negative effect. The study found that disabled persons in rural Ghana have employment probability of 0.121 lower than their colleagues do in urban areas. Among persons without any form of disability, rural dwellers have about 0.081 lower job securing probability than those in urban settings. This suggests that PWDs are more affected by the negative rural impact on employment opportunities. This variable is significant at 1 per cent significance levels.

The study also found a nonlinear relationship between the age of persons without disabilities and the probability of being employed. While the younger working population has higher chance of being employed, the older working population is at risk of securing a paid job. Those below 41

years of age have about 0.30 probability of securing a paid position, compared to the negative probability value of 0.0004 for those over the age of 41 years. Thus, employers are not willing to employ persons older than 41 years.

5.6 Information from focus group discussion on PWDs' challenges in the labour market

5.6.1 Employer behaviour towards PWDs

Employers' stereotypical behaviour towards PWDs is identified as a cause for unemployment of PWDs. Participants indicated that employers equate disability with inability and do not look for the competence of the individual. Thus, PWDs may have the requisite qualifications for jobs but are unable to secure jobs due to their disability. They indicated that many times, qualified PWDs are short-listed for interviews, however, upon seeing them; employers devise ways to deny them the job. A participant shared his experience (name withheld),

> I applied for a job and was scheduled for interview but was eventually denied the job. The reaction of the panellist when I could not move my chair to meet them, made me feel I would be denied the job. The expression on their faces tells me that they did not want me for the job. In fact, I wasn't asked any questions concerning the job, instead, my disability was the topic for discussion.

A participant also recalled how his friend lost his job because his employer saw that he was wearing a prosthetic limb.

5.6.2 Low levels of education

The participants identified inadequate education as a major cause of unemployment among them. They asserted that low levels of education prevent them from finding employment. Thus, PWDs find it difficult to obtain employment due to lack of education, which makes it difficult to compete with non-PWDs for employment in the formal sector.

5.6.3 Limited funds and resources for vocational trainees

During the discussion, we found that some PWDs who received vocational training from Ghana's rehabilitation centres at no cost are unable to start their own business due to lack of start-up capital. The centre, which is mainly funded by the government, is under-resourced according to the participants. Even when they are able to operate their business, it becomes difficult for them to expand their operation because banks do not see them as credit worthy to give them a loan. This is also a contributing factor to the high rate of unemployment among PWDs. One woman noted (name withheld), 'I was trained by the Ghana's rehabilitation centre in Tamale on shea butter making. I now make and sell shea butter but in small quantities. I want to expand my operation but I do not have the capital. I have applied to banks and other financial institutions for loan but they have refused me'.

Table 4: Logit regression of determinants of employment in Ghana (16–60 years)

Explanatory variable	Pooled		Disabled		No Disability	
	Coefficients	Marginal effect	Coefficients	Marginal effect	Coefficients	Marginal effect
Disability	-0.416(0.083)***	-0.046	**Base=Emotional disability**			
Type of disability						
Visually			-2.847(0.784)***	**-0.396**		
Deaf			-2.953(0.988)***	**-0.404**		
Physical			-2.954(0.752)***	**-0.404**		
Intellect			-2.376(1.021)**	**-0.352**		
Interactions						
Visual*education			0.458(0.112)***	**0.039**		
Deaf*education			0.532(0.128)***	**0.045**		
Physical*education			0.439(0.111)***	**0.038**		
Intellect*education			0.071(0.178)			
Control variables						
Education	0.172(0.002)***	**0.019**	-0.319(0.107)***	**-0.027**	0.174(0.002)***	**0.019**
Female	-0.957(0.017)***	**-0.106**	-0.787(0.191)***	**-0.067**	-0.959(0.017)***	**-0.106**
Rural	-0.742(0.019)***	**-0.082**	-1.417(0.197)***	**-0.121**	-0.740(0.019)***	**-0.081**
Age	0.269(0.005***	**0.030**	-0.006(0.007)		0.270(0.005)***	**0.030**
Age square	-0.003(0.0001)***	**-0.0004**			-0.003(0.0001)***	**-0.0004**
Illness	0.030(0.021)		-0.176(0.210)		0.032(0.049)	
Region (Base= Greater Accra)						
Western	-0.273(0.030)***	**-0.035**	-0.107(0.580)		-0.276(0.030)***	**-0.035**
Central	-0.416(0.033)***	**-0.052**	0.958(0.422)**	**0.078**	-0.421(0.033)***	**-0.053**
Volta	-0.810(0.036)***	**-0.093**	0.878(0.460)*	**0.070**	-0.817(0.036)***	**-0.094**
Eastern	-0.602(0.031)***	**-0.072**	-0.142(0.401)		-0.600(0.032)***	**-0.072**
Ashanti	-0.361(0.028)***	**-0.045**	-0.025(0.400)		-0.359(0.028)***	**-0.046**
Brong Ahofo	-0.606(0.033)***	**-0.073**	0.797(0.402)**	**0.062**	-0.616(0.034)***	**-0.074**
Northern	-0.956(0.044)***	**-0.106**	1.163(0.461)**	**0.101**	-0.973(0.045)***	**-0.108**
Upper East	-0.548(0.042)***	**-0.067**	1.388(0.443)***	**0.128**	-0.564(0.042)***	**-0.069**
Upper West	-0.667(0.042)***	**-0.079**	1.202(0.424)***	**0.105**	-0.685(0.043)***	**-0.081**
Constant	-5.376(0.095)***		2.815(0.876)***		-5.392(0.096)***	
N	26717		347		26370	
Prob > chi2	3699.21***		236.81***		3654.59***	
Pseudo R2	0.227		0.191		0.228	
Corresponding F-stat	**3.437***					

Notes: Robust standard errors are in parentheses.*, **, *** significant at 10, 5, and 1 per cent, respectively.

Source: Authors' computation based on data obtained from GLSS 6 (GSS 2014).

6   Conclusion

In spite of the overwhelming policies put in place to make significant contributions towards the wellbeing of PWDs in developing countries, PWDs continue to suffer setbacks that undermine their empowerment and economic wellbeing. The low level of education and lack of employment opportunity, remain critical challenges resulting in low levels of livelihood among PWDs.

The empirical results from this paper show that PWDs have lower employment probabilities compared to persons without disabilities. In addition, females who are disabled are dually disadvantaged in the labour market. Hence, there is the need for affirmative action that seeks to give preference to females with disabilities in the labour market.

It was also discovered that there are rural–urban differences in terms of educational attainment and employment status. This finding provides justification for policies designed to address the problem of PWDs, to pay attention to the rural–urban disparity in both education and employment opportunities.

Furthermore, not only is parental education found to be very important for child education, but also when both parents pool resources together towards their children's education, it leads to positive school outcomes. Thus, single parenting undermines the educational attainment of children with disabilities.

Another major finding from this study is that PWDs whose schools are far from home perform better. It is therefore recommended that schools for PWDs be placed at special homes away from their usual abode so that they can receive formal education by trained professionals.

Finally, our finding that low education is mostly found among children who are intellectually or visually disabled, reside in rural areas, and have low per capita house income are intuitive. These variables could effectively be targeted to encourage more disabled children to improve on their education.

6.1   Some recommendations from focus group discussion

Participants acknowledged their awareness of the existing legal and policy framework that seek to protect them, such as the National Disability Policy of 2000, UN convention on rights for PWDs, and the Disability Act. They however recommended that the Ghana Federation of the Disabled and other bodies (focusing on issues of disabilities) should be resourced properly to enable them to function better and ensure that the Disability Act is implemented effectively, as well as provide legal aid to PWDs. Inclusive education should go hand in hand with a good curriculum, good special education teachers, and adequate disability-friendly school facilities. Braille and sign language should be included in the school curriculum because the deaf and blind are part of society so people need to learn how to communicate with them.

On employment, the participants indicated that the Ghana Rehabilitation Centre should be well resourced to provide adequate training and support to PWDs. Quota system should be introduced for companies, especially the public sector, to employ some percentage of PWDs in their organization. This will help reduce the high-level unemployment among PWDs while improving their livelihood.

6.2 Limitations

In as much as we recommend the need for more research on the economic wellbeing of PWDs in Ghana, this paper is limited by the fact that the disability measures captured in the data set are self-reported disability measures. This may not mimic the true status of the health of the persons interviewed. In addition, persons without disabilities may differ in many unobservable ways from PWDs. Thus, the differential low levels in employment and education might have occurred if PWDs are empowered.

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Appendix

Table A1: OLS regression for determinants of educational attainment among children in Ghana (age cohort 4–15 years)

Explanatory variables	Pooled Coefficients	Disability Coefficients	No Disability Coefficients
Disability	-0.417(0.157)***	Base=Physical disability	
Type of Disability			
Visual		-0.637(0.547)	
Deaf		0.144(0.640)	
Intellect		-0.027(0.733)	
Emotion		-0.209(0.913)	
Who pays for education expenses: (Base= both parents)			
Father alone	-0.019(0.027)	-1.119(0.682)	-0.016(0.027)
Mother alone	-0.122(0.035)***	-1.732(0.835)**	-0.116(0.035)***
Others	-0.293(0.038)***	-1.004(0.772)	-0.293(0.037)***
Child characteristics			
Female (1/0)	0.096(0.019)***	0.418(0.403)	0.095(0.019)*
Age (in years)	0.577(0.002)***	0.481(0.059)***	0.578(0.003)***
Parent characteristics			
Fathers educational attainment (in years)	0.026(0.002)***	-0.027(0.050)	0.026(0.003)***
Mothers educational attainment (in years)	0.011(0.003)***	0.019(0.063)	0.012(0.004)***
Household characteristics			
Minutes	-0.001(0.0007)	0.035(0.017)**	-0.001(0.0007)*
Log(per capita income)	0.073(0.007)***	0.365(0.192)*	0.073(0.008)***
Rural(1/0)	-0.435(0.021)***	-0.193(0.520)	-0.435(0.022)***
Regional dummies (Base= Greater Accra)			
Western	-0.272(0.046)***	0.165(1.350)	-0.274(0.066)***
Central	-0.250(0.048)***	-1.092(1.519)	-0.252(0.048)***
Volta	-0.461(0.048)***	0.199(1.356)	-0.465(0.049)***
Eastern	-0.329(0.047)***	-0.760(1.326)	-0.329(0.047)***
Ashanti	-0.100(0.045)**	1.708(1.358)	-0.108(0.045)**
Brong Ahafo	-0.489(0.046)***	0.039(1.404)	-0.492(0.046)***
Northern	-0.386(0.047)***	-0.675(1.488)	-0.388(0.047)***
Upper East	-0.438(0.050)***	-1.131(1.485)	-0.436(0.0510)***
Upper West	-0.459(0.048)***	-0.746(1.680)	-0.460(0.148)***
Constant	-2.799(0.048)***	-4.721(1.680)**	-2.796(0.048)***
N	19108	72	19036
Prob > chi2	2085.48***	5.56***	2193.48***
R-Squared	0.6861	0.727	0.687

Notes: Robust standard errors are in parentheses.*,**,*** significant at 10, 5, and 1 per cent, respectively.

Source: Authors' computations based on data obtained from GLSS 6 (GSS 2014).