

Determinants of Labour Market Participation by Physically Constrained People

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Abstract

This paper explores the determinants of the labour market participation by physically constrained people. The data of 127 randomly selected physically constrained persons of four villages of Narsingdi, Bangladesh reveals that employment is gender biased employers demand for special training. The study also finds that people from families with higher number of employed members and people receiving aids have better probabilities of getting employment. The employment possibilities is less, if there is any need for assistance in movement as well as if families are not helpful due to their conservative attitudes.

Introduction

Exclusion of persons with mobility constraint from labour market incurs social losses as they are deprived of income otherwise possible with little efforts and eventually burden their family consumption. If vulnerable people are subject to labour market exclusion, then that can multiply many of their problems and can create poverty trap for the future generations too. The labour market participation of physically constrained people is challenged everywhere but with infrastructural weakness and existing conservative society it is perceivable that such people are deprived more in developing and poor countries. The problem intensifies by the matter that countries with rising trend in major economic indicators may have their vulnerable groups of people falling apart in the vicious circle of poverty (UNDP, 2009). Subsidy or aid does not work well to drive these people out of the poverty, the way employment opportunities can. Despite Bangladesh's efforts for disability inclusion through special facilities and quotas in education, skill development, job environment, nutrition, accommodation, transport, and employment (Disability Welfare Act, 2001) still physically challenged people are less likely to be employed or having education (Thompson, 2020). Bangladesh has been amending the acts and provisions to moderate barriers to disability inclusion but still there are problems in fulfilling the quota (10%) of disables and orphans in public jobs or even in defining disability uniquely. The Household Income and Expenditure Survey (2010) by the Bangladesh Bureau of Statistics (BBS) identified 9.1% of Bangladeshi people with functional limitations, where as a joint assessment of disability by ICDDR, B and Nossal Institute for Global Health (Centre for Eye Research Australia) found this figure to be 8.9% (Munzur-E-Murshid & Haque, 2020).

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According to World Health Organization disability incorporates health conditions, functional impairments, activity limitations and participation restrictions as well as the environment (Lena, et al., 2015). Using this framework, the United Nations ‘Convention on the Rights of Persons with Disability’ defines disability as “long-term physical, mental, intellectual or sensory impairments which, in interaction with various barriers, may hinder [a person’s] full and effective participation in society on an equal basis with others” (Lena, et al. 2015). As a complement to this definition, the International Classification of Functioning, Disability and Health (WHO, 2001) characterizes disability as an ordinary condition, unhooked from the negative meaning of disease or disorder and interpreted as a universal experience that can affect everyone during life. Therefore, everyone can experience a peculiar health condition, which could become disability if circumstances are unfavourable.

Employment Equity Act, 1998 and Equal Status Act, 2000 prohibited direct and indirect discrimination, harassment and sexual harassment in employment, vocational training, access to employment and conditions of employment, accommodation service provision and educational establishments for the disable persons. Unfortunately there are social, attitudinal and environmental barriers that prevent disable people from not only participating in society but also in labour market. According to Dumont (2000) there are evidences that disability through its negative effect on earnings and labour force participation can lead to poverty. The ILO report says that most of the 470 million of disabled people in working age in the world are excluded from the labour market. There is substantial evidence that disabled people are less employed than non- disabled people (DeLeire, 2000, Jones et al. 2003; Hum et al., 1996).

The interaction between disability and labour force participation can be rationalized along the lines of disability affecting both supply of labour and the demand for labour (Madden, 2004 & Mitra et al. 2008). However it is also possible that impairment effects on the job search process and explain unemployment duration differential between two groups. Given in the job search model the search effort increases with the health state (Zamo, 2008), disability-or ill health in general – will reduce the intensity of search and thus increase unemployment duration of person with disability and this duration will be prolonged given that disabled cannot occupy all types of work because of their endowments.

There are between 785 and 975 million persons with disabilities of working age (15 years or older), according to the World Report on Disability (World Bank, 2011) - where the estimate was based on 2010 World Population estimates and 2004 disability prevalence estimates. Most of these people live in developing countries where the informal economy is widespread. Reliable and comparable labour market data on people with disabilities is regularly collected in a few countries, ILO (2003)

revealed that countries mainly rely on population censuses and household surveys to compile these statistics, which means that information is generally collected at 5 or 10 year intervals, or for one point in time only, rather than as part of the regular labour force survey.

Available statistics on the labour market situation of people with disabilities are less likely to be in full time employment than non-disabled persons and the unemployment rates of persons with disabilities are up to twice as high as for non-disabled people, in countries for which data is available (Rashed et al. 2005). Even in Europe and OECD countries almost half of working aged people with disabilities neither work nor actively look for work. Many people with disabilities are not registered either as employed or as unemployed, and so they are invisible in the labour market, surviving either through the support of their families or through social security payments. Where they are employed, workers with disabilities are more likely to be in low-paid jobs with poor promotional prospects and working conditions. Disabled women and intellectually disabled are reported to face more difficulties in finding work. Often in the informal economy - people with disabilities and their families are more likely to be among the poor in society, due to a bi-directional link between disability and poverty (Rashed et al. 2005).

WHO's global estimate predicts approximately 10% of all people have disability of one kind or another. This is while considered to be true also in Bangladesh with some sources quoting a higher disability rate in rural Bangladesh in the perspective of the overpopulation, extreme poverty, illiteracy, awareness, and above all lack of medical care and services. Action Aid-Bangladesh and Social Assistance and Rehabilitation for the Physically Vulnerable (SARPV) put the disabled population at 8.8% of the total population. Bangladesh Protibandi Kalayan Samiti records 7.8%, while in another survey Action Aid Bangladesh (1996) records 14.04% people suffering from at least one form of impairment. On the other hand, the Government of Bangladesh (GOB) surveys in 1982, 1986 and 1998 estimated a national prevalence rate of disability at 0.64%, 0.5% and 1.60% respectively (Rashed et al. 2005). Hence, it is of utmost importance to identify the determinants that force physically constrained people, a vulnerable group, to remain unemployed in a fast-growing economy like Bangladesh. The scope of this research is limited to at least 100 randomly selected people of Belabo Upazila in Narsingdi district, Bangladesh between the ages of 18 and 64 with difficulty in walking and/or standing by birth or by sudden shock (illness or accident). However, the interviewing period was set to last for two months and we continued data collection for the period. Persons with vision, vocabulary or hearing impairment or autism were excluded as we want to focus obstacles to employment untied to barriers to skill development.

1.0 Literature Review

There are numerous studies examining the economic costs of disability. Comparatively studies regarding the employment, welfare and expenditure of physically constrained people are limited. Drydakis (2009) and Akono (2013) have used multinomial logit regression model for the determination of employment for disables. They found that age, gender, household head, education level, professional training, living area and productivity are important variables to access in labour market for disable people. On the other hand Steven (1989) showed that disability explains significant amount of variation in labour force participation. They have used ordered probit model and included gender, age, education, marital status, limits and existence of condition as independent variables as determinants of employment status. In many countries persons with disabilities often work primarily in unpaid forms of employment, including work in the home, self-employment and informal work. According to the OECD (2003), there is little difference in income between disabled and non-disabled persons in many industrialized countries. In United States, Sweden and Portugal disabled employees earn at 70% or bellow of nondisabled employees. In transition countries, the disabled and chronically ill earn less than others and disabled employers earn less than the chronically ill. In Russia, a one - step deterioration in health status, as from very good to good , results in a 14% wage decrease but a one - step deterioration in disability ranking results in a 30% wage decreases. In India, 87% of people with disabilities who work do so in the informal sector. Employment rates for people with disability, the highest reported rate was 85% in china and the lowest was 11.8% in Hong Kong. Munzur-E-Murshid & Haque (2020) estimated the financial cost of disability to be 1.74% of the gross domestic product (GDP) of Bangladesh per year. They emphasized need for skill development for physically challenged people to give them better scopes of employment. Also, they asked for suitable job opportunity creations. Thompson (2020) agreed with the necessity for education and training to enhance employment opportunities for these people. According to his estimates unemployment of these people costs US \$891 million per annum in Bangladesh.

CSID (2002) found that most of the people with functional disabilities are self-employed for inconveniences in workplace like lack of cooperation, negative attitude, lack of accessibility, insufficient income, and as such. Jon (1993) examined labour market participation opportunity using location, marital status, labour income, pension income, asset income, family income, disability status, age and years of schooling as independent variables. Nick (2010) and Sophie et al. (2006) used a binary logit model to determine employment opportunity with respect to age, education, fluency in Greek language, occupation and gender, marital status, living area, household size, age, age square, training, govt. and non-govt. aid respectively. Nick (2010) showed that whether a disabled person participates in labour market depends on his/her taste for work, as expressed by his/her work experience, and

his/her wealth. Multinomial logit models were adopted by Christian (2013) and Simo (2006) to examine determinants of employment opportunity like age, gender, education level, professional training, living area and disability. Steven (1989) worked with ordered probit model in a similar setting. Fenn et al. (1986) and Brenda (2005) added pension, family members grouped by age, marital status and working limits in their study. Daniela Andrén used Labour Market Activity survey (1989) to investigate the effect of disability on labour market activity and found no evidence of earning discrimination against employed men and women with disabilities. However, the paper used ordinary least squares regression taking logarithm earnings as a dependent variable with disability status, age, training, severity score, full time job, union job, etc. in the set of independent variables.

Brenda et al. (2005) estimated the effects of disability on labour force participation using symptoms or diseases as instruments in a simultaneous equation system. This paper found that each measure of disability explains a significant amount of participation in labour market. The econometric model of this paper is estimated with two separate data sets. The first data set is a subsample from the Survey of Disability annual Work (1978). The second data set was a sample from 1979 cohort of the Health Interview Survey. The results show that both limitations and health are good predictors for labour market participations.

The study by Fenn et al. (1986) modelled disabled individual's labour force participation decision following illness or injury and examined it with data on the financial consequences of ill health. The data for this study came from a national survey of illness and injury victims undertaken in 1976 by Social and Community Planning Research (SCPR) for the Oxford Centre for Socio- Legal Studies. They found that the decision to retire prematurely following illness or injury would be taken in the light of a household budget constraint and family structure. Mitra et al. (2008) reported that the employment rate of a person with disabilities is relatively low compared to that of the all Indian working age population based on the National Sample Survey. They also found positive effects for education, vocational training and age on the probability of getting employed. Using Cameroon 2007 household survey data Christian (2013) showed that disability status reduces the probability to access in labour market, but education, professional training and household head status increase the probability of getting a job. Positive influence of higher education on employment is also supported by Simu et al. (2004) and Christian (2013) along with a negative impact of disability.

A number of studies have attempted to estimate the costs of disability, including Graham and Stapleton (1990), Wightman and Foreman (1991) and Walsh and Chappell (1999). Though these studies reveal higher costs of living for disable members of the family, the authors found it difficult to restrict their analysis to 'tangible' costs and concluded that much of the cost information they were seeking

was not quantifiable. The relationship between poverty and disability was examined in greater depth in a separate report on the social and medical aspects of poverty (CIP, 1976), which found that ‘poverty is a frequent consequence of disability and that this is related to diminution of income, the necessity for additional expenditure on health and daily living and the absence or inadequacy of both restorative and supportive services’ (CIP, 1976: 65).

Madden (2004) found that differences in productivity explained around 70% of the labour market participation gap between non-disabled and disabled people in UK. Schumacher and Baldwin (2000) found evidence for a quality-sorting hypothesis, where disabled workers have a lower wages in occupations with a higher proportion of disabled workers. Disabled are concentrated in non-standard forms of employment including independent contracting, part-time and temporary employment that have lower wages and fewer benefits on average (Schur, 2003). Sometimes workers with disabilities are highly self-employed than non-disabled workers (Blanck et al. 2000; Boylan and Burchardt, 2002). Berger (1983) found negative effects of a wife’s disability on the labour force participation. Blau et al. (1998) found poor health of spouse had large negative effects on the individual’s labour market entry rate and large positive effects on the individual’s labour market exit rate.

Examining impacts of different determinants of employment for disable person receives research interests from many corners. But still there exists some lacking in countries like Bangladesh. However, while many have emphasized change in employer attitude, social acceptance and working environment, our focus is on attitude of the household regarding the employment of persons with walking and/or standing difficulty. So instead of looking for infrastructural loop holes we want to study what is needed to change our views towards physically challenged people. This sort of work is new but very much needed for Bangladesh.

2.0 Methodology

This study tries to connect the reasons and consequences of labour market exclusion of physically challenged people found in existing literature to a small sample in Bangladesh. Primary data were collected using well defined questionnaires through direct interview method by the researchers aided by suggestions from people and organizations working with disable people.

3.0 Study Area and Sample Selection

The study uses primary data collected through field survey from the physically constrained people of Belabo Upazila in Narsingdi district. This area was selected because of the assistance provided by ‘Papri’, an NGO helping physically challenged people in this area through medical and mental care, socialization and as such. They

delivered us a rich list of physically challenged people living in this area that contained their local addresses, mobile contact number, and the nature of functional disabilities. Their local operators helped our data collectors to reach the selected persons and their guardians, their field managers joined FGD and gave comments and information where needed, and they helped us arrange FGDs with different other groups. All these supports were made unconditionally and employment of physically challenged people is not their priority. Narsingdi district consists of six upazila named: Belabo Upazila, Monohardi Upazila, Narsingdi Sadar Upazila, Palash Upazila, Raipura Upazila and Shibpur Upazila. A multistage random sampling technique was used. In the first stage we have selected Narayanpur and Sarrabad Union under Belabo upozila for convenience. In the next step four villages are selected randomly under these unions. Selected villages are: (1) Bhaterchar, (2) Batiband, (3) Narayanpur and (4) Sarrabad. We prepared a final list consisting physically constrained people from these villages who have problems in walking and/or standing and who are in the age group 15-64 years that is the active labour force age in Bangladesh (BBS). We randomly selected 127 physically constrained people from this list to collect primary data. The following table represents distribution of respondents among sampled villages.

Table 1: Distribution of respondents among study area

Name of Union	Village	Number of respondents
Narayanpur	Bhaterchar	40
	Narayanpur	30
Sarrabad	Pirpur	30
	Baraicha	27
	Total	127

4.0 Data Character and Data Collection Process:

This study was conducted in 2016 (August- September). The primary data have been collected from physically constrained people through interviewing face to face using a pre-tested questionnaire. The questionnaire included both closed and opened ended questions related to demographic characteristics, income, expenditure, education and health related issues. Both qualitative and quantitative questions help us overcome the limitations of segregate analysis (Bergman, 2011) as well as address diversified cases Coates et al. (2006b).

The researchers personally contacted the respondents and obtained the desired information fairly by explaining the objectives of the study to the respondents and assuring them about their anonymity. Prior to data collection 5 Focus Group Discussions (FGD) were accomplished in 5 locations with the help of field workers of ‘Papri’. The respondents were selected randomly from a shorter list of disable persons in the area having difficulty in walking and/or standing, their guardians, and

NGO field managers¹. After completion of each interview, the schedule was checked to make sure that information to each of the items had been properly recorded. Collection of accurate and reliable data and other necessary from the field was not an easy task, since most of the respondents are reluctant to express themselves to unknown persons and talk about this physical lacking. In some occasions second visits were also made to verify or to collect missing data. However, few data had to be dropped for nonresponses.

5.0 Reliability and Validity

The primary data analysis was shared from time to time with experts mainly from 'Papri'. The number of participants is small, which does not exclude accidental or unsystematic errors but to decrease the chances on accidental and unsystematic errors we rechecked our results with a small number of participants not included in the sample. However, because of different constraints the test for the validity was less comprehensive.

6.0 Research Model:

Many of the earlier studies concentrating the determinants of employment of physically constrained people, such as, Harkness et al. (1993), Hum and Simpson (1996), used multiple regression models. However, probabilistic regressions are more popular in this case. Stern et al. (1989), Fenn and Vlachonikolis (1986), Mitra et al. (2006) have used probit model to estimate the determinants of employment. We have followed Drivakis et al. (2010) and have used a logistic regression model to identify the determinants of employment in labour market by physically constrained people. The dependent variable of the study is labour market participation. We define labour market participation as a dummy taking the value 1 if the respondent has worked at least 5 days last week (based on interview date) having pre-settled salary/wages and 0 otherwise. The dependent variable is dichotomous, and it is categorized as (participation 1, otherwise 0). In this study logit model was specified following Christian, Z. A. (2013), Simo, F. A. (2006), Nick Drydakis (2010), sophie, M., Usha, S., (2006). Particularly following the assumptions of Christensen (1990) is the probability function:

$$P_i = E(Y = 1|X_i) = \frac{1}{1 + e^{-(\beta_0 + \beta'X_i)}}$$

¹ There was one FGD with six area field operators/managers of 'Papri' to understand local stand, barriers to data collection and other that lasted for two hours and another one with eight parents/guardians of physically challenged persons in the selected villages to understand what is the best way to collect data from households in this area. The rest three FGDs were aimed to pre-test the questionnaire and we met small groups of physically challenged persons of the selected area.

can be modified to match the objective of detecting the participation of the physically challenged persons as:

$$P_i = E(Y = 1|X_i) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 AGE + \beta_2 Male + \dots + \beta_6 HouseholdEarningmembers)}}$$

with i indicating the i -th respondent. Let Y_i^* be the latent variable showing the observed response for the i -th respondent. Hence $Y_i^* = 1$ for i -th respondent who is participating and $= 0$ if not participating. Thus we have

$$Y_i^* = G(\beta_0 + \beta_1 AGE + \beta_2 Male + \dots + \beta_6 HouseholdEarningmembers)$$

which expresses a critical threshold $\{G(\cdot)_i^*\}$ for each respondent so that if $G(\cdot)_i < G(\cdot)_i^*$ then the respondent is observed to be a participant and a non-participant if $G(\cdot)_i \geq G(\cdot)_i^*$. Thus, G is the functional relationship between the field observation (Y) and the stimulus index $G(\cdot)$, which determines the probability of participation in the labour market. The logit model assumes that the underlying stimulus index ($G(\cdot)$) is a random variable so that for the i -th respondent (observation) we have:

$$G(\cdot)_i = \ln \frac{P_i}{1 - P_i} = \beta_0 + \sum \beta_j X_{ji}$$

which is a logit model.

Following the literature review the study defines a set of independent variables, hence, the components of the stimulus index to include Age, Gender, Schooling and Income of the respondent and number of employed family members, along with dummy variables representing whether respondent has Severe Health problem, Special Training, Need Assistance, Receives Aid and Unwillingness of family members. Most of these variables are already well addressed in the literature. As for example, CSID (2002) found that most of the employed persons with disabilities (80%) had achieved some level of education and a big part of them (48%) were using assistive devices. This study also detected how low salary, workplace difficulties, non-cooperation, rigid organizational rules, accessibility problems force these people to change their employment. Also, physically challenged people have expressed their perception that any skill development program will be beneficiary for their employment. Same is supported by Munzur-E-Murshid and Haque (2020). However, one major emphasis of our paper is on examining how family members' unwillingness can influence the probability of a physically challenged person's employment. The influence of family experience and attitudes towards learning is well recognized in the literature (Tuckett and Field, 2016). We aim to extend the similar to probability of employment for physically challenged persons. However, we recognize that an extended effort could have provided deeper insights to the present research question if household heterogeneity and community variables were better addressed.

The relative effect of each explanatory variable (X_{ji}) on the probability to participate is measured by differentiating as follows:

$$\frac{\partial P_i}{\partial X_{ji}} = \left(\frac{e^{G(\cdot)_i}}{1 + e^{G(\cdot)_i}} \right) \left(\frac{G(\cdot)_i}{X_{ji}} \right)$$

8.0 Variable Definition Physical Disability:

In a conventional study physical disability can be termed having an acquired or congenital physical and/or motor impairment such as cerebral palsy, muscular dystrophy, arthritis, developmental coordination disorder, amputations, genetic disorders, etc. The disability may interfere with the development or function of the bones, muscles, joints and central nervous system. Physical impairment/characteristics may include

- paralysis
- altered muscle tone
- an unsteady gait
- loss of, or inability to use, one or more limbs
- difficulty with gross-motor skills such as walking or running
- difficulty with fine-motor skills such as buttoning clothing or printing/writing

Physically Constrained Persons: This study is limited to people having difficulty in walking and/or standing by birth or by sudden shock (illness or accident). This definition enables to work with people who can work in a usual work place with minimal assistance to avoid the controversies in defining 'disability' as it can be argued that whether there is anyone without some sort of disability. **Employment:** It is defined that labour market participation as a dummy taking the value 1 if the respondent had worked at least 5 days in the last week (based on the interview date) having pre- settled salary/wage and 0 otherwise. **Aid:** Aids are voluntary transfers of resources from one to another. Aids are commonly provided to the physically constrained people by kith and keens, wealthy individuals, neighbours, private organizations, or governments. In this study disability benefit, public subsidy, special privileges, gifts, stipends, food rations, etc. are regarded as aids.

Table 2: Variable Description

Variable Name	Type	Measurement
Age	Continuous	Age in years
Income	Continuous	Amount of money
Schooling years	Continuous	Age in years
Labour market participation	Dummy	Labour market participation is measured if they worked at least 5 days in the last week with a regular payment. Here, taking participation = 1 or 0 otherwise.
Gender	Dummy	Gender of respondent (1 = male or 0 = female)
Marital Status	Dummy	This variable is recorded into two categories, where 1 = currently married and 0 = never married/divorced/widow
No. of household members	Continuous	Number of members in a family
Relative Deprivation	Continuous	Income index for estimation, perception for perceived
Income	Continuous	Amount of money received as salary and/or asset income
Aid	Dummy	Takes the value 1 if respondents taking aid, 0 otherwise
Informal care	Dummy	1 if taking Informal care, 0 otherwise
Training	Dummy	1 if taking any training, 0 otherwise.
Family Constraints	Dummy	1 if access, 0 otherwise
Education	Continuous	Years of schooling

Household size: Household size is defined as number of persons living together in one house living on jointly prepared food. Households with 1- 4 members are considered as small, 5- 6 members are medium and more than 7 members are large.

Informal care / Need for assistance: Informal care means the unpaid care provided by family, friends or neighbours (AIHW, 2016). Kalwij et al. (2012) defined informal care as unpaid care by spouse, children, relatives, friend and neighbour that includes three tasks: (1) Personal care, such as dressing, bathing or showering, eating, getting in or out of bed, using the toilet; (2) Help with practical household tasks, such as preparing meals, taking medication, housework, going out and (3) help with settling financial or legal matters. In our study we refer to helps required in using stairs, lifting or shifting objects, using transports, and so on.

9.0 Findings

The study uses primary data collected from 127 respondents living in different villages of Belabour Upazila of Narsingdi District. Only 67 respondents are employed whereas 60 of them are unemployed, 64 of the respondents are male, 74 are married, 105 respondents are not taking informal care and 38 respondents are trained. The probability of taking participation in labour market is higher for physically challenged people who are included in the range of 35 to 64 years of age.

The chi-square test reveals that there is a significant relationship between age of the respondents and tendency of being employment. The probability of taking participation in labour market is higher for male than female. This statement is also investigated by the chi-square test. The probability of employment is higher for those who are taking training. 64 respondents are members of NGOs (non govt. organization) but only 33 among them are taking participation in labour market. The chi square test also reveals that being member of a NGO has no significant impact on labour market participation. Most of the respondents belong to small size families (1 to 4 members).

Aids are voluntary transfers of resources from one to another. Aids are commonly provided to the physically constrained people by kith and keens, wealthy individuals, neighbours, private organizations, or governments. In this study disability benefit, public subsidy, special privileges, gifts, stipends, food rations, etc. are regarded as aids. The results represent that there is a significant relationship between aid and labour market participation. Among 127 respondents 74 had no schooling at all, 24 respondents got primary education, 18 passed SSC examination, 6 passed HSC examination and only 5 completed their graduation. The percentage of not going to school, primary, SSC, HSC and graduation are 58.3%, 18.9%, 14.2%, 4.7% and 3.9% respectively. Amid 127 respondents 74 were married, 46 were unmarried, 6 of them were widow and only one of them was divorced. Among all respondents family we found 88 respondents family having single employed person. 2 or more employed persons were found in 30 families. We found 3 families with no unemployed person. More than one unemployed persons were found in 111 respondent families. Only 2 of the employed respondents work in public sector, 20 of them work at private sector while 48 other are engaged in informal employment.

A logistic regression model is used to estimate the factors influencing the causes of labour market exclusion of the respondents. Labour force participation is the dependent variable, which a dummy taking the value 1 if the respondent worked at least 5 days last week (based on interview date) having pre-settled salary/wage and 0 otherwise. Following established literature the set of determining factors includes age of the respondent, gender, marital status, severity of health problem, schooling years, need for assistance, unwillingness of family, personal income, family expenditure, no. of employed family members, availability of personal aid, etc. The estimation results of binary logit model showing impacts of these factors on labour market participation are presented in the table-3 below. The partial correlation matrix of the variables does not indicate any multicollinearity problem. In order to correct heteroscedasticity problem in the small sample we have used robust standard errors. The highly significant Log Pseudo Likelihood statistic (-40.0989; Prob. > chi2 = 0.0015) and the Pseudo R2 (0.44) suggest that the model has strong explanatory power. Our observation reduces to 105 as we dropped students from the model.

Our results reveal that the opportunity of getting employed of a physically constrained person is not affected by his/her age. The coefficient, odd ratio and marginal effect are showing insignificant impact of age on labour market participation. Not only that, in every cases the extent of impact is very low or close to zero .This implies that if a physically constrained person does not get the opportunity to be employed in the earlier stage of his/her life, there are no reason to believe that he/she can have the opportunity later.

From table 3 we find gender as an important determinant of getting employed. Estimated coefficient shows strong (28%) and significant (5% level) positive influence of this variable favouring the males. The odds ratio expresses a significant more than 3.5 probability of success by the males of getting employment than the female.

Though married respondents have positive relationship to labour market participation, the relationship is insignificant. Hence, we cannot say that chances of employment are higher for married respondents.

The coefficient of having severe health problem reduces labour market participation. But it has insignificant coefficient, odds ratio and marginal effect. Also schooling year has insignificant influence. This has a negative relationship with labour market participation, which is probably due to very low schooling among the respondents. Hence, we cannot say that chances of employment are decreasing for physically constrained people with more schooling year.

Training, on the other hand, is an important determinant of employment of the respondents. Estimated coefficient shows strong and significant (at 1% level) influence of this variable. The odds ratio expresses a significant more than 11.40 probability of success by the respondents having any job related training. The marginal effect estimates a 46% more chances favouring trained respondents in this regard.

From the estimated results (Table 3) the study finds out, need for assistance is an important variable constraining participation in labour market by the respondents. Estimated co-efficient shows strong and significant (at 10% level) influence of this variable. The odds ratio expresses a significant more than 1.10 probability of failure by the respondents who need assistance than those do not need. However, the marginal effect estimates 41% less chances of employment for the respondents with need for assistance.

Again the respondents are facing unwillingness of family members are less likely to participate in labour market. Estimated co- efficient represents strong and significant (5% level) influence of this variable. The odds ratio is 0.24 which means that the probability of taking participation is decreased by 0.24 for those facing family constraint relatively those one not facing family constraint. However, the marginal effect estimates a 33% less chances favouring those respondents in this regard.

The coefficient, odd ratio and marginal effect are showing insignificant impact of income on labour market participation. In every cases the extent of impacts are very low or close to zero. This implies that, the opportunity of getting employed of a physically constrained people does not increase with income. Also family expenditure is not likely to influence labour market participation. Following the odds ratio and the marginal impact we can see no great impact of family expenditure.

Number of employed family members positively and significantly (5% level) influences employment of the respondents. The odds ratio expresses a significant rise in probability of success (more than 1.4) in getting employed as the number of employed family members increases by 1 person. The marginal effect estimates 9% more chances in this regard.

Table 3: Determinants of labour market Participation

Dependent Variable: Labour Force Participation	Coefficient (Std. Err.)	dy/dx (Std. Err.)	Odds Ratio (Std. Err.)	Coefficient (Std. Err.)
Age of the respondent	0.00 (0.01)	0.00 (0.00)	1.00 (0.01)	-0.01 (0.01)
Male	1.26** (0.65)	0.28** (0.14)	3.54** (2.30)	1.59** (0.66)
Respondents marital status	0.65 (0.72)	0.15 (0.17)	1.92 (1.39)	
Having severe health problem	-0.36 (0.69)	-0.08 (0.15)	0.70 (0.49)	-0.26 (0.73)
Schooling years	-0.15 (0.11)	-0.03 (0.03)	0.86 (0.09)	-0.14 (0.11)
Training	2.44*** (0.80)	0.46*** (0.11)	11.43*** (9.16)	2.57*** (0.83)
Need for assistance	-1.73* (0.95)	-0.41** (0.20)	0.18* (0.17)	-1.96** (0.90)
Unwillingness of family Members	-1.42** (0.65)	-0.33** (0.15)	0.24** (0.16)	-0.79 (0.74)
Income	0.00 (0.00)	0.00 (0.00)	1.00 (0.00)	0.00 (0.00)
Family Expenditure	0.00 (0.00)	0.00 (0.00)	1.00 (0.00)	0.00* (0.00)
No. of employed family members	0.40* (0.21)	0.09* (0.05)	1.49* (0.31)	0.35** (0.18)
Aid	2.05*** (0.74)	0.44*** (0.15)	7.77*** (5.77)	1.94*** (0.70)
Constant	-4.04** (1.80)			-3.83*** (1.42)

*Robust standard errors in parentheses; ***, ** and * represents significance at 0.01, 0.05 and 0.1 respectively*

Respondents receiving aid are having high probability of employment opportunity. Estimated coefficient shows strong influence of this variable that is significant at 1% level. The odds ratio expresses a significant more than 7.5 probability of success by the respondents are receiving aid, while the marginal effect estimates a 44% more chances.

As a test of robustness of our results we dropped marital status from the model and found no dramatic change in the overall results (Table 3).

10.0 Conclusion

Estimation results for labour market participation by physically constrained people show that labour market inclusion of such people is highly biased by gender (male), training, number of employed family members and availability of aid whereas is controlled by need for assistance, and unwillingness of family.

Many studies found a positive relationship between male respondents and labour market participation (Sophie & Usha, 2006; Christian, 2013; Steven, 1989; Brenda, 2005). However, our study finds similar results for our special vulnerable group. People having need for assistance are less likely to have employment as employers become doubted about their productivity and fear increasing cost in work place management. Our finding is supported by Christian (2013) who found a strong negative influence of informal care on labour market participation for disabled people. Training programs mainly aim professional skill development for vulnerable groups with a set of courses and empirical activities; and they have been the cornerstone of labour market policy for many decades all around the world. Findings from Christian (2013) and Sophie & Usha (2006) indicate that receiving training increases the productivity of labour and hence increases the participation in labour market. Our study finds the similar result for the physically constrained persons. Multiple studies like Steven (1989), Christian (2013), and so on, found that family and environmental constraints reduces the probability of taking participation in labour market for disabled people. Our study similarly reveals a high negative influence of non-cooperation or unwillingness of the family on labour market participation by physically constrained people. However, number of employed family members have positive and significant influence on labour market participation by found by physically constrained people, which is similar to the findings of Brenda (2005) for disabled people.

Though suggesting a comprehensive policy is beyond the scope of this research, our findings advocate strongly in favour of more professional quality enhancement program through both public and private initiatives to enhance capability of physically constrained people in Bangladesh. Aids are also proved to be highly influencing. May be they help uplift self-esteem of the physically constrained people and assist them in Finding jobs. Findings also suggest rooms for adaption of awareness program and

motivational policies for both family members of the physically constrained persons and general employers. Awareness of the stated family members can be enhanced by individual field visits by health workers, group discussions by area level health officers, media, etc. In the matter of fact public policy can be adopted to aware mass people using public media, primary education system and special programs. Government can also provide direct incentives like tax cut to employers to recruit such vulnerable persons in excess to provide awareness building. Thus employers will not turn down applications from people with need for assistance.

Because of financial limitations this study had to limit its sample size, number of objectives and set of independent to deal with. Some other important limitations are mentioned below

1. Since the study team had to work with a very vulnerable group of people who have general dejection to strangers and discomfort to norms and manners, it was very difficult to collect data from maximum respondent. It was time consuming and it required lots of patience.
2. Most of the respondents are illiterate. All of them had huge problems in understanding the questions.
3. It was difficult to collect information as these people do not keep any records of their income and expenditure.

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