



LPEM-FEBUI Working Paper - 005
April 2016

ISSN 2356-4008

A BAD LUCK: PEOPLE WITH DISABILITIES (PWD) AND POVERTY IN INDONESIA

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LPEM-FEBUI Working Paper

Chief Editor : I Kadek Dian Sutrisna Artha
Editors : Riatu M. Qibthiyyah
Setting : Rini Budiastuti

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A Bad Luck: People with Disabilities (PWD) and Poverty in Indonesia

Adrianna Bella¹ and Teguh Dartanto^{2*}

Abstract

PWD are more likely to have a lower socioeconomic status and a couple of disadvantages due to earning and conversion handicap. Involving PWD on the development agenda will expedite the progress of poverty reduction; however, there is still a low prioritization of poverty eradication of PWD due to lack of data and research. Therefore, there is an urgent need to provide evidence-based study to support and mainstream PWD on the development agenda in Indonesia. This study, using the 2012 third quarter of national-social economic survey (SUSENAS 2012 Q3), aims at examining the impacts of disability, types and sources of disability on household's poverty status and household's poverty gap index. Applying Logistic and Tobit regressions, this study confirmed that disabled-headed household is more likely to become poor by 1.3% and have deeper poverty gap index by 2.6%. Household heads with a visual impairment are less likely to be poor compared to other disabled-headed households. On the other hand, a disabled household head who has a self-care problem tends to have a higher probability of falling into poverty. Moreover, household head with congenital disability has a higher probability of being poor by 4.8% and has deeper poverty gap index for about 7.8%. This study then suggests three policy recommendations in order to eradicate poverty of PWD: 1) provide rehabilitative care for PWD with self-care problem, 2) prevent disabilities at birth through prenatal intervention, and 3) establish different poverty alleviation policies for PWD and non-PWD, due to their different circumstances and needs.

JEL Classification: I31; I32; J14

Keywords

People with Disabilities (PWD) — Poverty — Indonesia

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1. INTRODUCTION

People with Disabilities (henceforth PWD) are the world's largest and most disadvantaged minority: 20% of the world's poorest population are disabled, 98% of children with disabilities in developing countries do not attend school, and literacy rate for adults with disabilities is as low as 3% ([1]). Moreover, according to the World Bank (WB) and the World Health Organization ([2]), PWD make up nearly 15% of the global population; therefore, without involving them in development, progress in poverty reduction is severely hindered. Unlucky conditions of PWD may appear due to some discrimination, such as institutional discrimination, physical environment discrimination, and social discrimination ([3]). The discrimination results in exclusions of PWD from education, employment, legal processes, and even healthcare. As a result, PWD are more likely to have a lower socioeconomic status compared to other groups.

The ignorance and neglect of the government and society concerning PWD often result in these individuals experiencing lower social and economic conditions ([1]). Studies and statistics have shown that the poverty rate of PWD is higher than that of non-disabled people ([4]; [5]; [6]). Not only do PWD face multiple disadvantages, but they also

possess lower capabilities compared to non-disabled people – all these are factors that contribute to PWD having lower social and economic status.. However, the disparity does not appear only between these two groups, but also among PWDs. Studies explored by [7], [8], and [9] found that different types of disabilities might lead to different socioeconomic conditions. Other studies by [10] and [11] found that different causes of disabilities affect job enrollment, which serves to differentiate their economic conditions. The different characteristics of PWD call for customized policies to eradicate poverty of PWD, as poverty alleviation policies for non-disabled people are probably not effective when implemented to PWD.

In the case of Indonesia, the National Socioeconomic Survey (SUSENAS) 2012 shows that under the national poverty line, the poverty rate of PWD is 13.86%, while the poverty rate of non-disabled people is only 12.86%. Indonesia, unfortunately, has not implemented significant actions to improve the condition of PWD, even after the ratification of Convention on the Rights of Persons with Disabilities (CRPD) with UU No.19/2011. According to [12], the Indonesian government still has little intention to synchronize or harmonize CRPD to every valid regulation in Indonesia, such as traffic regulations, officialdom regulations, health regulations, employment regulations, construction/structure regulations, and others.

Even though around six million (2.45% of Indonesian's total population) are categorized as PWD, policy discussions and the designing of poverty alleviation programs of PWD in Indonesia are always lagging behind. One of the main reasons for the low prioritization of disability issues is the lack of data. Consequently, the study on disabilities and poverty has remained a peripheral topic of research. Moreover, empirical studies of the impacts of disabilities on poverty and poverty alleviation of PWD are relatively scarce and have little variation in methodologies. This low number of evidence-based researches may lead to little support and attention to PWD in Indonesia. There is an urgent need to conduct a solid and rigorous study to support and mainstream PWD on the development agenda in Indonesia due to the fact that PWD is a part of the Sustainable Development Goals-the new world development agenda. This study aims at contributing to three main issues: first, examining the relationship between disability and poverty in Indonesia - whether disabled people are more likely to become poor or not; second, assessing the impacts of types and causes of disabilities on the poverty status of PWD; third, examining the relationship between disabilities and the intensity of poverty (the depth of poverty measured by the gap between expenditure/income and the poverty line). Even though both PWD and non-disabled people are categorized as poor, PWD might have a higher intensity of poverty due to more severe discriminations and other various obstacles. This research not only contributes to literature, but it also contributes to the understanding of the relationship between poverty and disability and the designing of effective policies to help PWD get out of poverty.

This study will start with a literature review, focusing mainly on how disabilities relate to poverty. The next section will explain research methodologies including Logistic and Tobit regression as well as the poverty calculation; data and

statistical facts about disabilities will also be discussed. The paper will then analyze the impact of disabilities on poverty and depth of poverty. The study ends with some important findings and policy recommendations.

2. LITERATURE REVIEW

2.1 Capability Approach: Earning and Conversion Handicap

According to Sen's Capability Approach Theory ([13], [14], [15]), people with disabilities are more likely to become poor due to a couple of disadvantages, which are 'the earning handicap' and 'the conversion handicap.' The earning handicap is the impairment of income-earning ability. For example, a blind person cannot read or walk in the same way a normal person can; this affects the blind individual's ability to accomplish certain tasks. As such, the individual is restricted in his/ her choice of jobs when compared to the non-disabled and this will affect his/her potential income. The conversion handicap is the difficulty in converting incomes and resources into good living due to disability. According to [16], the conversion handicap is the extra need and cost needed in order to achieve the same level of advantage or well-being as the others as a result of disabilities. Consequently, PWD may experience lower standard of living than their non-disabled counterparts with the same level of income ([17]). The earning-handicap and conversion-handicap are shown in the framework below.

Based on [16], the earning-handicap causes PWD to have lower capability set (choices of commodity to reach functioning) than non-disabled people. On the other hand, the conversion-handicap causes PWD who have the same capability as non-disabled individuals to not have the same functioning due to the cost of disability. These disadvantages of PWD make them have lower capability, which will further lower the outcome of functioning and well-being. Based on Sen's capability approach, people with disabilities are more vulnerable to become poor. This framework is the foundation for the research conducted in this study.

2.2 Previous Studies: Disability and Poverty

Some studies conducted research that found the relation between poverty and disability. [18] found disability to have a significant positive relation with poverty. Similarly, [9] found that PWD have higher disadvantages in all socioeconomic indicators, including income, compared to non-disabled individuals. Other studies also found that PWD have higher poverty rate when compared with non-disabled people, which means that PWD are more likely to become poor. [6] found that the poverty rate of PWD is 28.6%, while poverty rate of non-disabled people is 26.6%. In the same vein, [4] found that the poverty rate of people with severe disabilities, which is 27.9%, is much higher than that of non-disabled people, which is only 8.3%.

Many studies confirmed that different types and causes of disabilities have different effects on the socioeconomic status of PWD, including income and poverty status. [7] discovered that PWD who need assistance in personal care and routine needs are more likely to be unemployed compared to those who do not. [8] found that among PWD job seekers,

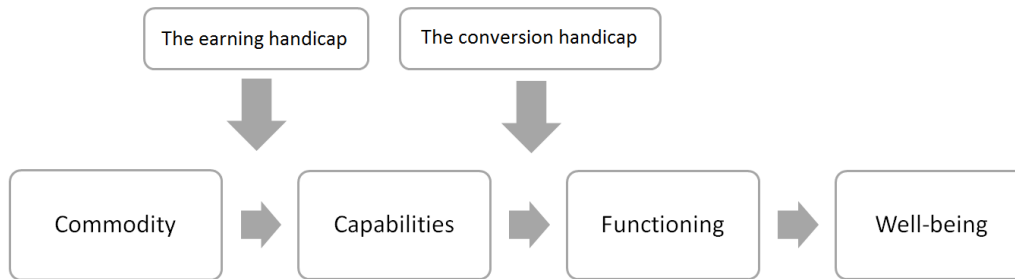


Figure 1. Framework of Capability Approach in Case of Disability
Source: Authors

those with physical disabilities have a higher rate of employability than those with mental disabilities. [9] and [10] also discovered that people with psychological disabilities have the biggest socioeconomic disadvantages (low education, low income, unpaid worker, and housing vulnerability) compared to those with other types of disabilities. [11] also found that PWD whose cause of disability is him/herself have lower probability of being employed, and those whose cause of disability is external and out of their control are more likely to be employed – as a compensation for their disability.

3. RESEARCH METHODOLOGY

3.1 Empirical Model

This study uses the 2012 third quarter National Social Economic Survey (SUSENAS) by Central Statistical Agency of Indonesia (BPS). The survey, covering all provinces, contains two main datasets: Core and Module. Core recorded basic characteristics of 71,803 households containing 277,854 individuals, such as demography, education, job, asset, etc. Meanwhile, Module covered additional information of the households and individuals on a subset of the Core, such as disability characteristics, social capital, measure of happiness, household expenditure, etc. Having omitted the missing, 71,722 households containing 277,576 individuals are included in this study.

We analyzed two samples. The first sample contains 71,722 households including both disabled and non-disabled-headed households to examine whether disabled people are more likely to become poor or not and examine whether disabled people have a higher intensity of poverty. The second sample is a sub-sample of the first, containing 3,596 disabled-headed households. The goal of analyzing the sub-sample is to assess what types and causes of disabilities affect the poverty status of PWD.

We then proposed four econometric models to examine the relationship between disability and poverty and to assess the effect of different types and causes of disability on the poverty status of PWD. Unlike in many studies, this study examines both issues: 1) the relationship between disability and poverty status and 2) the effect of disability on the intensity of poverty indicated by the poverty gap index. Model 1 and 2 econometrically estimate the impacts of disability on the poverty status of households and the poverty gap index respectively. Model 3 and 4 observe the effect of the types and causes of disabilities on the poverty

status and the poverty gap index.

This study uses Logistic (Logit) Model to estimate Model 1 and 3 and the Tobit Model is used to estimate Model 2 and 4. The application of Logit Model is due to binary dependent variable in Model 1 and 3 ([19]). Based on some studies about binary response model, such as [20] and [21], Logit Model is the best model to fit the data in this study. Afterward, the Logistic Model that measures the probability of being poor refers to some studies about poverty, such as [22], [18], and [23], in which “1” is considered as poor and “0” is considered as non-poor. Based on [19], Tobit Model is the best model to analyze the data which needs censoring, such as poverty gap. Tobit Model, with poverty gap as the dependent variable, refers to previous studies such as [24], [25], and [26].

The explanatory variables, especially for control variables, are based on studies such as [27], [18], [28], and [6]. The explanatory variables are divided into three categories: disability characteristics, household characteristics, and household head characteristics. Household and household head characteristics are identical for every model, while disability characteristics differ: first and second models use disability status, while third and fourth models use types of disability and causes of disability as representations of disability characteristics.

The econometric models of Logit and Tobit Model are as follows:

Model 1 and Model 3 (Logit Model):

$$P_i^0 = \alpha + \beta_i Dis_Char + \delta_i HH_Char + \theta_i HHH_Char \quad (1)$$

Model 2 and Model 4 (Tobit Model):

$$P_i^1 = \alpha + \beta_i Dischar + \delta_i HHchar + \theta_i HHHchar + u_i \quad (2)$$

Where:

- P_i^0 : household’s poverty status; 0=non-poor and 1=poor;
- P_i^1 : household’s poverty gap;
- Dis_Char : disability characteristics, which are disability status for first and second model and types & causes of disability for third and fourth model;
- HH_Char : household characteristics, including social capital, household size, and location of household;
- HHH_Char : household head characteristics, including gender, age, and marital status of household head;
- u : error term.

A household head is considered as a disabled person if he/she meets one of the disability categories. The cate-

gories of disabilities used in this study are visual impairment, hearing or communication disorder, concentration problem, walking problem, and personal care problem. The descriptions of each category based on the Indonesian National Social Economic Survey (SUSENAS) are as follows:

- Visual impairment is inability to see even after using glasses, such as low vision, color-blind, stone-blind, etc.;
- Hearing disorder is inability to hear even after using hearing equipment, such as deaf;
- Communication disorder is inability to communicate with others, such as speech impairment;
- Concentration problem is disability to remember or concentrate, such as autism, retardation, mental disorder, etc.;
- Walking problem is disability to walk or climb up stairs, such as leg paralysis, disproportionate size of legs, etc.;
- Personal care problem is self-care disability, such as eating, bathing, dressing up, etc.

Causes of disability used in this study are congenital disability, accident/disaster, life pressure/stress, and disease. The term ‘congenital disability’ used in this study refers to disability experienced since a person is born. As each of these variables are mutually exclusive, there is a basis for each dummy, which is ‘disability caused by disease’.

3.2 Poverty Calculation

This study uses the Foster-Greer-Thorbecke (FGT) method to measure poverty. This method is also used by the Indonesian Central Statistical Agency, so that the result of this study will be comparable and applicable in Indonesia. The formula of the Foster-Greer-Thorbecke (FGT) method is as follows ([30]):

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left(\frac{z - y_i}{z} \right)^{\alpha} \quad (3)$$

Where:

- α : FGT Measures of Poverty; $\alpha = 0$ is headcount index (poverty index); $\alpha = 1$ is to calculate the poverty gap index, and $\alpha = 2$ is the squared poverty gap index;
- z : Poverty line (every province has both a rural and an urban poverty line). The national poverty line is a combination between food and non-food poverty line;
- y_i : Average monthly per capita expenditure of people below poverty line ($i=1,2, \dots, q$);
- q : Number of people whose expenditure are below poverty line;
- n : Total number of people.

The definition of poverty used in this study is based on the description of Indonesia Central Bureau of Statistics (BPS), which is the inability to suffice people’s minimum basic needs like foods, clothes, health, housing, and education ([31]). The minimum basic needs to form households’ poverty status (poor and non-poor) is built upon Indonesia poverty line in September 2012 issued by Indonesia Central Bureau of Statistics (BPS) in all urban and rural areas of Indonesia’s 33 provinces. Poverty status then belongs to households, and affects the economic status of the household’s members afterwards.

3.3 Estimation Procedure

A Logit Model is used to establish the likelihood of household being poor with binary variable y . This model then can be derived from Latent Variable Model with unobserved variable or latent variable y^* , where those who have larger values of y^* are observed as $y = 1$, while those with smaller values of y^* are observed as $y = 0$ ([29]). The latent y^* is assumed to be linearly related to the observed x through the following model:

$$y_i^* = x_i\beta + \varepsilon_i \quad (4)$$

Where x_i is the independent variable, β is the parameter and ε_i is the error term. The latent variable y^* is linked to the observed binary by the measurement equation:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > \tau \\ 0 & \text{if } y_i^* \leq \tau \end{cases} \quad (5)$$

Where τ is the threshold or cut point. If $y^* \leq \tau$ then $y=0$ and if $y^* > \tau$, then $y = 1$. In this case, τ stands for poverty line. Then, let P_i denote the probability that i th household is below the poverty line (poor), so that:

$$P_i = \frac{e^y}{1 + e^y} \quad (6)$$

Equation (6) is called logistic distribution function, the probability of being poor. Dividing the probability of being poor by the probability of not being poor will generate an odds ratio. Logistic Model (L) is simply natural log of odds ratio, which can be written as follows:

$$L_i = \ln \frac{P_i}{1 - P_i} = y_i \quad (7)$$

Tobit Model is useful for analyzing censored sample, which is a sample in which information on the regressand is available only for some observations ([19]). The Tobit Model can be expressed as:

$$Y_i = \begin{cases} x_i\beta + u_i & \text{if } RHS > 0 \\ 0 & \text{otherwise} \end{cases} \quad (8)$$

Where Y_i is the dependent variable, x_i is the independent variable, β is the parameter, u_i is the error term, and RHS is right-hand side.

4. ANALYSIS OF RESULTS

4.1 Descriptive Analysis

The physical condition of individuals can be classified into having disabilities and not having one. Meanwhile, households can be divided into two common economic conditions: poor and non-poor. This descriptive analysis combines these two categories of households and individuals by segregating data into four categories: poor disabled-headed household, non-poor disabled-headed household, poor non-disabled-headed household and non-poor non-disabled-headed household. Moreover, independent variables are grouped into three categories: disability characteristics, household characteristics, and household head characteristics. There is also additional depiction of government’s social assistance performance for PWD and non-disabled people.

As seen briefly in Table 1, the socioeconomic conditions of non-poor households are better than socioeconomic conditions of poor households. Comparing disabled-headed households and non-disabled-headed households, socioeconomic conditions of non-disabled-headed households are slightly better than those of disabled-headed households. Among PWDs, there is noticeable difference between the number of non-poor and poor visually-impaired people, such that there are more non-poor visually-impaired people. Meanwhile, other types of disability show little differences between non-poor and poor. Moving on to causes of disability, congenital disability shows obvious differences between poor and non-poor status: there are more who are poor than non-poor. However, other causes of disability do not depict significant differences between those two different economic statuses.

As one of the household characteristics, there are significant differences regarding social capital between PWD and non-disabled people, both for the poor and the non-poor. This early sign may explain the social discrimination experienced by PWD ([3]). For both poor and non-poor status, PWD are more likely to live in rural areas compared to non-disabled people. In terms of household head characteristics, disabled household heads are on average older than non-disabled household heads. Such a difference may exist because the probability of being disabled increases as one's age increases due to illness, accident, etc. Both poor and non-poor non-disabled people have higher years of education than those of PWD. The higher education of non-disabled people may then lead to higher income and better economic status.

The presence of government assistance is supposed to examine the treatment of poverty for PWD and non-disabled people. Table 1 shows that government assistance, especially for the poor, is not very different between PWD and non-disabled people. For instance, around 74% of poor-PWD received rice for the poor (Raskin) within the last three months, while around 73% of poor non-disabled household received Raskin. This indicates that the government of Indonesia still applies equal treatment to overcome the problem of poverty of PWD and non-disabled people. Meanwhile, PWD have several disadvantages that are not experienced by non-disabled people. Thus, the treatment of poverty alleviation for PWD and non-disabled people should be different and modified due to the special conditions faced by PWD. One thing that should be emphasized is that justice does not always mean equality, because different people have different needs. However, government assistance is not included as an independent/exploratory variable in the regression model due to an endogeneity problem: the poverty status of households causes the receipt of government assistance.

4.2 Estimation Results

Table 2 shows the econometric estimation results of Model 1 and 2, which analyzed the relation between disability and poverty (indicated by the headcount index and the poverty gap index). Table 3 shows the estimation results of Model 3 and 4, which analyzed the impact of persons' disability characteristics on poverty status and poverty gap index. The models were estimated using maximum likelihood estima-

tion, with robust standard errors. All models show that the Wald chi-square statistics of log likelihood of the Logit and Tobit models are statistically significant, indicating that at least one of the covariates or independent variables affects the poverty status of households. Generally, the built Logit and Tobit models of poverty status (poverty gap index) show their consistency and robustness.

Model 1 and 2 significantly bear out the positive impact of disability to both poverty status and poverty gap index. As seen in Table 2, disabled-headed household is more likely to be poor by 1.3% and have a deeper poverty gap index by 2.6%. This result is consistent with [18] and [9]. Likewise, [3] found that PWD are more likely to become poor due to three kinds of discriminations. Theoretically, the result follows Sen's capability approach theory, which asserts that PWD have lower capabilities due to the disadvantages that they experience ([15]).

Model 3 and 4 attempt to discover the impact of disability characteristics of disabled headed household on poverty status and poverty gap index. The result in Table 3 points out that the types and causes of disabilities have similar impact on both poverty status and poverty gap index. In terms of types of disabilities, visually-impaired household heads are less likely to become poor by 2.4% and tend to have lower poverty gap index by 4.1% compared to other types of disabilities after control variables are included. This result is in line with [7]'s findings. Additionally, Didi Tarsidi, the former head of Indonesian Association of the Blind (PERTUNI), stated that the result might appear due to the higher confidence of visually-impaired people ([32]). According to [32], PWD who experience visual impairment could declare their disabilities more easily because they cannot see people underestimating or looking down upon them. As a result, visually-impaired people will use their energy for more productive activities.

Another type of disability, which is self-care problem, has significant positive impact on poverty status after controlling for household and household head characteristics. Similar to the finding of [7], this study finds that a disabled household head with a self-care problem is more likely to have a poor household by 2.4% compared to other types of disabilities. PWD who have the inability to care for him/herself may find it very difficult to do or find jobs, so they are more likely to be poor. Moreover, PWD who have a self-care problem usually need others to help them do daily activities, and this may lead to additional costs, either direct or indirect (opportunity cost if one household member acts as personal caregiver).

With regard to causes of disability, the result shows that congenital disability has significant positive impact on both poverty status and poverty gap index, even before control variables are included. A household head whose disability appears since he/she was born (congenital disability) is more likely to have a household 4.8% below the poverty line and have deeper poverty gap index -about 7.8%. According to [3], PWD experience three kinds of discrimination: institutional discrimination, physical environment discrimination, and social discrimination. People with congenital disability may experience longer and greater discrimination in comparison with other people whose disability is caused by other factors. For example, a person with congenital

disability may experience discrimination at home, school, and workforce, while a disabled person whose disability is caused by an accident may only be discriminated in the workforce or may not experience any discrimination (due to compensation for accident at work). However, the result is not consistent according to the findings of [8] and [9].

Household characteristic variables have similar sign and significance of coefficient in all four models. Households, both with and without disabled household head, that have higher social capital are less likely to become poor and tend to have lower poverty gap index. This finding is in line with findings by [33] and [34]. In terms of disability, [3] states that social discrimination is one of the factors that cause PWD to be more likely to become poor. The presence of social capital will eliminate social discriminations in society, so that it decreases the likelihood of PWD to become poor. Having access to electricity for lighting and the status of ownership in terms of housing both show negative correlations with the poverty status and the poverty gap index of the household. The findings of electricity and house ownership are in line with [6] and [28]. Moreover, [35] also found that availability of electricity has a positive correlation with daily consumption per capita of the household.

Meanwhile, household size and location in rural areas have positive correlations with the poverty status and the poverty gap index of both disabled-headed households and non-disabled-headed households. As the number of individuals in a household increases, the probability of being poor and the likelihood of having a higher poverty gap index may increase due to higher burden and expense faced by the household. This finding confirms some studies done by [36] and [6]. Another result shows that a household located in a rural area is more likely to become poor and have a higher poverty gap. The lower quantity and quality of infrastructure and the lower amount of job opportunities available may be the reason for this finding. The result is similar to studies by [28] and [6].

Since disability characteristics of household heads in Model 1 and 2 are different with those of Model 3 and 4, the sign and significance of some coefficients of household head characteristic variable may show different results. In the first and second model, a female household head has higher probability of being poor and tends to have higher poverty gap index. This may result from gender discrimination, which usually affects females rather than males. This result is in line with [37], and [38], [6] who found that a female headed household tends to be poorer. The result from the third and fourth model shows a similar sign, but is not significant. As described by [3], PWD face some kinds of discriminations, and these discriminations may obscure gender discrimination, which is usually experienced by females.

The age of household heads has a significant negative correlation with poverty status and poverty gap index in Model 1 and 2. Meanwhile, the age of households has a positive correlation in the third and second model, but is not significant. According to [39], income per capita and age of household heads are assumed to have a positive relationship over the bracket of 25 to 45 years, and a negative relationship beyond this bracket (beyond 45). This implies that the age of household heads will tend to have a lower

probability of being poor if their age is within the bracket, and a higher probability of being poor if their age is beyond the bracket. Based on the description of the data, the age of household heads in the sample used in the first and second model (disabled and non-disabled) have almost an equal proportion of age within and beyond the bracket: household heads with an age lower and equal to 45 is 49% and household heads with an age higher than 45 is 51%. In contrast to the previous description of the data, the age of household heads in the sample used in the third and fourth model has an imbalanced proportion and tends toward the upper bracket: household heads with an age lower and equal to 45 is 13% and household heads with an age higher than 45 is 87%. The different sample set may be the reason for the different sign of coefficient between the two results.

In all four models, marital status has significant positive correlation with poverty, which implies that a married household head tends to be poorer than a household head with some other marital status. As males tend to dominate the title of household head, the married household head may face more burdens due to a higher number of dependents. This finding does not coincide with those of [23] and [28]. Education coefficient in all four models shows significant negative impact between years of education and poverty, implying that the longer the schooling period of the household head, the lower the probability of being poor. Household heads with higher education may have a wider selection of jobs and thus a higher income potential. The finding is similar to those of [6], [28], and [27].

5. CONCLUDING REMARKS

Policy discussions and the designing of poverty alleviation programs of PWD in Indonesia are always lagging behind due to a lack of data availability and low number of evidence-based researches. Consequently, the government still applies equal treatment to overcome the problem of poverty of PWD and non-disabled people even though PWD have disadvantages due to earning and conversion handicap that are not experienced by non-disabled people. Therefore, there is an urgent need to conduct a solid and rigorous study to support and mainstream PWD on the development agenda in Indonesia due to the fact that PWD is a part of Sustainable Development Goals (the new world development agenda).

This study, using the 2012 third quarter of national-social economic survey (SUSENAS 2012 Q3), aims at examining the impacts of disability, the types and sources of disabilities on a household's poverty status and the household's intensity of poverty (poverty gap index). Our estimation results from the Logistic and Tobit regressions confirm that a disabled household head is more likely to have poor household by 1.3% and have deeper poverty gap index by 2.6%. This coincides with the theory of capability approach [15], which asserts that PWD have lower capabilities due to a couple of disadvantages and later may lead to lower economic condition of PWD. This finding suggests that the government should include people with disabilities in development agendas, including a poverty eradicating one.

In the case of the different types of disabilities and the different sources of disabilities, household heads that are

visually-impaired are more likely to have a higher probability of being non-poor and have a lower poverty gap compared to other disabled-headed households. Meanwhile, a disabled household head who has a self-care problem tends to have a higher probability of falling into poverty. Regarding causes of disability, a disabled household head who has congenital disability (disability at birth) is more likely to fall below poverty line for about 4.8% and have deeper poverty gap index for about 7.8%. This may be caused by longer and greater discrimination [3], compared to disabled household heads with other causes of disability.

According to [15], there are two policy recommendations for PWD, especially to eradicate the poverty of PWD. First, [15] suggests policy to ameliorate the effects of handicap to overcome the problems of poverty of PWD. Based on the result this study, the amelioration of the poverty of PWD should be implemented mostly to people with a self-care problem. According to [7], this finding should target rehabilitative care, so that they may learn to take care of themselves and as a result have a lower probability of being poor. Second, [15] suggests programs to prevent the development of disabilities in order to avoid the growth of poverty of PWD. In line with this study, disability deterrence may be conducted with a focus on the prevention of disability at birth through prenatal intervention, as there is a positive relation between congenital disability and poverty. The presence of two such policies is expected to overcome the problems of poverty of PWD. Moreover, the poverty alleviation policies for PWD and non-disabled people should be different and modified due to the special conditions experienced by PWD. Equality does not necessary mean same treatment since justice does not always mean equality, because different people have different needs.

6. ACKNOWLEDGEMENT

This research is an expansion of Bella's undergraduate thesis under the supervision of Teguh Dartanto, Ph.D. This research is partly and financially supported by Poverty and Social Protection Research Group, LPEM FEB UI.

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Table 1. Descriptive Statistics

Variable Description	People with Disabilities												
	Poor				Non-poor				Non-disabled People				
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	
Disability Characteristics													
Types of Disability													
Visual impairment (1=yes, 0=others)	0.573	0.495	0	1	0.636	0.481	0	1					
Hearing and communication disorder (1=yes, 0=others)	0.382	0.487	0	1	0.330	0.470	0	1					
Concentration problems (1=yes, 0=others)	0.136	0.344	0	1	0.113	0.316	0	1					
Walking problems (1=yes, 0=others)	0.340	0.474	0	1	0.327	0.469	0	1					
Personal care problems (1=yes, 0=others)	0.199	0.399	0	1	0.173	0.378	0	1					
Causes of Disability													
Congenital disability (1=yes, 0=others)	0.129	0.336	0	1	0.073	0.261	0	1					
Disability caused by accident/disaster (1=yes, 0=others)	0.156	0.364	0	1	0.157	0.364	0	1					
Disability caused by life pressure/stress (1=yes, 0=others)	0.027	0.163	0	1	0.023	0.149	0	1					
Household Characteristics													
Social capital	59.90	12.498	21.95	89.59	62.07	11.71	9.83	97.93	62.32	11.51	21.84	100	
Household size	4.268	2.237	1	15	3.137	1.818	1	15	4.992	1.878	1	18	
Location of household (1=rural, 0=urban)	0.762	0.427	0	1	0.608	0.488	0	1	0.731	0.443	0	1	
Presence of electricity as source of lighting (1=electricity, 0=others)	0.831	0.375	0	1	0.928	0.259	0	1	0.752	0.432	0	1	
Ownership of house building (1=self-owned, 0=others)	0.903	0.296	0	1	0.899	0.302	0	1	0.867	0.339	0	1	
Household Head Characteristics													
Gender of household head (1=female, 0=others)	0.246	0.431	0	1	0.291	0.454	0	1	0.125	0.331	0	1	
Age of household head	62.918	14.873	22	98	61.88	14.01	15	98	46.354	13.390	17	98	
Marital status (1=married, 0=others)	0.702	0.458	0	1	0.619	0.486	0	1	0.865	0.342	0	1	
Years of schooling (0-24 years)	3.102	3.255	0	18	5.398	4.467	0	24	5.344	3.620	0	24	
Government Assistance													
Presence of household member receiving free health services within last 6 months (1=yes, 0=others)	0.315	0.465	0	1	0.267	0.442	0	1	0.268	0.443	0	1	
Household receives rice for the poor (Raskin) within last 3 months (1=yes, 0=others)	0.739	0.439	0	1	0.533	0.499	0	1	0.727	0.446	0	1	
Presence of household member receiving business loans from KUR within a Year (1=yes, 0=others)	0.020	0.140	0	1	0.023	0.149	0	1	0.026	0.159	0	1	
Presence of health insurance for the needy (1=yes, 0=others)	0.427	0.495	0	1	0.286	0.452	0	1	0.404	0.491	0	1	
Number of Observation	403				3193				6822				61304

Table 2. Regression Coefficients of Model 1 and 2

Variable	Model 1: Logit Model (Marginal Effect)				Model 2: Tobit Model			
	1st Regression		2nd Regression		1st Regression		2nd Regression	
	Coef.	Robust S.E. ^a	Coef.	Robust S.E. ^a	Coef.	Robust S.E.	Coef.	Robust S.E.
Disability Characteristics								
Household Head with PWD (1=yes, 0=others)	0.011**	0.004	0.013**	0.005	0.023**	0.009	0.026***	0.009
Household Characteristics								
Social Capital			-0.001***	0.000			-0.002***	0.000
Size of Household Member			0.032***	0.001			0.062***	0.001
Location (1=rural, 0=urban)			0.017***	0.003			0.029***	0.004
Electricity (1=yes, 0=no access)			-0.086***	0.003			-0.180***	0.006
House Ownership (1=self-owned, 0=others)			-0.008**	0.003			-0.0136**	0.006
Household Head (HH) Characteristics								
Gender (1=female, 0=others)			0.021***	0.005			0.048***	0.010
Age			-0.001***	0.000			-0.002***	0.000
Marital Status (1=married, 0=others)			0.017***	0.005			0.031***	0.010
Years of Schooling			-0.015***	0.000			-0.044***	0.009
Constanta	-2.196***	0.013	-0.866***	0.121	-0.436***	0.005	-0.148***	0.018
Prob>Chi2 / Prob>F	0.0206		0.000		0.0146		0.0000	
Pseudo R2	0.0001		0.1602		0.0002		0.2304	
Number of Observation	71.722		71.722		71.722		71.722	

Level of significance: *p<0.1, **p<0.05, ***p<0.01

Logit Model: Prob>Chi2, Wald Chi2, Pseudo R2, and Constanta are obtained from logistic regression.

Tobit Model: 64497 left-censored observations, 7225 uncensored observation, 0 right-censored observation.

^a The Robust Standard Error is applied when estimating the Logistic Regressions. The standard error becomes Delta Method Standard Error after convert to Marginal Effect.

Table 3. Regression Coefficients of Model 3 and 4

Variable	Model 3: Logit Model (Marginal Effect)				Model 4: Tobit Model			
	1st Regression		2nd Regression		1st Regression		2nd Regression	
	Coef.	Robust S.E.	Coef.	Robust S.E.	Coef.	Robust S.E.	Coef.	Robust S.E.
Disability Characteristics								
<i>Types of Disability</i>								
Visual Impairment (1=yes, 0=others)	-0.019	0.012	-0.024**	0.012	-0.027	0.022	-0.041**	0.020
Hearing and communication disorder (1=yes, 0=others)	0.015	0.012	0.003	0.011	0.029	0.021	0.011	0.020
Concentration problems (1=yes, 0=others)	0.019	0.019	0.011	0.018	0.045	0.034	0.024	0.032
Walking problems (1=yes, 0=others)	-0.007	0.014	-0.008	0.013	-0.003	0.023	-0.006	0.022
Personal care problems (1=yes, 0=others)	0.017	0.016	0.024*	0.014	0.022	0.027	0.030	0.025
<i>Causes of Disability</i>								
Congenital (1=yes, 0=others)	0.061***	0.017	0.048***	0.017	0.109***	0.032	0.078**	0.031
Accident/disaster (1=yes, 0=others)	-0.002	0.016	-0.005	0.015	-0.001	0.029	-0.010	0.027
Pressure/stress (1=yes, 0=others)	-0.002	0.040	0.004	0.040	0.013	0.071	0.034	0.066
Household Characteristics								
Social Capital			-0.001***	0.000			-0.003***	0.001
Size of Household Member			0.030***	0.002			0.056***	0.005
Location (1=rural, 0=urban)			0.033***	0.012			0.045**	0.021
Electricity (1=yes, 0=no access)			-0.066***	0.015			-0.143***	0.027
House Ownership (1=self-owned, 0=others)			-0.038***	0.017			-0.074**	0.031
Household Head Characteristics								
Gender (1=female, 0=others)			0.019	0.020			0.022	0.034
Age			0.0005	0.000			0.001	0.001
Marital Status (1=married, 0=others)			0.052**	0.020			0.087***	0.033
Years of Schooling			-0.016***	0.002			-0.028***	0.003
Constanta	-2.095***	0.132	-1.623***	0.542	-0.437***	0.031	-0.237***	0.087
Prob>Chi2 / Prob>F		0.0012		0.0000		0.0049		0.0000
Pseudo R2		0.0092		0.1414		0.0116		0.1934
Number of Observation		3596		3596		3596		3596

Level of significance: *p<0.1, **p<0.05, ***p<0.01

Logit Model: Prob>Chi2, Wald Chi2, Pseudo R2, and Constanta are obtained from logistic regression.

Tobit Model: 3193 left-censored observations, 403 uncensored observation, 0 right-censored observation.

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