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Mapping Persons With Disabilities (PWDs) In Indonesia Labor Market ☆

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Abstract

The empowerment of Persons with Disabilities (PWD) has recently attracted the attention of the Indonesian government. Several initiatives have been made to empower their life, especially the establishment of Act No. 8/2016 which enhances their right to inclusive economic activities. This study aims to map PWD in Indonesian labor market. Specifically, it analyzes the characteristics of employed and unemployed PWD. It explored Labor Force Survey (Sakernas), which began to concern on disability issue in 2016. The results show that PWD prevalence varies highly among provinces led by West Sumatera, East Nusa Tenggara, and South Sulawesi and that PWD has lower labor participation rate than that of PWOD. It may indicate the significant presence of discouraged workers among PWD.
Keywords: persons with disabilities; labor market; inclusive economic activities; labor participation rate; discouraged workers

Abstrak

Pemerintah Indonesia telah menaruh perhatian atas pemberdayaan penyandang disabilitas. Beberapa inisiatif telah dilakukan, terutama melalui Undang-Undang Nomor 8/2016 yang meningkatkan hak mereka atas kegiatan ekonomi inklusif. Penelitian ini bertujuan untuk memetakan penyandang disabilitas di pasar tenaga kerja Indonesia. Secara khusus, penelitian ini menganalisis karakteristik penyandang disabilitas yang bekerja dan menganggur menggunakan data Survei Angkatan Kerja Nasional yang mulai memperhatikan masalah disabilitas sejak 2016. Hasil analisis menunjukkan bahwa keberadaan penyandang disabilitas sangat bervariasi, dengan jumlah tertinggi di Sumatera Barat, Nusa Tenggara Timur, dan Sulawesi Selatan, dan bahwa penyandang disabilitas memiliki tingkat partisipasi angkatan kerja yang lebih rendah daripada non-penyandang. Hal ini mengindikasikan keberadaan pekerja yang putus asa yang signifikan di kalangan penyandang disabilitas.
Kata kunci: *penyandang disabilitas; pasar tenaga kerja; kegiatan ekonomi inklusif; partisipasi angkatan kerja; pekerja putus asa*

JEL classifications: J71; J83; I14; J14; J21

1. Introduction

Over one billion people or 15% of the world's population are persons with disabilities (PWD) and its prevalence is on the rise particularly through the ageing process, malnutrition, chronic disease, and accidents. Convention on the Rights of Persons with Disabilities has invited all countries to put some

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concerns on the issue of persons with disabilities (PWD), mainly after the UN treaty came into force in 2008. Since then, many governments and international agencies turned their thoughtfulness to the goal of including them in economic development.

Disability prevalence is higher for developing countries compared to developed countries. Around 80 percent of them are of working age and its rate is higher in a group with lower educational attainment. Across the world, persons with disabilities have poorer health outcomes, lower education achievements, less economic participation and higher rates of poverty than people without disabilities. This is partly because persons with disabilities experience barriers in accessing services that many of us have long taken for granted, including health, education, employment, and transport as well as information.

It has been a while since we look at the problem of persons with disabilities by focusing on its disablement; thus, charity is the main strategy to enhance the welfare of PWD. The mainstream has change tough, by looking at the ability of PWD to contribute more to the economy, make PWD able to create its own income and welfare. Creating the job market that accommodates PWD become important agenda then. For sure, the goal is not easy to reach, since imperfect market happens in labor market of PWD.

The imperfect market is formed through many processess. From the demand side, the problems might arise in a form of inappropriate assumptions from the employer on the ability of PWD, lack of provision of reasonable accommodation to make PWD work properly, and difficulties to find the PWD to be employed. From the supply side, several barriers to access PWD to have better education and skills made PWD discourage to enter the labor market; they feel hopeless to get a job, even not try to find one. In addition, PWD are facing lack of supporting structure such as transportation and other public facilities that could increase the mobility of PWD to access their (potential) workplace. Those problems make the labor market for PWD become very thin; both the supply and demand is lower that it supposed to be. A well-established job market for PWD is then needed particularly considering the new law on PWD that has been enacted in 2016. The law obliged companies to accommodate PWD by 1% from its labor, and 2% for government and state-owned enterprise.

In Indonesia, statistics show different numbers of PWD. Population Census 2010 stated that the number of PWD in Indonesia were 11 million or 4.66 percent of the population. According to PUSDATIN data of the Ministry of Social Affairs, as of 2010, total persons with disabilities in Indonesia is 11,580,117 persons, while according to data of the Ministry of Manpower and Transmigration, as of 2010 total persons with disabilities is 7.126.409 persons (International Labor Organization 2013). With many versions of data regarding persons with disabilities in Indonesia, this study will include the discussion on the difference data sources on PWD. Furthermore, the newly published data of National Labor Force Survey (Sakernas) which incorporated PWD status in the survey has provided a big opportunity to have a more comprehensive picture and deep analyses on PWD in relation to the employment. Thus, it would give stakeholders to have a deep understanding of this issue that will further improve policy design on PWD.

Looking specifically into the employment aspect, an increasing attention has been continuously paid on promoting the importance of decent work for all, including for PWD. The decent work involves the opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and

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equality of opportunity and treatment for all women and men (International Labor Organization 2012).

Upon such concern, this study aims to map and discuss the employment of PWD in relation with various aspects, including social characteristics, income disparities, social protection, underemployment, and access to work. In addition, using econometric model, this study also analyzes factors affecting the probability of PWD become employed. The following questions would be answered. Do PWD workers have worse opportunity to be employed in Indonesia labor compare to PWOD workers? Which type of disability has the best or the worst opportunity in Indonesia labor market?

2. Literature Review

2.1. Disability Definition: A Comparison

Terms of disability in Indonesia has been changing from time to time. At first, disabled people are called "*penyandang cacat*" in Law No.4 of 1997, which is every person having physical and/or mental disorder -which can impair him or become obstacles and barriers for him to use it properly- which consists of the physically handicapped, the mentally handicapped and the physically and mentally handicapped. Later, Indonesia adopts *Convention on the Rights of Persons with Disabilities* through Law No. 19 of 2011 and changed the term of "*penyandang cacat*" to "*penyandang disabilitas*". "*Penyandang disabilitas*" means a person with physical, mental, intellectual or sensory limitations in long period who finds obstacles in interacting with his/her environment and addressing others that make him/her difficult to participate fully and effectively based on equal rights. This changing term shifts a paradigm in Indonesia for people with disabilities from charity based approach to right based approach. As a result, the countermeasure of problems of people with disabilities doesn't only focus on the people with disabilities, but also on the provision and maintenance of physical environment to support accessibility of people with disabilities (Kementerian Sosial RI 2011).

Even after adopting the international term of disability, there is still a variation in the measurement of disability in Indonesia. This variation makes disability prevalence and analysis of disability become not comparable from one source of disability measurement to another. In Indonesia, there are some data collection activities (census and survey) which measure disability, such as Population Census (*Sensus Penduduk*) 2010, National Socio-Economic Survey (Susenas), National Labor Force Survey (*Sakernas*) 2016, The Village Potential Statistics (PODES) and National Report on Basic Health Research (*Riskesdas*). These various measurements of disability result in various disability prevalence in Indonesia –which will affect any study and analysis of disability in Indonesia. Table 1 shows different measurements and disability prevalence (for all severance categories) from some surveys. Based on Table 1, it seems that Podes still has the lowest definition of disability, which is '*tuna*'. Tuna is used in Indonesia previous law, and due to its harsh meaning, which is 'lacking of' or 'without' in Javanese (Adioetomo, Mont & Irwanto 2014), the government revised it later. However, Podes still use this term until today. Moreover, the low prevalence of disability in Podes may because of the undervalued judgment of village officers on disability condition of their people. Among the survey of people at any age (without age restriction), Riskesdas seem to have higher prevalence of disability. Due to the standardized question of Riskesdas (based on WHO and ICF definition of disability), Riskesdas' prevalence of disability is higher and align more with those found in other countries (Adioetomo, Mont & Irwanto 2014). We

can conclude that it is suggested to other survey and data collecting activities to standardize their question of disability so that it will be more comparable to other countries.

2.2. Disability, Employment, Labor Force Participation, and Wage Difference

Beside the numerous facts showing miserable association between persons with disability and poverty (see Elwan 1999; Mitra & Vick 2013; Mitra 2005; Yeo & Road 2001), many studies found the evidence that employment rates for persons with disabilities are significantly lower than for those without disabilities (Jones 2008; Metts 2000; WHO 2011). Among developing countries, the employment rate gap is often to be larger in middle-income countries than low-income countries (Mitra 2013).

Despite the limitation in the daily activities caused by physical or mental disability, many persons with disability actively participate in the labor market. Nevertheless, they remain less likely to be employed than others. Numerous PWD testified that discriminatory attitudes from employers seem to be apparent at the time of hiring (Cook 2006). On the other hand, some employers reported hesitation in hiring PWD for several reasons, including lack of awareness about disability and accommodation apprehensions, concern on cost-related issues, and fear of legal liabilities (Kaye, Jans & Jones 2011).

Some studies have attempted to find causal determinants of the employment rate gap of PWD. Potts (2005) found that social capital may partially account for the unemployment rate of persons with specific types of disability. The likelihood of being employed is affected by the prospect that PWD may have less effective social networks. Another studiy pointed that gender-related issues also take place in explaining the unemployment rate of PWD. Mitra (2013) argued that disability may represent difference barrier to employment between women and men. For women, the gender-related barriers may not burden as much as they do for men. In more specific analysis, Baldwin & Johnson (2015) found that males are relatively disabled by limitations to mobility and strength than females, while limitations to sensory capacities and appearance have the opposite effect.

Capturing deeper investigation of disability, many studies have shown that persons with disabilities (PWD) have difficulty in getting in the job market. Mavromaras et al. (2007) found that disability decreases probability of being employed by 17.6% and probability of getting into labor force by 16.9% among people aged 15–64 years in Australia in 2003. Similarly, Campolieti (2009) found that disability decreases the probability of getting into labor force among old men in Canada. He estimated disability from some health condition and status variables, like respiratory problems, diabetes, heart condition, BMI, age, some household/individual conditions, etc. In line with previous studies, Brown & Emery (2010) found that disability is associated with a 30 percentage point reduction in labour force participation of Canadian men and women.

Other studies pionted outsome factors associated with participation issue of PWD. Mavromaras et al. (2007) found that disability of family members is associated with lower labor participation for the other (non-disabled) members of the family. This indicates that PWD possibly needs help or acquaintance from his/her family member. The effects of disabilities on labor force participation are larger for men and single women than for married women (Loprest, Rupp & Sandell 2016).

Oguzoglu (2009) studied the relation of disability severity to labor force participation. He found that severe, profound, moderate, mild, and low severity of disability significantly decrease the probability of

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Table 1: Comparison of Disability Measurements in Indonesia

Data Collection Activities	Year	Measurement of Disability	Response Categories	Disability Prevalence
Population Census	2010	Asking individual, whether he/she has difficulty in seeing, hearing, walking/climbing, remembering, concentrating, or communicating with others, and self-care even after using disability aids (for seeing and hearing).	Three response categories: none, a little (*sedikit*), a lot (*parah*).	4.3%
National Socio-Economic Survey (Susenas)	2012	Asking individual, whether he/she has dysfunction/limitation/disability in seeing (even after using glasses), hearing (even after using hearing aids), communicating with others (in term of speaking), remembering/ concentrating, walking/climbing, and self-care.	Three response categories: no, mild (*ringan*), severe (*berat*).	2.45%
National Labor Force Survey (Sakernas)	2016	Asking individual, whether he/she has difficulty/disorder in seeing, hearing, walking/climbing (mobility), using/moving fingers/hands, speaking and/or understanding/communicating with others, other disability (e.g. remembering, concentrating, emotion, self-care, etc.)	Three response categories: no, mild (*sedang*), severe (*berat*).	12.15% (for age 15 and above)
The Village Potential Statistics (Podes)	2014	Asking village officers about the number of people with disabilities in the village for nine types of disability: blind (*tunanetra*), deaf (*tunarungu*), mute (*tunawicara*), deaf and mute (*tunarungu-wicara*), physical disability (*tunadaksa*), mental disability (*tunagrahita*), ex-psychoneurotic (*tunalaras*), ex-leper (*cacat eks-sakit kusta*), mental-physical disability (*cacat fisik-mental*).	Mentioning the number of people with disability in the village for every types of disability.	0.41%
National Report on Basic Health Research (Riskesdas)	2013	Adapting 12 questions from WHODAS 2 as an operationalization of International Classification of Functioning (ICF). Riskesdas uses broader definition of disability.	Five response categories: none, a little (*ringan*), mild (*sedang*), severe (*berat*), very severe (*sangat berat*)	11%

Source: Adioetomo, Mont & Irwanto (2014) and Kemenkes (2013)

getting into labor force for men, and only severe, profound and moderate severity of disability significantly decrease the probability of getting into labor force for women.

The lack of availability of appropriate job is the most frequent reason to be shouted by persons with disabilities (PWD) for not joining labor market. They are also discouraged from finding a job because of the special needs for accommodation which may become obstacles for their employment prospect (Loprest 2001).

In case of Indonesia Halimatussadiah, Agriva & Nuryakin (2015) is the first study to elaborate labor force characteristics of PWD. They found that the size of labor force of PWD is significantly smaller than the size of labor force of PWOD. They suggest that low educational attainment is the main obstacle of PWD to enter labor market. Further, they argue that institutional constraints such as low number of schools and infrastructure to access schools are the factors behind low educational attainment of PWD.

One cannot deny that for some persons, disability may disturb their performance on holding a job and the company in some extent should provide special needs for them. However, many others who perform well are unable to get equal remuneration for reasons. Not only that discrimination toward PWD has lowered their chance to find a job, but it also spread the wage gap for those who has already found one.

In several previous studies, disability has been found to have a negative association with earnings. One of the early survey-based study noted that there are considerable differences in the estimated wage offers received by PWD, which arise from differences in the degree of work disability associate (Baldwin, Zeager & Flacco 1994). A similar result was also found by Jones (2008), even after controlling with the specific definition of disability, data source, country or time period disability. Education may serve as a buffer to protect against potential negative wage effects but it is not sufficient to narrow the gap (Hollenbeck & Kimmel 2008).

In a line with previous studies, Jones & Sloane (2010) noted the association between earning and disability is stronger among employees with a work-limiting disability than among employees with a non-work-limiting disability. However, the robustness of such relationship is still questionable as an unobserved variable might involve after controlling with individual heterogeneity.

In addition, Brown & Emery (2010) found that males with mild, moderate, severe and very severe disability have earnings that are 21 percent, 30 percent, 40 percent and 55 percent lower than a nondisabled male, while for females, the estimated impacts range from a 19 percent earnings reduction for mild disability to a 49 percent reduction for a very severe disability.

3. Method

In this study, we use Sakernas 2016, which contains questions about disability, to analyze the condition of PWD. The use of each sample will be discussed in the latter paragraphs. Unlike the previous surveys, in 2016 Sakernas include questions about disability in its questionnaire. As Indonesia main data source for labor, Sakernas 2016 becomes our main resource to conduct an analysis of PWD in Indonesia labor market. In Sakernas 2016, people are asked about their opinion regarding their disability condition, and the response can be 'no', 'yes, mild', and 'yes, severe'. The categories of impairment in the questionnaire is as follow:

- Visual Impairment
- Hearing Impairment
- Walking/climbing stairs (mobility)
- Using/moving fingers/hands

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- Talking/understanding/communicate with others
- Others (for example: remembering, concentrating, emotional impairment, self-caring, etc.)

The analysis part of this paper mainly emphasizes on the statistic descriptive of the Sakernas, mapping PWD in Indonesia based on various aspects of socio-economic characteristics, including gender, age, educational attainment, salary, workplace, etc. Complementary analysis using binary regression is also presented to elaborate the employability of the PWD.

4. Results and Analysis

4.1. The Situation of PWD in Indonesia: Some Facts from Sakernas 2016

Among people aged 15 and above, there are 12.15% people live with disabilities (around 22.8 million people). Taking severity of disability into account, there are 1.87% people with severe disability and 10.29% people with mild disability. The statistic shows that the number of people with mild disability in Indonesia is around five times greater than the number of people with severe disability. Regarding impairment categories, visual impairment is the most frequent type of disability. Around 37% of people with mild disability and 17% of people with severe disability have visual impairment. However, most PWD have multiple impairments –around 40% of multiple mild disabilities and around 38% of multiple severe disability.

In Figure 1, the prevalence of disability increases as age increases, and after age cohort 76–85, the prevalence of mild disability decreases. As people getting older, people's body function will deteriorate and people will have higher probability of having disease. As a result, people will have higher probability of being disabled as they get older. The trend of decreasing mild disability prevalence from age cohort 76–85 to age cohort 86–98 may be caused by converted disability from mild to severe disability in that age so that the prevalence of severe disability increases in that period.

Among regions in Indonesia, Sulawesi has the highest disability prevalence, which is 14.54% compared to 12.15% of Indonesia's. Both mild and severe disabilities have the highest prevalence compared to others', which is 12.11% for the former and 2.43% for the latter. Because PWD in Sulawesi tends to work in the agriculture sector, which is risky sector of job, they tend to have higher prevalence of disability. The second region having highest prevalence of disability is Nusa Tenggara. This region is expected to have high occurrence of local war and malnutrition, so that it increases the prevalence of disability in this region.

The region with the smallest prevalence of disability is Papua, which is only 8.49%. However, this result of Papua may be biased because of imbalance sampling due to many unreachable locations in Papua. Comparing one province to another, West Sumatera has the highest prevalence of disability in Indonesia, which is about 18.75%. This condition may be caused by aging population in West Sumatera, because many young people in West Sumatera are expected to wander to other provinces/regions. However, all judgment about regions and provinces in Indonesia still need further assessment in other research. Disability prevalence across regions and provinces can be in Table 2 and disability prevalence across provinces can be seen in Figure 2.

Looking at the gender of people aged 15 and above, people without disabilities (PWOD) have a higher number of male than female, while people with mild and severe disabilities tend to have a higher number of female than male. As seen in table 4 below,

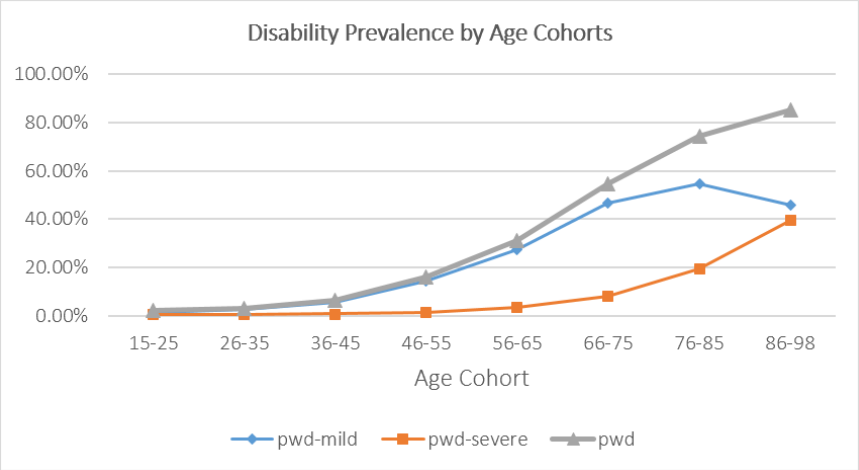

Figure 1: Disability Prevalence by Age Cohorts
Source: Authors' Calculation

Table 2: Disability Prevalence across Regions

Regions	Prevalence of Disability		
	Mild	Severe	Total
Sumatera	10.88%	1.92%	12.80%
Jawa/Bali	9.86%	1.79%	11.65%
Kalimantan	9.82%	1.74%	11.56%
Sulawesi	12.11%	2.43%	14.54%
NT	12.10%	2.30%	14.40%
Maluku	10.47%	1.99%	12.46%
Papua	7.87%	0.62%	8.49%
Indonesia	10.29%	1.87%	12.15%

Source: Authors' Calculation

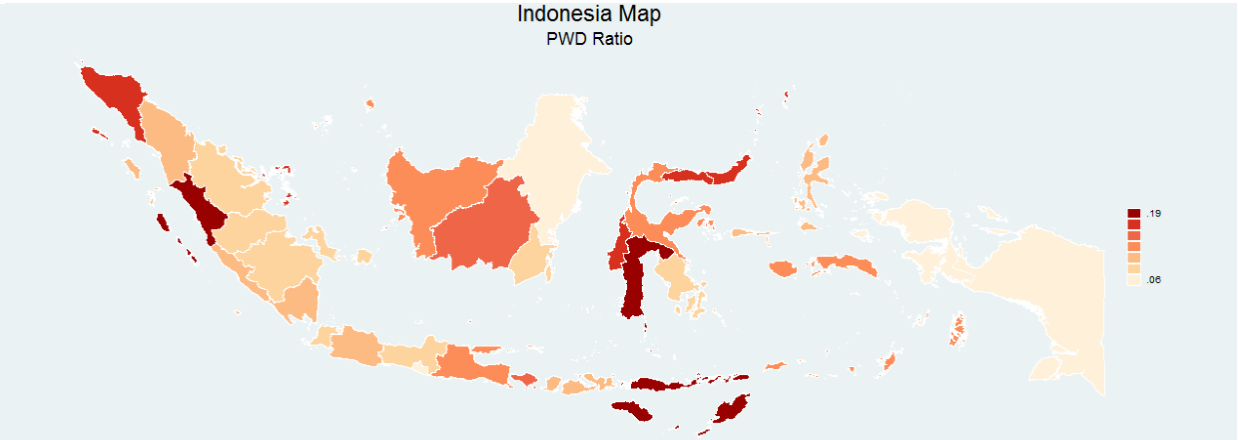

Figure 2: Disability Prevalence across Provinces
Source: Authors' Calculation

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50.36% PWOD are male, while only 46.38% and 48.01% people with mild and severe disabilities are male. This condition may be caused by discrimination againts girls or women so that they face higher probability of becoming disabled.

In terms of education, almost half of PWD do not finish or never attend school. This number is much higher compared to the education of PWOD, whose percentage of not finishing or never attending school is only 12.69%. This fact is supported by Lamichhane & Kawakatsu (2015) who found that children aged 6–18 with mild and severe disability are less likely to participate in school. Furthermore, the percentage of PWD who attend higher education is only around half of PWOD's.

4.2. Mapping PWD in Indonesia Labor Force

In line with previous studies about disability and labor force participation or employment rate, people with mild and severe disability have much lower labor force participation rate as seen in Table 5, which are only 56.72% for the former and 20.27% for the latter. These percentages are much lower compared to labor force participation rate of PWOD, which is 70.40%. The difficulty of PWD to enter labor force may be caused by some discrimination faced by PWD, which are institutional discrimination, physical environmental discrimination and social discrimination (Yeo & Moore 2003). Taking inactivity rate into account, the percentage of inactive people (people not in labor force) of people with mild and severe disability is much higher than the percentage of inactive people for PWOD. Among inactive people, the percentage of people with mild and severe disability whose status are student is much lower than the percentage of PWOD whose status are student. This condition shows that PWD are difficult to get into education compared to PWOD due to the higher cost of education and lower return to education of PWD (will be discussed later). As a result, inactive PWD tend to do other things (not student and housewife).

The unemployment rate of people with mild disability is lower than that of PWOD, while the unemployment rate of people with severe disability is higher than that of PWOD. This statistic shows that once people with a mild disability enter the labor force, they are easier to get a job compared to people with severe disability. This may be caused by the worse condition of people with severe disability so that they have lower ability which leads to lower choice of job. As a result of lower choice of job, people with severe disability have higher unemployment rate compared to people with mild disability.

In term of job sector, most of the PWD work in agriculture, plantation, forestry, and fishery sectors. The percentage of PWD in those sectors is almost two times higher than PWOD's (46.01% compared to 29.51% of PWOD). Another considerate percentage of PWD work in construction sector and then in social service. These may indicate that most of PWD in the labor market are unskilled labors.

Concerning job status, almost half PWOD work as employees (around 40.11%). This statistic is far higher compared to the percentage of people with mild and severe disability who work as employees -21.93% for the former and 12.16% for the latter. Disability seems to be a burden for PWD to enter the job market as an employee due to competitive labor market. Both people with mild and severe disability tend to work as a self-employed worker, self-employed with temporary/unpaid worker, and unpaid/family worker. Visualization of job status can be seen in the Figure 3.

Moreover, if we categorize each status of the job to formal and informal job, most PWD work in the informal sector. The percentage of people with mild and severe disability who work in an informal job is

Table 3: Disability and Gender

Disabilities Categories	PWOD	PWD-Mild	PWD-Severe	Total
Male	50.36%	46.38%	48.01%	49.91%
Female	49.64%	53.62%	51.99%	50.09%
Total	100.00%	100.00%	100.00%	100.00%
	164,804,980	19,296,030	3,499,624	187,600,634

Source: Authors' Calculation

Table 4: Disability and Education

Education	PWOD	PWD-mild	PWD-severe	PWD
Not Finish/Never Attend Primary School	12.69%	43.14%	60.10%	45.74%
Primary School	26.03%	27.14%	22.16%	26.38%
Junior High School	23.38%	11.09%	8.13%	10.64%
Senior High School	28.30%	13.37%	7.06%	12.41%
Higher Education	9.61%	5.24%	2.54%	4.83%

Source: Authors' Calculation

Table 5: People with Disabilities in Indonesia Labor Force

Status	PWOD	PWD-mild	PWD-severe	Percent
Labor Force	70.40%	56.72%	20.27%	68.06%
				(127,671,869)
Employed	66.42%	54.63%	18.32%	64.31%
				(120,647,697)
unemployed	3.98%	2.08%	1.95%	3.74%
				(7,024,172)
Not in Labor Force	29.60%	43.28%	79.73%	31.94%
				(59,928,765)
Housewife	18.13%	28.71%	21.14%	19.27%
				(36,158,428)
Student	9.74%	0.84%	0.85%	8.66%
				(16,245,007)
Others	1.73%	13.74%	57.74%	4.01%
				(7,525,330)
Total Population	100.00%	100.00%	100.00%	100.00%
	(164,804,980)	(19,296,030)	(3,499,624)	(187,600,634)
Unemployment Rate	5.65%	3.67%	9.63%	5.50%

Source: Authors' Calculation

Table 6: Job Sector of PWD

Job Sectors	pwd-mild	pwd-severe	pwd	pwod
Agriculture, plantation, forestry, fishery	46.10%	44.76%	46.01%	29.51%
Mining	4.52%	3.72%	4.47%	6.46%
Industry	5.07%	5.69%	5.11%	7.31%
Electricity, fuel, drink water	3.83%	2.86%	3.77%	6.26%
Construction	19.14%	17.47%	19.04%	21.87%
Wholesale, restaurant, accommodation	5.20%	5.09%	5.19%	5.51%
Transportation, warehousing, communication	0.58%	0.00%	0.55%	1.70%
Finance, real estate, rental, business services	0.58%	0.61%	0.58%	0.77%
Social services, social, and individual	11.33%	10.16%	11.26%	14.95%
Others	3.67%	9.63%	4.03%	5.65%
Total	100.00%	100.00%	100.00%	100.00%

Source: Authors' Calculation

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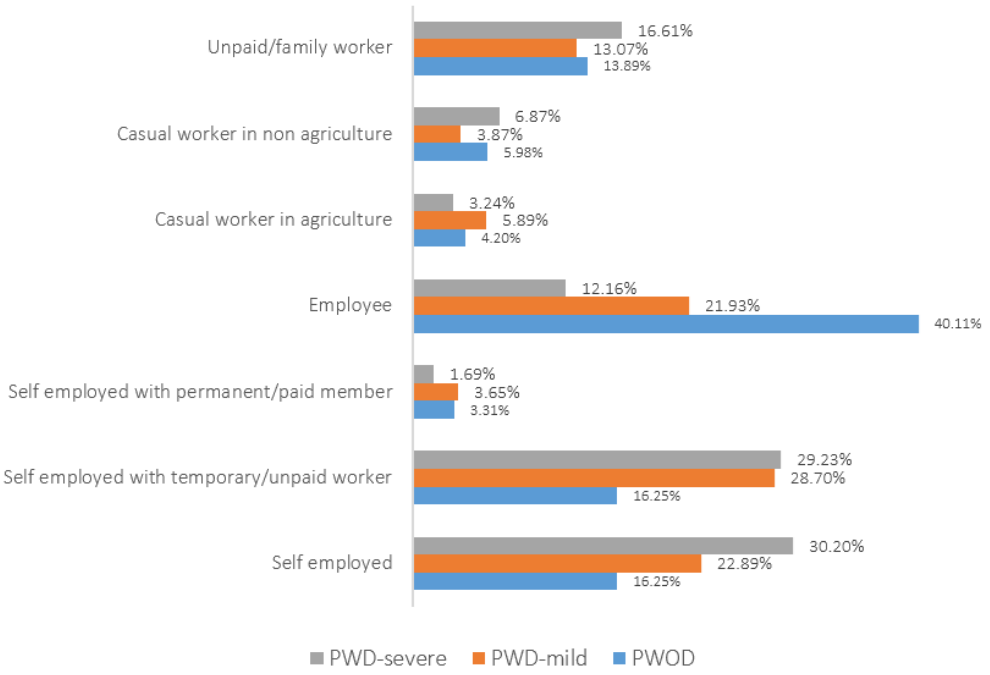


Figure 3: Job Status
Source: Authors' Calculation

64.93% and 75.80%. This number is much higher compared to PWOD's which is only 49.27%. The depiction of formal/informal job status that is held by PWD and PWOD is in the figure below. The categorization of job status to formal/informal one can be seen in Appendix 1.

In a matter of the distance to the workplace, most PWD live closely to their house/place. Around 89% and 86% of people with severe and mild disability commute only less than 10km to their workplace. Compare to the percentage of PWOD who commute less than 10km, which is around 79%, the percentage of PWD who commute less than 10km to their workplace is higher. Relating to time to the workplace, PWD tend to commute less than or equal to thirty minutes to their workplace.

The fact that PWD tend to find near job and have shorter time of commuting to workplace may be due to their difficulty to go to other places, especially for some types of disability such as visual and mobility impairment. This is also supported by the fact that the percentage of people with severe and mild disability who work at home is around 11% and 5% higher than the percentage of PWOD who work at home, which is around 17%.

Taking wage/payment into account, the percentage of unpaid PWD is higher than unpaid PWOD. The percentage of people with mild and severe disability who are unpaid is around 46% and 50%, higher than the percentage of unpaid PWOD which is only around 34%.

Compared to PWOD, people with mild and severe disability have lower monthly salary. As seen in the Table 9, the average salary of people with mild disability is almost half of PWOD's, while the average salary of people with severe disability is around seven times lower than that of PWOD. The higher percentage of PWD who are unpaid and work in agriculture area may cause this issue. This may be a sign that wage discrimination of PWD exists in In-

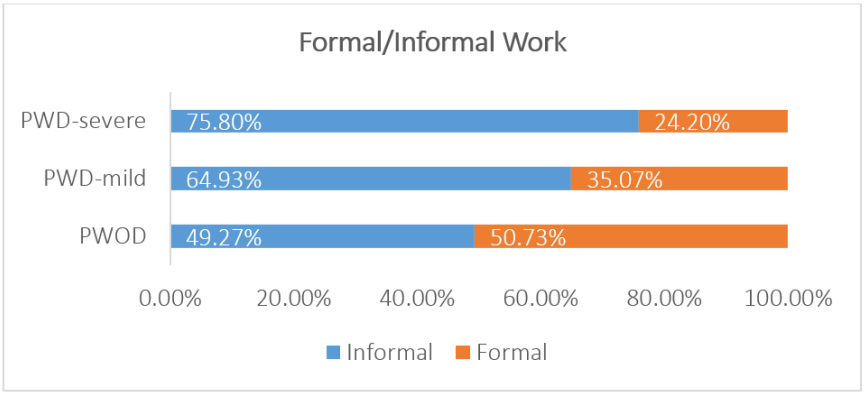
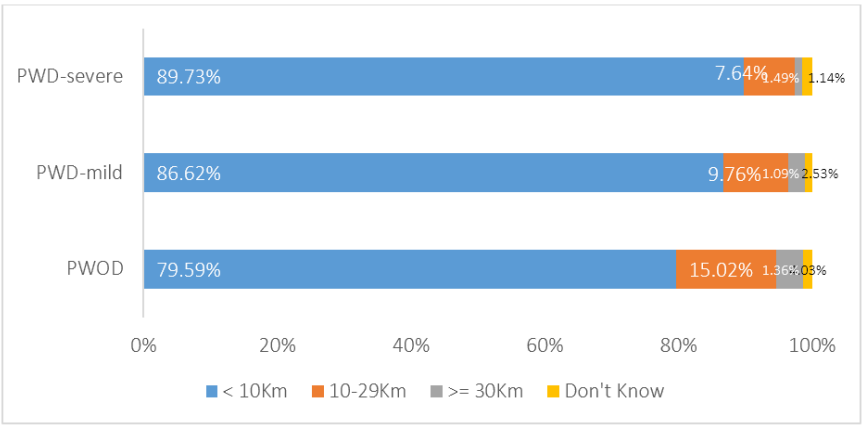


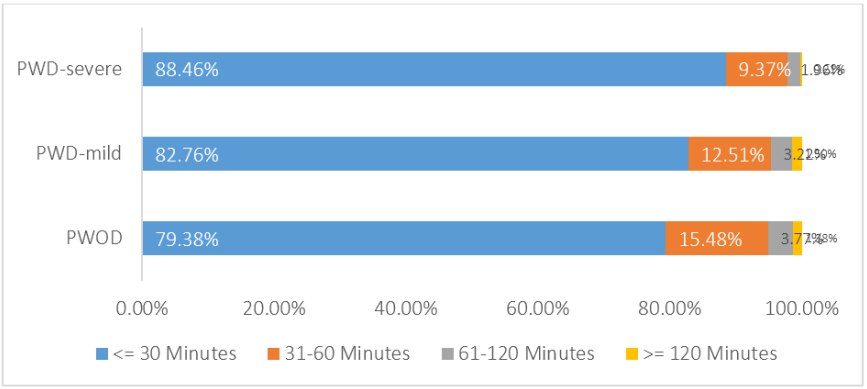
Figure 4: Formal/Informal Job Status
Source: Authors' Calculation

Table 7: Distance to Workplace



Source: Authors' Calculation

Table 8: Commuting Time



Source: Authors' Calculation

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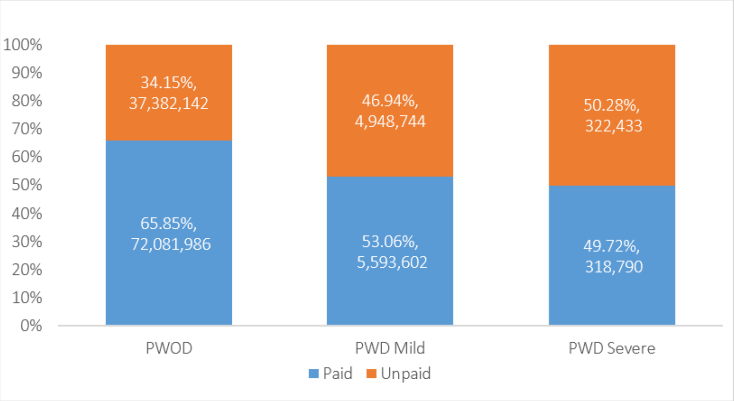

Figure 5: Payment Status Based Payment on Received
Source: Authors' Calculation

donesia labor market. The worse part is that the gap between the salary of PWD and PWOD is getting bigger as the educational attainment is higher (see Table 10), indicating wage discrimination to PWD still exists even among high-skilled labor. Concerning all of these problems, the government has to be more proactive to improve the condition of PWD in Indonesia labor market and to pay more attention to their rights.

There is an interesting pattern of people taking an additional job. The percentage of people with mild disability taking the additional job is higher than the percentage of PWOD taking the additional job, but the percentage of people with severe disability taking additional job is lower than that of PWOD. The fact may be related to the salary of PWD which is lower than PWOD's. PWD have lower average monthly salary so that they tend to have an additional job. However, people with mild disability may have higher ability and lower discrimination to get additional job. As a result, the percentage of people with severe disability who have an additional job is lower than the percentage of people with mild disability who have an additional job. Regarding the job facilities, the percentage of PWD getting job facilities is lower in almost all kinds of job facilities, such as health insurance, injury compensation, severance, etc. This may be related to higher percentage of PWD who work in informal sector compared to PWOD.

Regarding willingness to work, the percentage of PWD who want a job is around half of the percentage of PWOD who want a job (Appendix 2). Moreover, the percentage of people with severe disability who want a job is around three times lower than that of PWOD. This may show that many PWD feel discouraged to have a job. Going deeper into the reason for not looking a job, most people answer that they already have a job or business (Appendix 3). Interestingly, the percentage of people with severe disability who feel discouraged about job –so that they don't look for a job- is around five times higher than PWOD and three times higher than people with mild disability. This fact supports the previous fact that people with PWD have lower willingness to have a job than PWOD (Appendix 4). Taking the reason for looking a job into account, PWOD tend to look for a job as self-actualization (already finish school or no longer going to school), while PWD tend to look for a job as a responsibility to live and earn money. The higher cost of living of PWD as their disability compensation may be the reason of this fact (Zaidi & Burchardt 2003). Among people in labor force, contacting relatives is the main effort

Table 9: Average Monthly Salary

Disability category	Average Salary/month
PWOD	Rp 816,985.90
PWD-mild	Rp 467,629.20
PWD-severe	Rp 110,862.20
Average	Rp 767,879.60

Source: Authors' Calculation

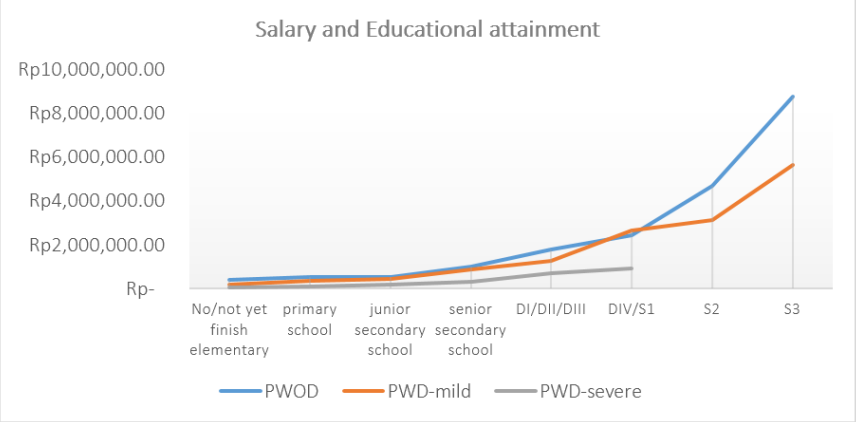

Figure 6: Salary and Educational Attainment
Source: Authors' Calculation

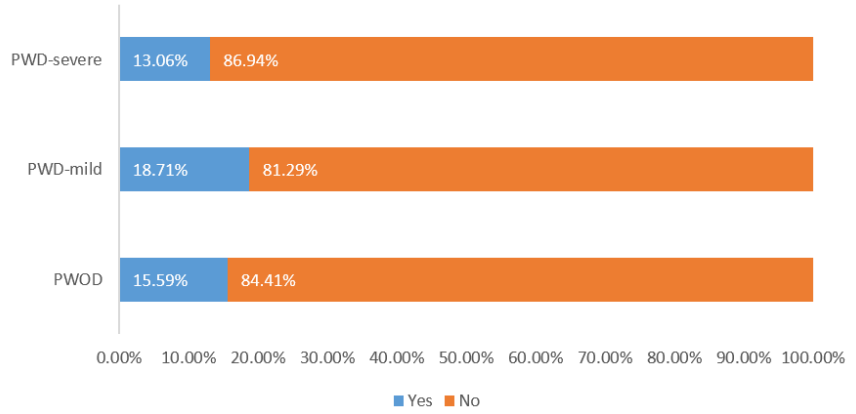

Figure 7: Additional Job
Source: Authors' Calculation

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to find a job. People with a severe disability tend to find job through contacting relatives and not to apply directly or through third parties, such as job fair and advertisements.

As seen in Table 6, the percentage of employed PWD in the rural area is higher than that in the urban area. The ease of finding a job in the rural area, especially job for an unskilled worker, may be the reason for this. Moreover, this is an early sign that discrimination of PWD is higher in the urban area than in the rural area.

As a common, unemployed PWD who do not finish elementary school is higher than the employed one. Moreover, the percentage of employed PWD with senior secondary school and higher education are higher than those of unemployed PWD. Regarding the gender of PWD, male PWD tend to be employed compared to the female one. This may be caused by double discrimination faced by female PWD: gender and disability discrimination. For marital status, PWD who are married tend to be more employed compared to PWD with another marital status. This result may arise due to the effect of marriage to social status of a spouse and job differentiation between husband and wife.

PWDs and Their Employability in Indonesia Labor Market We analyze the condition of PWD in Indonesia in four models deliberating different aims, including (1) to analyze likelihood of PWD being employed in Indonesia labor market; (2) to explore likelihood of being employed for each type of disability; (3) to explore likelihood of being employed for each type of severe disability; and (4) to explore likelihood of being employed for each combination of multiple disabilities. There are two samples used in this study: (1) Indonesia labor force (people aged 15 and above) for 127,671,869 observations and (2) PWD in labor force for 11,653,333 observations. The sample for each model is in the Figure 5.

The estimation method used in this study is Probit estimation method with binary dependent variable which is the likelihood of being employed (1 for employed and 0 for unemployed). The estimation models in this study can be written as follow:

$$\mathrm{Job} = \alpha + \beta_{\mathrm{i}}\mathrm{Disability\_Char} + \delta_{\mathrm{i}}\mathrm{SD\_Char} + \varepsilon \quad (1)$$

where:

Job : Probability of being employed (1=employed; 0=unemployed);

$\mathrm{Disability\_Char}$: Disability characteristics, which are 1) general disability characteristics for Model 1, 2) types of disability for Model 2, 3) types of disability (in general) and types of severe disability for Model 3, 4) types of disability (in general) and types of multiple disability for Model 4;

$\mathrm{SD\_Char}$: Social and demographic characteristics, which are age, household size, location, education, gender, marital status, and gender-marital status interaction.

ε : Error term.

Model 1 is to answer the question; "Do PWD workers have worse opportunity to be employed in Indonesia labor compare to PWOD workers?" Based on the first model regression result, that the beta coefficient of variable PWD has value -0.0202. It means that person with disabilities (PWD) workers have worse probability for 2.02% in Indonesia labor market than person without disabilities (PWOD) workers.

Model 2 is to answer the research question; "Which type of disability has the best or the worst opportunity in Indonesia labor market?" The regression result shows there is a possibility of multicollinearity in hearing with others type such as; speaking and hand disabilities, because a person with hearing disability since born, usually cannot speak very well and use their hand for sign language. The type of disabilities that have the best probability opportunity within PWD workers in Indonesia labor market is a

Table 10: Employed and Unemployed PWD

Variables	Unemployed	Employed	Total	
Location				
Urban	60.06%	44.44%	5,252,601.00	45.07%
Rural	39.94%	55.56%	6,400,732.00	54.93%
Education				
No/not yet finish elementary	42.02%	39.25%	4,586,570.00	39.36%
Primary school	24.42%	29.06%	3,364,360.00	28.87%
Junior secondary school	12.65%	10.53%	1,237,201.00	10.62%
Senior secondary school	17.05%	14.57%	1,709,836.00	14.67%
Higher education	3.86%	6.59%	755,366.00	6.48%
Gender				
Male	56.45%	60.13%	6,989,754.00	59.98%
Female	43.55%	39.87%	4,663,579.00	40.02%
Marital Status				
Single/Divorce	49.45%	23.78%	2,892,213.00	24.82%
Married	50.55%	76.22%	8,761,120.00	75.18%

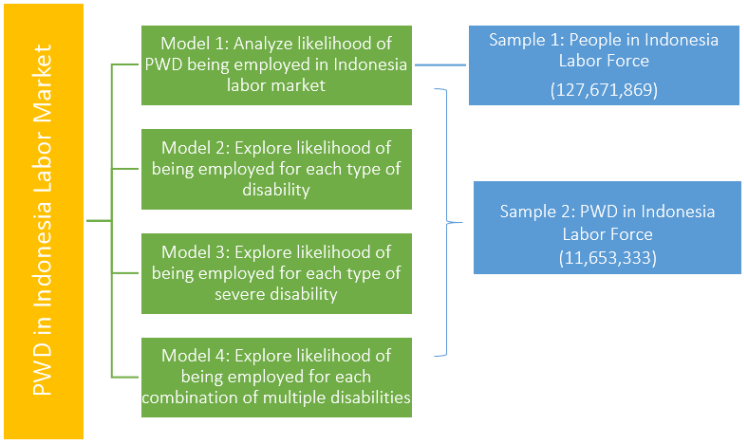

Figure 8: Combination of Model and Sample

Table 11: Estimation Result of Model 1

VARIABLES	VARIABLE DEFINITIONS	Model 1 PWD
	Disability Variables	
pwd	Disability (1=having disability & 0=not having disability)	-0.0202***
d_severe_pwd	Have severe disabilities (1=yes & 0=no)	-0.0183***
multi_pwd	Have multiple impairment (1=yes & 0=no)	-0.0211***
	Social and Demographic Variables	
age	Age	0.00161***
hhsize	Household size	-0.00248***
rural	Location (1=rural & 0=urban)	0.0115***
d_educ_sd	Finish primary school (1=yes & 0=no)	0.00463***
d_educ_smp	Finish junior secondary school (1=yes & 0=no)	0.00406***
d_educ_sma	Finish senior secondary school (1=yes & 0=no)	-0.00148***
d_educ_he	Finish higher education (1=yes & 0=no)	-0.000126*
female	Gender (1=female & 0=male)	0.00237***
ms	Marital status (1=married & 0=others)	0.0707***
ms_female	Married Female (1=yes & 0=others)	-0.00045***
Observations		127,671,869
ll		-2.32E+07
df_m		13
chi2		8.02E+06
prchi2		0

Note: Standard errors in parentheses; Signification *** p<0.01, ** p<0.05, * p<0.10

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Table 12: Estimation Result of Model 2, 3, and 4

VARIABLES	VARIABLE DEFINITIONS	Model 2 PWD Types	Model 3 PWD severe types	Model 4 Multiple PWD
Disability Variables				
d_severe_pwd	Have severe disabilities (1=yes & 0=no)	-0.0286***		-0.0267***
visual_pwd	Visual impairment (1=yes & 0=no)	0.000390***	0.00239***	0.00397***
hear_pwd	Hearing impairment (1=yes & 0=no)	0.00114***	-0.00282***	0.00677***
mobility_pwd	Mobility impairment (1=yes & 0=no)	-0.00288***	0.000515***	0.00116***
hand_pwd	Handgrip impairment (1=yes & 0=no)	0.0134***	0.0134***	0.0143***
speech_pwd	Speech impairment (1=yes & 0=no)	-0.0226***	-0.0242***	-0.0138***
mental_pwd	Mental impairment (1=yes & 0=no)	-0.0108***	-0.00626***	-0.00545***
severe_visual_pwd	Have severe visual impairment (1=yes & 0=no)		-0.0112***	
severe_hear_pwd	Have severe hearing impairment (1=yes & 0=no)		0.0332***	
severe_mobility_pwd	Have severe mobility impairment (1=yes & 0=no)		-0.0349***	
severe_hand_pwd	Have severe handgrip impairment (1=yes & 0=no)		0.0338***	
severe_speech_pwd	Have severe speech impairment (1=yes & 0=no)		-0.00653***	
severe_mental_pwd	Have severe mental impairment (1=yes & 0=no)		-0.0253***	
d_ss	Have severe multiple disabilities (1=yes & 0=no)			-0.0423***
d_sm	Have combination severe and mild multiple disabilities (1=yes & 0=no)			-0.000477
d_mm	Only have mild multiple disabilities (1=yes & 0=no)			-0.0152***
Social and Demographic Variables				
age	Age	0.000442***	0.000447***	0.000428***
hhsize	Household size	-0.00138***	-0.00163***	-0.00133***
rural	Location (1=rural & 0=urban)	0.0237***	0.0244***	0.0242***
d_educ_sd	Finish primary school (1=yes & 0=no)	0.00399***	0.00436***	0.00334***
d_educ_smp	Finish junior secondary school (1=yes & 0=no)	-0.00280***	-0.00210***	-0.00403***
d_educ_sma	Finish senior secondary school (1=yes & 0=no)	0.00289***	0.00348***	0.00171***
d_educ_he	Finish higher education (1=yes & 0=no)	0.0192***	0.0198***	0.0187***
female	Gender (1=female & 0=male)	0.00463***	0.00551***	0.00507***
ms	Marital status (1=married & 0=others)	0.0445***	0.0458***	0.0442***
ms_female	Married Female (1=yes & 0=others)	-0.00332***	-0.00359***	-0.00398***
Observations		11,653,333	11,653,333	11,653,333
ll		-1.83E+06	-1.81E+06	-1.82E+06
df_m		17	22	20
chi2		280785	308301	291970
prchi2		0	0	0

Note: Standard errors in parentheses; Signification *** p<0.01, ** p<0.05, * p<0.10

person with handgrip disability workers. The result show that it has 1.34% better opportunity within a person with disabilities workers. The result makes sense because handgrip disability do not disrupt the communications with other co-worker or understanding the job instructions. The worst probability in labor market is the person with communication disability workers. It has 2.26% lesser probability opportunity in Indonesia labor market within a person with disabilities. Communications and understanding job instructions are really important element for completing the job perfectly. So the result is understandable and government and companies have to help them by giving them a mentor or gadgets or facilities so they can improve their communication skill.

Model 3 is to answer the curiosity of the probability opportunity in Indonesia labor market for persons that has severe disabilities. In the first model, the result shows that a person with severe disabilities has 1.83% lesser probability to get a job in Indonesia labor market than PWOD workers. Based on Table 10, the best probability opportunity in Indonesia labor market is for a person with severe handgrip disabilities. It has 4.72% better probability in Indonesia labor market within PWD workers. The severe model result is consistent with the previous result. The worst probability is for a person with severe mobility disability. It has 3.44% lesser probability within PWD workers. Persons with severe mobility disability having hard time to commuting to their office or working place, so it is limiting their job alternative. There is a high expectation in Indonesian government to build infrastructures and facilities that friendly to person with severe mobility disability.

Model 4 is to highlight the probability opportunity of a person with multiple disabilities. Based on the first model a person with multiple disabilities has 2.11% lesser probability compare to PWOD workers, but the big question is which of these multiple disabilities is the best or the worst?. while a person that has combination severe and mild disabilities has the best probability opportunity for negative 0.04%, a person that has only severe multiple disabilities has the worst for negative 4.23% probability opportunity in Indonesia labor market within a person with disabilities workers.

In conclusion, PWD workers has worse probability to be employed in Indonesia labor market than PWOD workers. Within PWD, a person with handgrip disabilities consistently has the best probability opportunity to be employed in Indonesia labor market. Although a person with handgrip disability has the worst based on disabilities type, based on disabilities severity PWD is the worst. Lastly, a person with only has severe multiple disabilities is the worst of within a person with multiple disabilities. Researcher hope the insight will give the government or community or institution that concern with PWD workers to have better mapping and better policies to improve their quality of live.

5. Conclusions

There is still limited study on PWD and labor market in Indonesia. This study intends to map the situation of PWD in facing labor market. In the beginning, the study compares some data sources of PWD in which each has different disability measurement. As a result, there are some disability prevalence in Indonesia. These different data of disability tend to complicate the comparison of disability condition between Indonesia and other countries. In terms of disability prevalence in Indonesia from Sakernas 2016, there is a need to pay more attention to disability in several parts in eastern Indonesia and western part of Sumatera. Taking education into account, the participation of schooling of PWD are much lower than that of PWOD. The government needs to pay attention to this problem, as education

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Table 13: Beta Coefficient of Severe Disability

Variable	Mild	Additional Effect	Severe
visual Impairment	0.0024	-0.0112	-0.0088
hearing Impairment	-0.0028	0.0332	0.0304
mobility Impairment	0.0005	-0.0349	-0.0344
hand Impairment	0.0134	0.0338	0.0472
speaking Impairment	-0.0242	-0.0065	-0.0307
other Impairment	-0.0063	-0.0253	-0.0316

is one of factors of people being employed.

Labor force participation of PWD is still lower than that of PWOD. This is an indication of higher rate of discouraged workers among PWD. Higher rate of PWD who have other activities (not household and not schooling) may be the reason of higher rate of discouraged workers among PWD. Taking job sector and status into account, PWD tend to work in agricultural sector and work as self-employed workers. Among the working population, the rate of unpaid PWD is higher than that of PWOD. Regarding lower physical, psychological, and social condition of PWD, the rate of unpaid PWD should be minimized. Moreover, wage difference between PWD and PWOD still happens. This may result in higher percentage of people with mild disability who have additional job. However, there is still a need of another study to explore the reasons of this wage difference. In terms of job facilities, PWD tend to have lower percentage of getting job facilities/securities.

Based on this study, there is a need to increase labor force participation of PWD. That need may be fulfilled by enlarging labor market for PWD. We recommend three ways to enlarge the labor market for PWD: 1) establishment of formal channel to apply to jobs for PWD, 2) improvement of technology to assist PWD, 3) disclosure of any job offer for PWD to public. Improvement of technology to assist PWD may be conducted by providing disability accommodation/aids for each type of PWD. Government may also take role in this issue by providing cheaper disability aids through subsidy or any other regulations. The disclosure of job offer for PWD may be conducted through facilitation of PWD in each job fair or establishing job fairs for PWD only. In making these three actions work and successful, government should be the first mover to establish such actions in which it will be followed by others doing the same thing.

Those three ways of increasing labor force participation of PWD may be conducted from demand side and supply side of labor market. From the demand side, there is a need to socialize regulation of PWD workers in Indonesia, especially after the establishment of law no.8/2016 about the responsibility of private companies to have at least 1% PWD as their worker. Moreover, government should also socialize about the sanction of not employing PWD, so that companies will hire more PWD. Secondly, government may also establish champion companies as a role model for other companies to employ PWD in a very good way. Regarding this establishment, government and state-owned companies should be the first mover to be role models due to their responsibility to have at least 2% PWD as their worker. Thirdly, the regulation concerning disabled workers may also encourage companies to employ PWD by providing incentives.

Going into the supply side, there is a need to pay attention to disabled workers. Firstly, technical and social skill of PWD should be improved. As companies may look at PWD as inferior applicants, PWD should have sufficient skill to be able to compete in labor market and work well in their job. Secondly, PWD should be informed about the job offer for

PWD through formal channel. Lastly, PWD should cooperate and establish communities to increase their bargaining power in the labor market.

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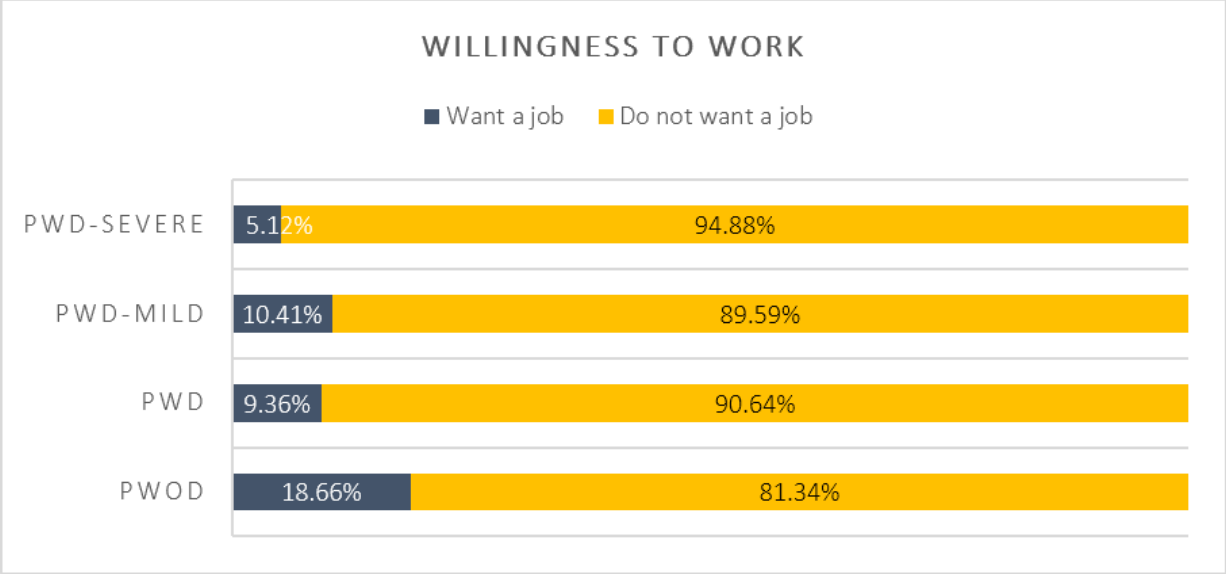
Appendix 1

Table A1: Matrix Definition of Formal/Informal Job Status

Work type/ Work Status	Legislative member, senior official, manager	Proffessionals expert	Technicians and associate proffessionals	Clerical support workers	Service and sales workers	Agricultural and animal husbandry worker	Processing and handicraft worker	Machine operators and assemblers	Unskilled worker, janitors, and other elementary occupations	Army (TNI) and Police (POLRI)
Self employed	Formal	Formal	Formal	Informal	Informal	Informal	Informal	Informal	Informal	Informal
Self employed with temporary/unpaid worker	Formal	Formal	Formal	Formal	Formal	Informal	Formal	Formal	Formal	Informal
Self employed with permanent/paid member	Formal	Formal	Formal	Formal	Formal	Formal	Formal	Formal	Formal	Formal
Employee	Formal	Formal	Formal	Formal	Formal	Formal	Formal	Formal	Formal	Formal
Casual worker in agriculture	Formal	Formal	Formal	Informal	Informal	Informal	Informal	Informal	Informal	Informal
Casual worker in non agriculture	Formal	Formal	Formal	Informal	Informal	Informal	Informal	Informal	Informal	Informal
Unpaid/family worker,	Informal	Informal	Informal	Informal	Informal	Informal	Informal	Informal	Informal	Informal

Appendix 2



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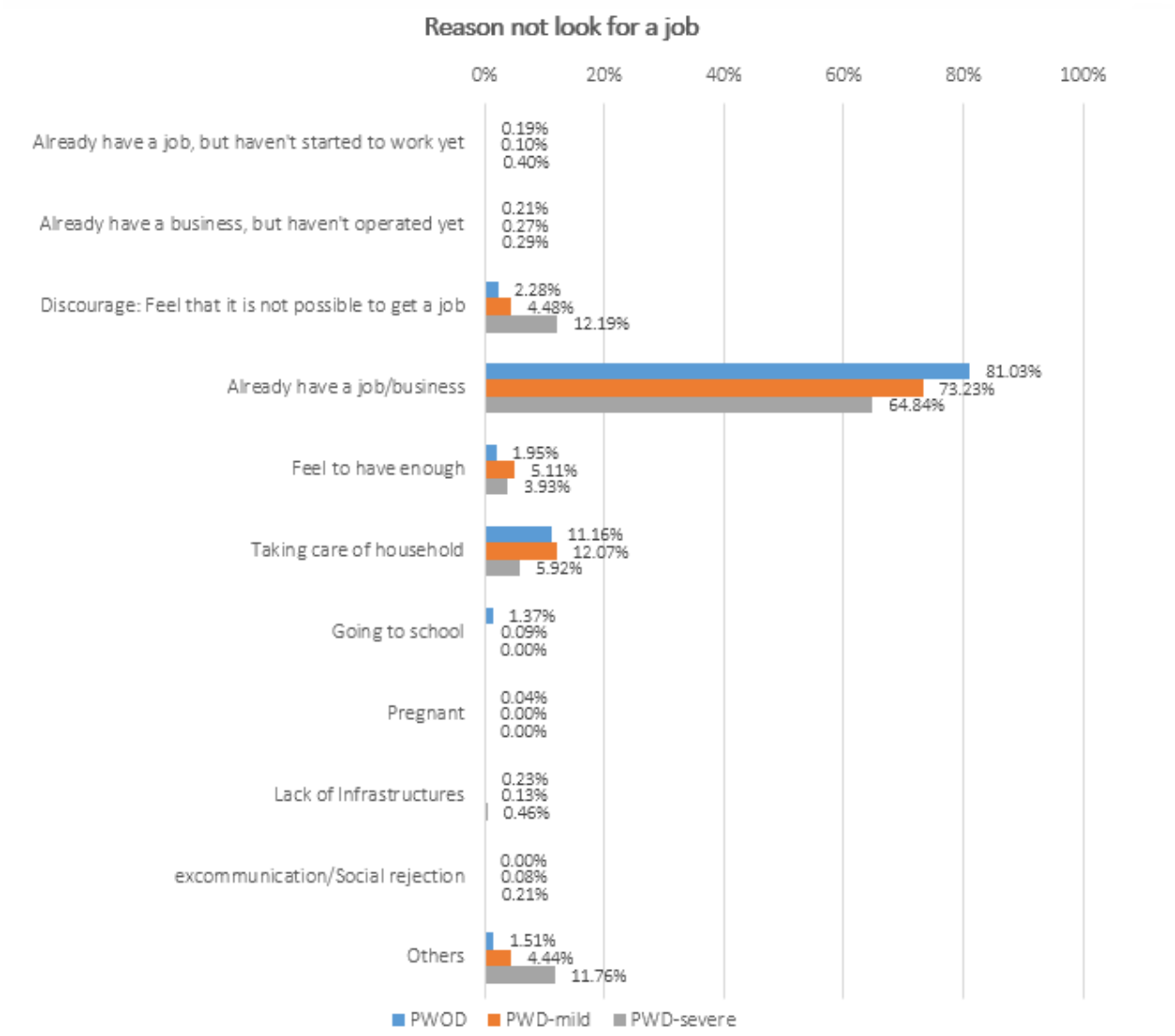
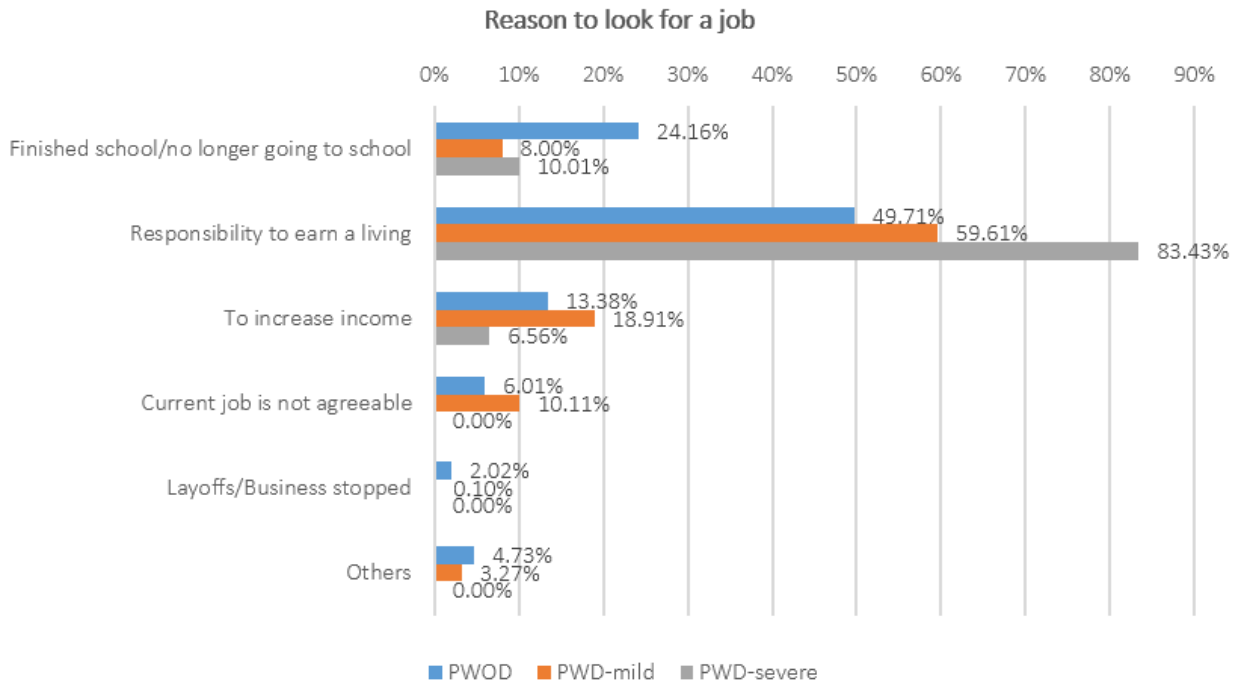
Appendix 3


Reason not look for a job
0%
20%
40%
60%
80%
100%
Already have a job, but haven't started to work yet
0.19%
0.10%
0.40%
Already have a business, but haven't operated yet
0.21%
0.27%
0.29%
Discourage: Feel that it is not possible to get a job
2.28%
4.48%
12.19%
Already have a job/business
81.03%
73.23%
64.84%
Feel to have enough
1.95%
5.11%
3.93%
Taking care of household
11.16%
12.07%
5.92%
Going to school
1.37%
0.09%
0.00%
Pregnant
0.04%
0.00%
0.00%
Lack of Infrastructures
0.23%
0.13%
0.46%
excommunication/Social rejection
0.00%
0.08%
0.21%
Others
1.51%
4.44%
11.76%
PWOD
PWD-mild
PWD-severe

Appendix 4



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DOI: 10.47291/efi.v63i2.572