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Do Skills Matter in Influencing Employment for People with Disabilities? Exploring the Role of ICT Skills and Education

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Abstract

This study investigates how education and information and communication technology (ICT) skills influence the likelihood of employment among people with disabilities (PWD) in Indonesia. Drawing on data from the 2022 National Socioeconomic Survey (SUSENAS), I estimate a probit model to identify the key factors affecting labor market inclusion for PWD. The results show that both higher levels of education and ICT proficiency significantly increase the probability of employment. In contrast, being female, caring for young children, living in urban areas, or experiencing severe disability are all associated with lower employment odds. Notably, the relationship between education and employment is non-linear, with positive effects emerging only beyond a certain threshold of schooling. These findings underscore the importance of targeted interventions, particularly in digital literacy and education access, to improve labor market outcomes for people with disabilities. The results offer timely policy implications for promoting inclusive economic participation in line with Indonesia's commitment to the Sustainable Development Goals.

Keywords: people with disabilities (PWD), disability employment, ICT skills, labor force participation, employment determinants.

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1. Introduction

The UN's 2030 Sustainable Development Goals (SDGs) agenda is committed to ending discrimination and reducing inequalities and vulnerabilities, with a strong emphasis on the principle of *Leaving No One Behind*. The agenda explicitly mentions disability or people with disabilities (PWD) eleven times, and persons in vulnerable situations six times, clarifying the

definition and unique challenges of PWD and highlighting the importance of making them visible to uphold their rights (Saraswati, 2021).

Despite the UN's Sustainable Development Goals advocating for inclusive employment, PWD continues to face employment challenges globally and in Indonesia. Existing studies show that PWD experience lower employment rates due to educational barriers, social prejudices, and inadequate infrastructure. This paper builds on prior research by examining how ICT skills and education influence employment among PWD in Indonesia.

The link between an individual's health and labor market outcomes has been a longstanding focus in health economics research. In contrast to PWD, individuals with better health tend to experience higher earnings and greater labor force participation (Pinna Pintor et al., 2024). This highlights the disparities and potential discrimination faced by PWD compared to PWOD (People Without Disability).

Globally, PWD exhibit lower labor force participation rates and higher unemployment levels than PWOD, with contributing factors including limited access to education, societal biases, insufficient job opportunities tailored to PWD, and a lack of inclusive public infrastructure (Halimatussadiah et al., 2015; Suryahadi, 2022). Employment for PWD is also characterized by underemployment, with many working in the informal sector, particularly in agriculture, retail, and personal services (Colella & Bruyère, 2011; Vornholt et al., 2018; Cameron & Suarez, 2017).

Statistical evidence further reflects these disparities. The World Health Survey, conducted across 51 countries as referenced by (Moertiningsih Adioetomo & Mont, 2014), revealed that the employment rate for PWD among men is 52.8%, compared to 64.9% for PWOD among men. For women, the employment rates are 19.6% for those with disabilities and 29.9% for those without disabilities (Moertiningsih Adioetomo & Mont, 2014). In 2020, across the EU-27, approximately 50.7% of PWD aged 20-64 were employed, compared to 75.1% of PWOD (Grammenos, 2022). In the United States, the employment rate for PWD was 21.3%, significantly lower than the 78.7% for those without disabilities (U.S. Bureau of Labor Statistics, 2023). Similarly, in 17 out of 18 Asia-Pacific countries, PWD had lower employment-to-population ratios than their non-disabled counterparts. The only exception was Timor-Leste, where the ratios were similar for both groups (ESCAP, 2021). This show there is a negative relationship between disability and employment. The disparity is not only a reflection of societal barriers but also highlights the systemic issues that prevent PWD from fully participating in the workforce.

In Indonesia, the labor market outcomes for people with disabilities (PWD) reflect persistent structural disadvantages, consistent with global patterns. Based on the 2012 SUSENAS data, the employment rate for PWD was only 43.71%, significantly lower than the 60.01% observed among individuals without disabilities. Similarly, the labor force participation rate stood at 44.94% for PWD, compared to 62.54% for their non-disabled counterparts (Halimatussadiah et al., 2015). Additionally, PWD with mild disabilities had a 50.8% employment rate, but for those with more severe disabilities, the likelihood of employment

dropped dramatically to 25.54% (Halimatussadiah et al., 2015). Drawing on SAKERNAS data, recent empirical evidence highlights that vocational graduates with disabilities face a significantly higher risk of unemployment, reinforcing earlier findings that people with disabilities, particularly those with severe impairments, consistently exhibit lower labor force participation rates and poorer employment outcomes compared to non-disabled individuals in Indonesia (Hermawan et al., 2023; Putri et al., 2019).

Although disability prevalence rates vary significantly across different datasets in Indonesia, the RISKESDAS 2007 data estimates a disability prevalence rate of around 30%. This suggests that up to 30% of Indonesia's population may have disabilities, indicating that PWD could significantly influence Indonesia's economic prosperity and growth (Priebe, 2018; Caron, 2020). Given this statistic, it is crucial to study the labor market experiences of PWD to understand how PWD can contribute to and benefit from Indonesia's economic prosperity and growth by reducing the disparities among PWD and ensuring effective employment for PWD as in the SDGs goals.

In Indonesia, people with disabilities (PWD) also generally achieve lower educational levels compared to those without disabilities (PWOD), with PWD during their school years being only 66.8% as likely to complete primary education as non-disabled children, even when controlling for other factors (Moertiningsih Adioetomo & Mont, 2014; Cameron & Suarez, 2017). They also face restricted access to services and infrastructure, which hampers their economic prospects (Cameron & Suarez, 2017).

The Indonesian government has made efforts to promote inclusive employment, notably through Rencana Aksi Nasional Penyandang Disabilitas (RAN D isabilitas), a strategic framework aimed at advancing the rights and welfare of PWD. Despite these initiatives, many PWD continue to struggle to find sustainable employment. A crucial first step in addressing this issue is understanding the complex determinants that influence employment for PWD. Analyzing these determinants can help identify the root causes of employment disparities. By developing appropriate strategies, the government can create a more inclusive society where PWD have greater opportunities to participate in the workforce and contribute to Indonesia's prosperity.

Using the 2022 National Socioeconomic Survey (SUSENAS) of Indonesia, this research fills a research gap in understanding the factors influencing PWD employment in Indonesia, with a focus on education and ICT skills. Education and skill gaps also play a critical role, as PWD often have limited access to quality education and vocational training, particularly in areas like Information and Communication Technology (ICT), which are increasingly essential in today's job market. Addressing these barriers is key to improving employment outcomes for PWD and ensuring that they have equal opportunities to participate in and benefit from economic activities. This research provides valuable insights into the connection between years of schooling and ICT skills that encourage or hinder PWD employment in Indonesia.

The World Health Organization's 2011 report highlights that about 15% of the global population has a disability and faces substantial employment challenges. PWD generally have lower employment rates and higher unemployment rates compared to their non-disabled peers (Sevak et al., 2015). This disparity is evident even in countries with civil rights laws, where the unemployment rate for disabled individuals is roughly double that of those without disabilities, and is likely worse in countries without such protections (Vornholt et al., 2018).

In Kenya, the employment situation for persons with disabilities is particularly severe, with only 1% of disabled adults employed, compared to about 74% of the general adult population, according to a study by Gitonga et al., (2021). This issue is similar in the United Kingdom, where only 52.3% of disabled people are employed compared to 82.1% of non-disabled people. The unemployment rate for disabled individuals in the UK is almost twice as high as for non-disabled people (Olsen, 2024).

These employment disparities contribute to higher poverty rates among disabled individuals worldwide. The consistent underemployment of persons with disabilities highlights the need for more focused international efforts to address these issues. Consequently, disability and employment have become crucial topics on the global agenda, calling for enhanced actions to improve economic inclusion for disabled individuals (WHO, 2011).

Demographic characteristics such as gender, age, education, and marital status play a crucial role in shaping employment opportunities for people with disabilities (PWD). Prior studies have consistently shown that higher levels of educational attainment and being married are associated with better employment prospects for this group (Lee et al., 2020), while the disability employment gap narrows among women and married individuals and tends to diminish with increasing age and education (Sevak et al., 2015). Complementing these findings, recent research on NEET (Not in Employment, Education, or Training) youth in Indonesia highlights that disability significantly increases the risk of exclusion from both employment and educational pathways (Sari & Ahmad, 2021), further underscoring the systemic barriers faced by individuals with disabilities. Despite these insights, persistent disparities in labor market outcomes remain, reflecting the complex interplay between individual characteristics and structural inequalities that continue to hinder inclusive employment for PWD.

Between 2000 and 2014, Indonesia collected disability data through 13 different surveys, including a full population census (PC 2010), a census targeting the poorest 40% of the population (Data Collection for Social Protection Programs, PPLS 2011), five village/community censuses (Village Potential Statistics, PODES), and five household surveys (National Socio-Economic Survey, SUSENAS; Basic Health Survey, RISKESDAS) (Priebe, 2018). However, estimating the disability prevalence rate remains challenging. The difficulty largely stems from the lack of consistent statistical data and variations in how disability is defined (Halimatussadiah et al., 2015).

Measuring disability presents various challenges, leading to the establishment of the Washington Group on Disability Statistics (WG) by the United Nations Statistical Commission in 2001 to enhance global cooperation and comparability in disability data (Mitra et al., 2011; Cameron & Suarez, 2017). The WG introduced a concise questionnaire, focusing on certain functioning domains to identify individuals most likely to face participation restrictions. The questionnaire covers difficulties in seeing, hearing, walking or climbing steps, remembering or concentrating, self-care, and communication, with respondents rating their level of difficulty in each area. These responses help determine whether individuals face no, moderate, or severe limitations. Over time, various surveys in Indonesia have adapted their data collection methods to align with the WG's standardized approach to measuring disability.

The National Socioeconomic Survey (SUSENAS) is an annual large-scale survey conducted by the Indonesian Central Statistics Agency (Badan Pusat Statistik or BPS). It is a comprehensive and nationally representative survey designed to collect data on various aspects of the socioeconomic conditions of households and individuals in Indonesia (Indonesia, BPS, 2019). The 2022 SUSENAS survey has improved its adherence to the Washington Group's (WG) guidelines by incorporating questions that target the same functioning domains specified by the WG. It includes questions about various physical difficulties, such as seeing, hearing, walking or climbing steps, using or moving hands or fingers, self-care tasks like eating, bathing, and using the toilet. However, the survey deviates in the set of response options it offers, with categories labeled as *No*, *Modest*, *Severe*, and *Always/Cannot do at all*. This differs from the WG's suggested responses, which are *No*, *Some*, *A lot*, and *Cannot do at all*.

Moreover, the survey addresses non-physical challenges including memory and concentration issues, communication and social activities such as speaking and understanding conversations, as well as behavioral or emotional disorders or mental impairments. The United Nations Convention on the Rights of Persons with Disabilities (CRPD) includes mental impairments in its definition of disability due to the significant impact mental illnesses can have on biological, psychological, and social functioning (Gitonga et al., 2021).

2. Research Method

This study employs a probit regression model to estimate the probability of employment among people with disabilities (PWD) in Indonesia. The dependent variable is binary, where $Yi = 1$ if the PWD individual is employed and $Yi = 0$ otherwise. The probit model assumes the existence of an unobserved (latent) variable Yi^*, which reflects the underlying propensity for an individual to be employed. The model is defined as:

$$Y_i^* = X_i\beta + \varepsilon_i$$
$$Yi = 1, \text{if } Y_i^* > 0$$
$$Yi = 0, \text{if otherwise}$$

Here X_i is a vector of explanatory variables, β is a vector of coefficients to be estimated, and ε_i is the normally distributed error term. The probability that an individual with disability is employed is expressed as:

$$P\ (Y_i\ =\ 1|X_i)\ =\ \Phi(X_i\beta)$$

where Φ denotes the cumulative distribution function (CDF) of the standard normal distribution. Parameters are estimated using maximum likelihood estimation (MLE), and marginal effects are calculated to interpret the influence of each explanatory variable on the likelihood of employment.

The independent variables include ICT skills, years of schooling (both linear and squared terms), gender, marital status, number of children by age group, age category, urban/rural residence, and disability severity. ICT skills are measured using self-reported ability to perform digital tasks such as using the internet, sending emails, and operating software. Years of schooling is a continuous variable, with a squared term included to capture the non-linear relationship between education and employment outcomes.

In this study, individuals are classified as persons with disabilities (PWD) if they report having at least some difficulty or complete inability in any of the core functional domains identified in the SUSENAS 2022 questionnaire. These domains include vision, hearing, walking/climbing stairs, hand/finger use, memory/concentration, emotional regulation, communication, and self-care.

3. Result and Discussion

3.1. Demographic profile

Descriptive statistics of PWOD and POD based on the characteristics are presented in Table 1, while descriptive characteristic of study sample of working age PWD (age 15–64) are presented in Table 2. Java & Bali show the highest percentage of PWD among all regions (30.66%), which could be reflective of the high population density. Nusa Tenggara has the lowest percentage of PWD (7.11%); however, it has the highest prevalence rate (9,47%). This means that a higher proportion of the population in Nusa Tenggara is affected by disabilities compared to other regions. Despite having one of the lower percentages of people with disabilities (PWD) at 7.11%, the high prevalence rate in Nusa Tenggara suggests that disabilities significantly impact the region's smaller overall population.

Figure1. Prevalence of PWD in Indonesia by Region (2022)
Source: Author's calculation using SUSENAS 2022

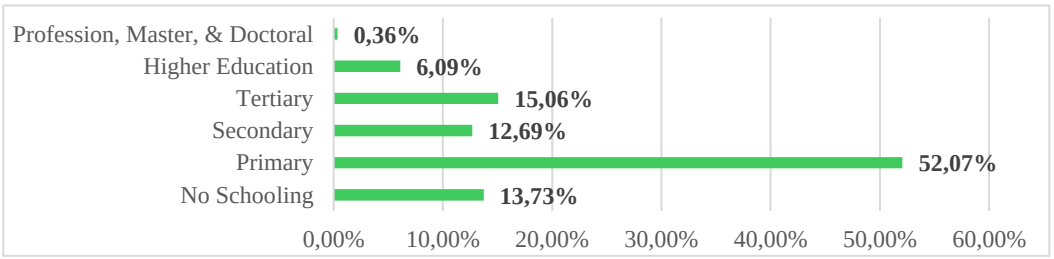
From the total number of PWD, 56,473 are female, constituting 55% of the PWD population, while 45,687 are male, making up 45% of this population. This data indicates that females with disabilities slightly outnumber males with disabilities in Indonesia. Among the total male population of 621,605, 7.35% are reported to have disabilities, while the total female population of 616,341, a higher prevalence of 9.16% is observed. This shows that females in Indonesia have a significantly higher prevalence of disabilities compared to males. The nearly 2% higher prevalence rate among females could suggest a variety of underlying factors, such as differences in health conditions that are more prevalent among females, potential biases in access to health care, or even differences in the rates of reporting disabilities between genders.

The majority of PWD, accounting for 60% are married. This is followed by 27% who are not yet married, and a smaller segment, 13% who are widowed. This suggests that despite the challenges associated with disabilities, many PWD maintain family lives and personal relationships similar to the broader population.

Contrary to typical urban-rural residency trends, the data shows a significant majority of PWD residing in rural areas, accounting for 61% of the population. In contrast, only 39% PWD live in urban areas. The higher concentration of PWD in rural areas can be attributed to the prevalence of the informal and agricultural sectors in these regions. Rural areas often offer more opportunities in agriculture and informal jobs, sectors where PWD are more commonly employed due to the nature of the work and the accessibility of these jobs compared to more formal sectors that might require higher education or more physical mobility.

3.2. Education and ICT skills

The education data for PWD in Indonesia reveals a significant educational gap. The majority, over half of the PWD population, only completes primary education at 52.07% and a sharp decline in higher educational attainment levels. Notably, only 0.36% reach the highest educational levels (professional, master's, and doctoral degrees).

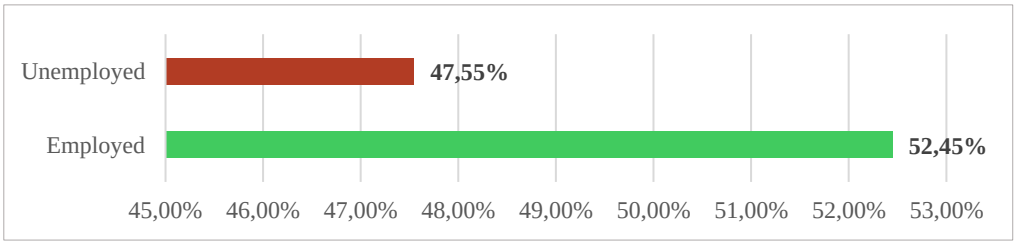


Graph 1. PWD Education Levels (2022)
Author's calculation using SUSENAS 2022

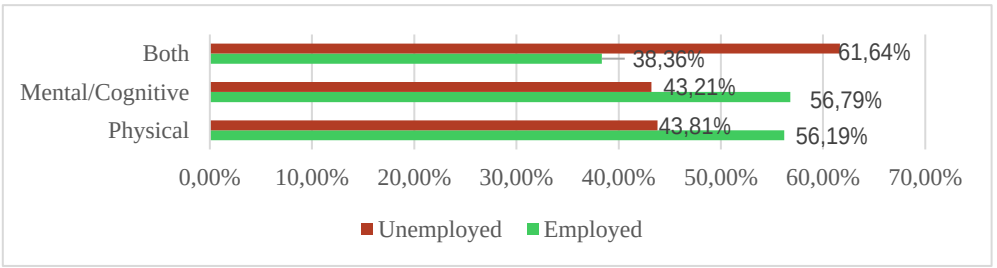
According to the data, 25% of PWD possess ICT skills, while a significant majority, 75%, do not have ICT skills. This distribution highlights a considerable skills gap in the context of digital literacy among PWD. In today's technology-driven world, ICT skills are essential for many job opportunities, educational resources, and social interactions. The fact that three-quarters of PWD are without these skills may significantly hinder their ability to participate fully in society and the economy.

3.3. Employment

From the data, the employment statistics for PWD in Indonesia shows that 52.45% of PWD are employed while 47.55% remain unemployed. However, those with both physical and mental/cognitive disabilities face the highest unemployment rate. This group has a significantly lower employment rate, indicating that having multiple types of disabilities severely impacts their ability to secure employment.



Graph 2. Employment of PWD
Author's calculation using SUSENAS 2022



Graph 3. Employment of PWD Based on Types of Disability (2022)
Author's calculation using SUSENAS 2022

Table 1. Descriptive Characteristic of PWOD and PWD

Characteristic	No Disability	Any Disability	Disability Type		
			Physical	Mental/Cognitive	Both
Observations N= 1,237,946	1,135,786 (91.75%)	102,160 (8.25%)	66,723 (5,39%)	5,865 (0,47%)	29,572 (2,39%)
Region:					
Sumatra	326,969 (28.79%)	29,121 (28.51%)	19,349 (29%)	1,366 (23,29%)	8,406 (28,42%)
Jawa & Bali	345,713 (30.44%)	31,319 (30.66%)	20,311 (30,44%)	1,740 (29,67%)	9,268 (31,34%)
Nusa Tenggara	69,453 (6.11%)	7,267 (7.11%)	4,490 (6,73%)	453 (7,72%)	2,324 (7,86%)
Kalimantan	108,764 (9.58%)	9,428 (9.23%)	6,334 (9,49%)	480 (8,18%)	2,614 (8,84%)
Sulawesi	162,081 (14.27%)	16,863 (16.51%)	11,228 (16,83%)	988 (16,85%)	4,647 (15,71%)
Maluku & Papua	122,806 (10.81%)	8,162 (7.99%)	5,011 (7,51%)	838 (14,29%)	2,313 (7,82%)
Regional Prevalence					
Sumatra (N= 356,090)	91.82%	8.18%			
Jawa & Bali (N= 377,032)	91.69%	8.31%			
Nusa Tenggara (N = 76,720)	90.53%	9.47%			
Kalimantan (N=118,192)	92.02%	7.98%			
Sulawesi (N = 178,944)	90.58%	9.42%			
Maluku & Papua (N=130,968)	93.77%	6.23%			
Gender					
Female	559,868 (50.71%)	56,473 (55.28%)	36,631 (54,90%)	2,885 (49,19%)	16,957 (57,34%)
Male	575,918 (49.29%)	45,687 (44.72%)	30,092 (45,09%)	2,980 (50,8%)	12,615 (42,65%)
Gender Prevalence					
Female (N= 616,341)	90,84%	9,16%			

Characteristic	No Disability	Any Disability	Disability Type		
Male (N= 621,605)	92,65%	7,35%			
Education					
No Schooling	162,577	14,029	7,238	600	6,191
	(14.31%)	(13.73%)	(10,85%)	(10,23%)	(20,94%)
Primary	387,442	53,193	34,390	2,448	16,355
	(34.11%)	(52.07%)	(51,54%)	(41,74%)	(55,31%)
Secondary	198,318	12,966	8,912	1,031	3,023
	(17.46%)	(12.69%)	(13,36%)	(17,58%)	(10,22%)
Tertiary	269,320	15,390	11,103	1,330	2,957
	(23.71%)	(15.06%)	(16,64%)	(22,68%)	(10,00%)
D1, D2,	113,969	6,223	4,769	443	1,011
Undergraduate	(10.03%)	(6.09%)	(7,15%)	(7,55%)	(3,42%)
Profession	481	28	26	0	2
	(0.04%)	(0.03%)	(0,04%)	(0,00%)	(0,01%)
Master	3,386	281	243	12	26
	(0.30%)	(0.28%)	(0,36%)	(0,20%)	(0,09%)
Doctoral	293	50	42	1	7
	(0.03%)	(0.05%)	(0,06%)	(0,02%)	(0,02%)
Marital Status					
Not yet	550,220	12,964	6,699	1,662	4,603
	(48.44%)	(12.69%)	(10,04%)	(28,34%)	(15,57%)
Married	527,646	61,438	43,952	3,460	14,026
	(46.46%)	(60.14%)	(65,87%)	(58,99%)	(47,43%)
Widow	57,920	27,758	16,072	743	10,943
	(5.10%)	(27.17%)	(24,09%)	(12,67%)	(37,00%)
Residential Area					
Rural	664,376	62,478	39,903	3,736	18,839
	(58.49%)	(61.16%)	(59,80%)	(63,70%)	(63,71%)
Urban	471,410	39,682	26,820	2,129	10,733
	(41.51%)	(38.84%)	(40,20%)	(36,30%)	(36,29%)
ICT Skills					
Have	668,843	25,875	19,570	2,591	3,714
	(58.89)	(25.33)	(29,33%)	(44,18%)	(12,56%)
Do not have	466,943	76,285	47,153	3,274	25,858
	(41.11)	(74.67)	(70,67%)	(55,82%)	(87,44%)
Years of Schooling	7.44 years	6.14 years			

Source: researcher's calculation using SUSENAS 2022

Table 2. Descriptive characteristic of study sample of working age PWD (age 15–64)

Characteristic	No Disability	Any Disability	Disability Type		
			Physical	Mental/Cognitive	Both
Observations N = 827,887	765,569 (92,47%)	62,318 (7,52%)	44,625 (5,39%)	4,464 (0,54%)	13,229 (1,60%)
Employed	447,571 (58.46%)	32,683 (52.45%)	25,073 (56,19%)	2,535 (56,79%)	5,075 (38,36%)
Unemployed	317,998 (41.54 %)	29,635 (47.55%)	19,552 (43,81%)	1,929 (43,21%)	8,154 (61,64%)

Source: researcher's calculation using SUSENAS 2022

3.4. Determinants Affecting PWD Employment

Probit model was conducted to identify determinants related to employment among PWD in Indonesia, with the focus of education and ICT skills. The effects of years of schooling on the probability of employment for people with disabilities in Indonesia are captured by two terms: the linear term (years of schooling) and the squared term (years of schooling squared).

The marginal effect of the linear term is -0.00750, indicating that each additional year of schooling, initially, reduces the probability of employment by 0.75 percentage points. The squared term has a marginal effect of 0.00067. This positive coefficient for the squared term suggests that there is a turning point beyond which additional years of schooling begin to positively affect employment probability. The turning point occurs at approximately 5.6 years of schooling. This means that up to around 5.6 years, additional schooling is associated with a decrease in the probability of employment for people with disabilities. However, beyond 5.6 years of schooling, each additional year increasingly contributes positively to the probability of employment.

Possessing ICT skills increases the likelihood of employment by 7.102 percentage points compared to those who do not have ICT skills. Essentially, this demonstrates that ICT skills are a significant positive factor in enhancing employment probabilities for people with disabilities, relative to their counterparts without such skills.

The impact of having children on the employment probabilities of PWD in Indonesia varies significantly with the age of the children. Each additional child aged 0-2 and 3-6 decreases their employment probability by 2.311 and 1.996 percentage points, respectively, highlighting substantial caregiving demands. In contrast, children aged 7-11 have a minimal and statistically insignificant effect, suggesting less need for direct supervision. Additionally, an additional child aged 12-14 slightly increases employment chances by 1.195 percentage points, possibly because these older children require less care or can offer some support, thereby facilitating greater employment opportunities for PWD.

Moreover, relative to the baseline group of 15-24, individuals aged 25-34 see a 19.435 percentage point increase in employment likelihood, likely due to gains in work experience and education. This trend continues with the 35-44 age group, which experiences a further increase of 23.436 percentage points, possibly reflecting peak working years and career establishment. The 45-54 age group exhibits the highest increase, at 23.642 percentage points, suggesting a peak in career stability and productivity. However, the employment probability begins to decrease for those aged 55-64, to a 15.114 percentage point increase, indicating a gradual decline as individuals approach retirement, though still maintaining a higher likelihood of employment compared to the youngest group. This pattern underscores the influence of age on employment opportunities for PWD.

The marginal effect of being female is -0.38731, which implies that females with disabilities are 38.731 percentage points less likely to be employed compared to their male counterparts, given all other variables are held constant. This negative effect indicates that gender plays a crucial role in employment probabilities, with females facing significantly greater challenges in gaining employment than males.

Married PWD have a 17.0283 percentage point higher likelihood of employment compared to single individuals, as indicated by a marginal effect of 0.170283. Widowed PWD show an even greater likelihood, with a marginal effect of 0.2496 or approximately 24.96 percentage points higher than single individuals. This increased likelihood for widowed individuals may be driven by economic necessity, compelling them to seek employment for financial support. These findings underscore the significant impact of marital status on the employment prospects of PWD, where support systems or economic needs linked to marital status play critical roles in employment probabilities.

The marginal effect of living in an urban area for people with disabilities in Indonesia is -0.09658. This indicates that, holding all other factors constant, individuals with disabilities who live in urban areas are approximately 9.658 percentage points less likely to be employed compared to those in rural areas. This result might seem counterintuitive given that urban areas typically offer more job opportunities. However, it could reflect unique challenges faced by people with disabilities in urban settings, such as higher competition for jobs or less inclusive work environments. It may also suggest that disability informal networks that facilitate employment, are stronger in rural areas for PWD.

Having a severe disability, the marginal effect of -0.19518 indicates that individuals with severe disabilities are approximately 19.518 percentage points less likely to be employed compared to those with mild disabilities, holding other factors constant. This negative impact highlights the additional challenges faced by individuals with severe disabilities in securing employment. It suggests that the severity of disability significantly affects job opportunities, possibly due to higher accommodation needs, greater workplace barriers, or employer perceptions about productivity and cost implications.

Table 3. Regression Result using Probit Model

VARIABLES	Probit employed	(dy/dx) employed
Having ICT Skills	0.226***	.07102***
Years of schooling	-0.0238***	-.00750***
Years of schooling squared	0.00214***	.00067***
Number of children aged 12-14	0.0380***	.01195***
Number of children aged 7-11	-0.00420	-.00132
Number of children aged 3-6	-0.0634***	-.01996***
Number of children aged 0-2	-0.0734***	-.02311***
(baseline: age group 15-24 years old)		
1.age_group 25-34 years old	0.620***	.19435***
2.age_group 35-44 years old	0.746***	.23436***
3.age_group 45-54 years old	0.753***	.236423***
4.age_group 55-64 years old	0.486***	.15114***
(baseline: male)		
female	-1.230***	-.38731***
(baseline: being single)		
1.Being married	0.548***	.170283***
2.Being widow	0.802***	.2496***
(baseline: rural)		
urban	-0.307***	-.09658***
(baseline: mild disability)		
severity	-0.620***	-.19518***
Constant	-0.140***	
Observations	62,025	62,025

Standard errors in parentheses

*** means p<0.01, ** means p<0.05, * means p<0.1

4. Conclusion and Recommendations

The analysis of employment determinants for PWD in Indonesia, using a probit model, provides key insights. This finding indicates that lower levels of initial education may be associated with a temporary reduction in employment probabilities, either due to insufficient qualifications limiting access to formal job opportunities or because PWD individuals are still enrolled in education, thereby delaying their entry into the labor market. However, after reaching a certain level of education, further academic achievement positively affects employment prospects, highlighting the value of higher education. Additionally, possessing information and communication technology (ICT) skills significantly boosts employment opportunities, emphasizing the role of digital literacy in enhancing PWD's job prospects.

Family dynamics also play a significant role in the employment of PWD. The presence of young children, particularly those under six, significantly reduces employment probabilities due to the high demands of caregiving. In contrast, having older children, those over twelve can slightly improve employment chances, likely because they provide support or demand less care,

thereby alleviating some caregiving responsibilities that could restrict employment opportunities.

Age and marital status are significant factors affecting employment outcomes for PWD. Young adults new to the job market have the lowest employment rates, which improve substantially as they age, reaching a peak during middle age, a period characterized by career stability and high productivity. As individuals near retirement, employment probabilities decrease, although they remain above those for the youngest age group. Additionally, marital status impacts employment, with married and widowed individuals experiencing higher employment rates than their single counterparts, possibly due to the added economic pressures or the support systems associated with these marital statuses.

Lastly, the analysis of significant barriers faced by PWD based on the severity of their disabilities. Those with severe disabilities face significant employment difficulties, often due to the need for more accommodations and widespread barriers in workplaces. Furthermore, PWD residing in urban areas tend to have lower employment rates than those in rural areas, reflecting the unique challenges and competitive nature of urban job markets. These insights highlight the necessity for customized policy interventions to address these varied factors to improve employment prospects for PWD in Indonesia.

This study confirms that ICT skills significantly enhance employment prospects for PWD, aligning with prior research ((Vornholt et al., 2018)). The non-linear effect of education suggests that lower education levels limit job opportunities, while higher education improves employment chances. The urban employment disadvantage contradicts expectations and may indicate higher job competition or exclusionary labor practices in cities. Gender disparities highlight the additional challenges faced by disabled women, necessitating targeted interventions. Policy recommendations include increasing digital literacy programs and improving urban employment inclusivity.

References

Cameron, L., & Suarez, D. (2017). *Disability in Indonesia: What can we learn from the data? Australia Indonesia Partnership for Economic Governance MONASH BUSINESS SCHOOL*.

Caron, L. (2020). Disability, employment and wages: evidence from Indonesia. *International Journal of Manpower*, *42*(5), 866–888. https://doi.org/10.1108/IJM-01-2020-0022

ESCAP. (2021). *The Shaping of Disability-Inclusive Employment in Asia and the Pacific*.

Gitonga, I., Syurina, E. V., Tele, A., & Ebuenyi, I. D. (2021). Improving work and employment opportunities for women with psychosocial disabilities: An action research protocol. *Pan African Medical Journal*, *38*. https://doi.org/10.11604/pamj.2021.38.323.28509

Grammenos, S. (2022). *European comparative data on persons with disabilities Statistics Data 2020 Summary and Conclusions*.

Halimatussadiah, A., Agriva, M., & Nuryakin, C. (2015). Persons with Disabilities (PWD) and Labor Force in Indonesia: A Preliminary Study. *LPEM-FEUI Working Paper 003*. http://www.who.int/classifications/icf/en/.

Hermawan, A., Mufiedah, M., Madina, V., Santika, Z. M., Kasim, M. F., & Siagian, T. H. (2023). Kesenjangan Kondisi Pengangguran Lulusan SMK/MAK di Indonesia: Analisis Antargender dan Variabel-Variabel yang Memengaruhinya. *Jurnal Ketenagakerjaan*. https://doi.org/10.47198/naker.v18i3.246

Lee, J., Bezyak, J. L., & Kim, W. H. (2020). Factors Impacting Employment Outcomes for Older Adults With Disabilities in Korea. *Rehabilitation Counseling Bulletin*, *64*(1), 42–51. https://doi.org/10.1177/0034355220902242

Moertiningsih Adioetomo, S., & Mont, D. (2014). *PERSONS WITH DISABILITIES IN INDONESIA Empirical Facts and Implications for Social Protection Policies*. www.tnp2k.go.id

Olsen, J. (2024). Employers: influencing disabled people's employment through responses to reasonable adjustments. *Disability and Society*, *39*(3), 791–810. https://doi.org/10.1080/09687599.2022.2099251

Pinna Pintor, M., Fumagalli, E., & Suhrcke, M. (2024). The impact of health on labour market outcomes: A rapid systematic review. *Health Policy*, *143*. https://doi.org/10.1016/j.healthpol.2024.105057

Priebe, J. (2018). Disability and Its Correlates in a Developing Country Context: Evidence from Multiple Datasets and Measures. *Journal of Development Studies*, *54*(4), 657–681. https://doi.org/10.1080/00220388.2017.1299136

Putri, A., Raya, J. M., Cina, P., Beji, K., Depok, K., & Barat, J. (2019). DISABILITAS DAN PARTISIPASI DI PASAR TENAGA KERJA INDONESIA: ANALISIS DATA SAKERNAS 2018. In *Jurnal Ketenagakerjaan* (Vol. 14, Issue 2).

Saraswati. (2021). *A Research Report prepared by Saraswati (Consultant) for United Nations Country Team (UNCT) in Indonesia REPORT Disability Data in Indonesia*.

Sari, D. N., & Ahmad, I. (2021). Analisis Not In Employment, Education or Training (NEET) pada Usia Muda di Indonesia. *Jurnal Ketenagakerjaan*, *16*(2). https://doi.org/10.47198/naker.v16i2.95

Sevak, P., Houtenville, A. J., Brucker, D. L., & O'Neill, J. (2015). Individual Characteristics and the Disability Employment Gap. *Journal of Disability Policy Studies*, *26*(2), 80–88. https://doi.org/10.1177/1044207315585823

Suryahadi, A. (2022). Disability and Labor Market Exclusion: Evidence from Indonesia. *Sustainability Science and Resources*, *2*(1), 45–77. https://doi.org/10.55168/ssr2809-6029.2022.2004

Vornholt, K., Villotti, P., Muschalla, B., Bauer, J., Colella, A., Zijlstra, F., Van Ruitenbeek, G., Uitdewilligen, S., & Corbière, M. (2018). Disability and employment–overview and highlights. *European Journal of Work and Organizational Psychology*, *27*(1), 40–55. https://doi.org/10.1080/1359432X.2017.1387536