Kashmir Economic Review
ISSN(P): 1011-081X, ISSN(E): 2706-9516
http://www.ker.org.pk

# Disability and Employment: Evidence from Pakistan


## *ABSTRACT*

Employment provides financial stability, fosters personal development, and enhances overall well-being. Various factors, such as level of education, skills, gender, and others, have been identified as critical determinants of an individual's employability. This study investigates the impact of disability on employment outcomes, utilizing data from the Labor Force Survey (LFS) 2020-21.The analysis reveals that a higher proportion of disabled individuals in rural areas are employed compared to their counterparts in urban regions. Gender-wise analysis shows that the proportion of employed disabled males relative to unemployed males is significantly higher than the corresponding proportion for disabled females. Using a logit model, the results indicate that disability significantly reduces the likelihood of employment. However, positive and significant impacts are observed for vocational training, educational attainment, and being the head of a household. Additionally, provincial disparities are evident, with individuals in Balochistan being less likely to be employed compared to those in Punjab, Sindh, and KPK. The study offers policy recommendations to overcome the employment gap for disabled people in Pakistan, focusing on the significance of targeted interventions to overcome regional differences, educational initiatives, and vocational training.



## *AUTHORS*

***Malik Muhammad ****
Assistant Professor, IIIE International Islamic University, Islamabad, Pakistan.
Author's Contributions: 1,4,5,6
malikmuhammad@iiu.edu.pk
https://orcid.org/0000-0002-7798-6440

***Farhana Bashir***
Student at IIIE International Islamic University, Islamabad, Pakistan.
Author's Contributions: 2,3,8
farhanabashir15@gmail.com
https://orcid.org/0009-0005-5542-0218



**Keywords**
Disability, Employment, Survey data

**JEL Classification**
J14, J21, C81

**Please cite this article as:**
Muhammad, M. & Bashir, F. (2024). Disability and employment: evidence from Pakistan. *Kashmir Economic Review*, 33(1), 24-36



*** Correspondence author**


**Author's contribution in the article:** 1- Conceived and designed the analysis, 2- Reviewed and compiled the literature, 3- Collected the data, 4- Contributed data or analysis tools, 5- Performed the analysis, 6- Wrote the paper, 7- Financial support for the conduct of the study, 8-Other

# 1. INTRODUCTION

Employment plays an important role in personal development, well-being, and financial stability. It enables individuals to support their families to meet their needs of necessities like food, healthcare, education and housing. It also enables individuals to make contributions to their retirement fund which guarantees financial security after retirement. Moreover, employment promotes career and personal development, provides opportunities for continues learning and promotes the social networks, cooperation, and a sense of belonging. A better quality of life, self-image, and mental health can result from pursuing professional and personal goals through work (Hussain et al., 2016) and a feeling of contentment and fulfillment can result from doing a meaningful job.

A variety of socioeconomic, demographic, and regional factors influence a person's decision to enter the labor market, based on his assessment of the expected benefits of working versus not working. Disability is a major factor among these, that hindering participation in the labor force and decreasing the chances of finding and keeping a job. Disability reduces the likelihood of educational attainment, professional training, productivity, all of which exacerbate labor force participation and employment. Disability is a wide concept encompassing a variety of elements, such as limitations in activities, participation restrictions, and impairments.

The 2030 Agenda for Sustainable Development emphasizes the importance of inclusive employment policies around the globe. According to Sustainable Development Goal (SDG) Target 8.5, all people, including those with disabilities, should have full and productive employment. The right of persons with disabilities to work on an equal basis with others is enshrined in Article 27 of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), which places a strong emphasis on access to accessible work environments and an inclusive labor market.

As a part of these international agreements, governments around the world are working together to integrate person with disabilities into society in all its facets. Pakistan has also made important steps to encourage the inclusion of disables and has committed to eradicate poverty and hunger by 2030 after ratifying the UNCRPD in 2011 and approving the SDGs. All Pakistani citizens, including persons with disabilities, are guaranteed social and economic well-being under the constitution. Article 38 (d) requires the State to provide basic necessities such as food, clothing, education, and shelter to citizens who cannot support themselves due to disability, illness, or unemployment, without discrimination based on their gender, caste, religion, or ethnicity. This constitutional provision lays the foundation for protection of human rights and upholding social justice for people with disabilities. In order to enhance employment possibilities and rehabilitation services, the Disabled Persons' Ordinance of 1981 introduced a mandatory one percent, later raised to two percent, employment quota for disables in both the public and private sectors. Additionally, the law penalizes organizations—including levying additional taxes—for not meeting these quotas.

Following the 18th Amendment to the Constitution of Pakistan, the provinces are given responsibility to look after issues related to persons with disability. The primary reporting agency for the Convention on the Rights of Persons with Disabilities' implementation is the Ministry of Human Rights, working with relevant Federal and Provincial Departments. As a result, provinces have implemented legislation consistent with international commitments, including the Punjab Disabled Persons' (Employment and Rehabilitation) Amendment Act (2015), the Baluchistan Persons with Disabilities Act (2017), the Sindh Empowerment of Persons with Disabilities Act (2018), the ICT Rights of Persons with Disability Act (2020), and the Gilgit-Baltistan Persons with Disabilities Act (2019). This highlights the dedication of Pakistan's to uphold the rights of disable persons across civil, political, social, and economic domains (Khalid & Yaseen, 2023).

Despite these initiatives, individuals with disabilities in Pakistan continue to confront major barriers to access equitable employment opportunities. According to Pakistan Bureau of Statistics (2023), 3.1% of the population reported disability and 9.64% reported experiencing functional limitations. They are underrepresented in the labor market and are more likely to be unemployed, hold low-paying occupations, and have limited chances for professional development (Wahab & Ayub, 2017). This marginalized group is highly vulnerable and deserves increased rights, access to justice, economic opportunities, and better living standards. The dearth of targeted educational and vocational training programs compounds their disadvantage. Handling these issues is both a matter of social justice and an economic imperative. Global GDP could be increased by 3% to 7% if employment rate for disables is raised to the level of those without disability (Buckup, 2009).

This study aims to investigate the employment status of persons with disabilities in Pakistan. The study also aims to examine the impacts of disability on employment of individuals along with other socio-economic, demographic and geographic variables. A limited empirical work, related to disability and employment, has been done so for in Pakistan. The current study fills this gap by investigation the impact of disability on employment in Pakistan. The study employs a logit model to identify factors determine employment by utilizing data from the Labor Force Survey 2020–21 and provides guidance to policymakers on how to increase inclusion and empowerment of the persons with disabilities.

## 2. LITERATURE REVIEW

A plethora of the researches have examined the relationship between disability and employment outcomes and have found that regardless of different definitions and methodologies disability significantly reduces both employment rates and earnings (Jones, 2008). Insufficient legal frameworks, hurdles in workplaces, a lack of targeted interventions, and the complexity of the work environment are the challenges that disabled individuals often face (Vornholt et al., 2018; Jurado-Caraballo et al., 2022).

Stern (1989) found that different measures of disability significantly impact labor force participation. Comparative studies highlight lower employment rates and earnings for disabled individuals in the UK and Germany (Kidd et al., 2000; Lechner & Vazquez-Alvarez, 2003). In Australia, Wilkins (2004) demonstrated that the negative impact of disability on labor force participation intensifies with the severity of the disability and is more pronounced among those with multiple impairments or those who develop disabilities later in life. Jensen et al. (2005) observed that all six types of disabilities negatively affect employment, although hearing disabilities have a relatively smaller impact. In India, employment among individuals with disabilities is influenced more by personal and household characteristics than by human capital factors (Mitra & Sambamoorthi, 2006). Similarly, Mitra (2008) identified that disability grant programs in South Africa reduced labor force participation among disabled individuals. Hogan et al. (2012) explored in Australia that gender, age, education and accommodations at workplace had important roles on the employment status of disabled persons.

Besides above, studies related to other countries also reveal important insights. Addabbo and Sarti (2016) found that investment in the education of persons with disabilities significantly increases their chances of employment in Italy. In Indonesia, inadequate infrastructure, scarce educational facilities, and a lack of relevant skills are substantial barriers to labor market entry for disabled persons (Alin et al., 2015). In the U.S., Webber and Bjelland (2015) observed that work-limiting disabilities reduced labor productivity by 3% and 2% for men and women, respectively. Barnay et al. (2015) found that in France, disability significantly affects private-sector employment but has no notable impact on public-sector employment within five years of disability onset. Education emerges as a facilitating factor for labor force participation for both disabled and non-disabled individuals in Norway (Bliksvaer, 2018). Caron (2021) found that

disability in Indonesia not only reduces employment rates but also leads to lower wages, exacerbating poverty and income inequality. Even after controlling for variables such as age, marital status, and education, disabled individuals in Lebanon have a lower likelihood of participating in the labor force (Boutros & Fakih, 2023).

Research on disability in Pakistan primarily addresses demographic patterns, policy challenges, and socio-economic barriers. Early studies such as Afzal (1992) provided a demographic analysis of disability patterns, highlighting inconsistencies in data collection. Ahmed (1993) identified a higher prevalence of disability among women and in rural populations compared to men and urban populations. Arsh et al. (2019) found that the number of disabled individuals employed in government departments in Khyber Pakhtunkhwa (KPK) remains significantly lower than their non-disabled counterparts, with many departments failing to adhere to the mandated 2% job quota for disabled individuals. Similarly, Fazeelat et al. (2020) revealed that prejudicial attitudes, familial and employer discrimination, and transportation challenges limit the labor market participation of disabled individuals. According to Khalid et al. (2022) inadequate infrastructure, lack of vocational training, weak execution of policies, and negative attitudes of the employers are the main obstacles to employment for persons with disabilities in Pakistan. Ayub and Babar (2022) emphasized that concerns regarding productivity, safety, coworker acceptance, work performance, accommodation, and a lack of requisite job skills negatively influence the labor force participation of disabled individuals.

Although the existing literature provides valuable insights into the challenges faced by disabled individuals, most studies focus on policy frameworks, employment challenges, education, and social protection programs. Limited empirical research has analyzed the direct impact of disability on employment in Pakistan. This study seeks to address this gap by examining the effects of disability on employment outcomes, along with other socio-economic, demographic, and geographic variables, using data from the Labor Force Survey (LFS 2020-21). This will help to provide recommendations based on evidence in order to increase the opportunities of employment and reduce barriers for disabled persons in Pakistan.

## 3. THEORETICAL FRAME WORK AND METHODOLOGY

According to International Classification of Functioning, Disability, and Health (ICF) disability is the outcome of a health condition that causes impairments, leading to limitations in activities and participation. It categories functioning and disability as multidimensional concepts where functioning includes structures and functions of the body, activities, and participation; and disability refers to impairments, limitations on activity, and restrictions on participation. In order to understand labor force participation decisions of the individuals, the Rational Choice Theory provides a robust framework. The theory assumes that individuals act rationally to achieve their goals and maximize benefits subject to constraints. The needs and goals that shape preferences affect their decisions where decision-making occurs within specified constraints.

Along with disability, the Rational Choice Theory also rationalizes the inclusion of gender, age, education, region, and marital as factors affecting decision making. Disability is negatively related to educational attainment and labor force participation rates and increases unemployment (Greve, 2009). Disabled individuals face systemic disadvantages, including reduced access to paid employment, when compared to their non-disabled counterparts (Coleman et al., 2013).

Gender is another factor that could influence the participation of individuals in the labor force (Boutros & Fakih, 2023). Historical barriers and gender norms limit the women's participation rates and job choices. The rate of unemployment among females exceeds males partly due to their tendency to remain out of

work for longer periods. This is often a result of their household responsibilities, such as raising children, as well as potential personal traits and prejudice. Additionally, some employers may discriminate against females based on the nature of the work.

Age is a crucial factor, with younger individuals entering the workforce upon completing education, while older individuals may reduce participation due to retirement. Age serves as an indicator of the life stage when individuals are more prone to actively engage in the workforce, reflecting their capacity for work-related activities. To capture non-linear relationship of the age and actively participating in labor market we introduce the Age square variable in our model. Squaring the age variable enables us to encapsulate situations in which the impact of age on an outcome either diminishes or accelerates as individual's age increases.

Being head of household can influence the decision of labor force participation as head of a household places considerable pressure on the household leader to meet the financial requirements of its members, consequently increasing the probability of actively engaging in the labor force (Hussain, et al. 2016). Moreover, marital status also influences labor force participation, as married individuals may have different financial support structures impacting their decisions to participate in the workforce compared to single individuals. It is assumed that married individuals tend to participate more actively in the labor force. This assumption stems from the significance of the relationship between respondents' characteristics and their familial associations (Boutros& Faikh, 2023; Zamo-Akono, 2013). Higher levels of education typically correlate with the increased labor force participation as educated individuals often possess skills that are in demand and have better access to job opportunities. Vocational training can enhance employability, contributing to labor force participation by equipping individuals with industry-relevant skills.

Regional factors such as job availability and economic development also affect labor force participation rates, with individuals in more economically developed regions often having better access to employment opportunities. The inclusion of this variable in our study is indispensable, considering the profound connection between location and employment opportunities (Zamo-akono, 2013). Urban areas, for instance, often present a myriad of employment prospects. However, in developing country due to dominance role of the agriculture sector, rural areas provide more opportunities of employment.

Based on the above discussion our general mathematical equation takes the form:

$$Y_i = f(DA_i, EDU_i, GEN_i, MS_i, HH_i, VT_i, \ AGE_i, AGS_i, R_i, Provinces) \quad (1)$$

Where "$Y_i$" is dependent variable showing the labor force participation of an $i^{th}$ individual and "$DA_i$" shows his/her disability status. $EDU_i$, $GEN_i$, $MS_i$, $R_i$, $HH_i$, $VT_i AG_i$, and $AGS_i$ are level of education, gender, Marital Status, Location, head of household, Vocational training, Age, and Age square of an $i^{th}$ individual. In stochastic form equation (1) can be written as:

$$Y_i = \beta_0 + \beta_1 DA_i + \beta_2 EDU_i + \beta_3 GEN_i + \beta_4 MS_i + \beta_5 R_i + \beta_6 HH_i + \beta_7 VT_i + \beta_8 AGE_i + \beta_9 AGS_i + \beta_{10} P_P + \beta_{11} P_S + \beta_{12} P_B + u_i \quad (2)$$

In equation (2), dependent variable is a binary. Therefore, we will use logistic regression for estimation. The probability that an $i^{th}$ individual is employed is given as:

$$\text{Prob}(Y_i = 1) = e^{zi}/(1 + e^{zi}) = P_i \quad (3)$$

and the probability that an $i^{th}$ individual is not employed is:

$$\text{Prob}(Y_i = 0) = e^{-zi}/(1 + e^{-zi}) = 1 - P_i \quad (4)$$

Dividing (3) by (4) we get the odd ratio in favor of being employed as:

$$\frac{P_i}{1-P_i} = \frac{\frac{e^{zi}}{1+e^{zi}}}{\frac{e^{-zi}}{1+e^{-zi}}} = e^{zi} \tag{5}$$

Take log on both sides to linearize equation (5) and get log-odd ratio:

$$l_i = ln\left(\frac{P_i}{1-P_i}\right) = Z_i \tag{6}$$

$$Z_i = \beta_0 + \beta_1 DA_i + \beta_2 EDU_i + \beta_3 GEN_i + \beta_4 MS_i + \beta_5 R_i + \beta_6 HH_i + \beta_7 VT_i + \beta_8 AGE_i + \beta_9 AGS_i + \beta_{10} P_P + \beta_{11} P_S + \beta_{12} P_B + u_i \tag{7}$$

Putting values of $Z_i$ in equation (6), our final stochastic equation is:

$$l_i = \ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 DA_i + \beta_2 EDU_i + \beta_3 GEN_i + \beta_4 MS_i + \beta_5 R_i + \beta_6 HH_i + \beta_7 VT_i + \beta_8 AGE_i + \beta_9 AGS_i + \beta_{10} P_P + \beta_{11} P_S + \beta_{12} P_B + u_i \tag{8}$$

# 4. DATA SOURCE AND VARIABLE CONSTRUCTION

The study seeks to examine the impact of disability status, along with various socio-demographic factors, on an individual's employment status. For the empirical analysis, data from the Labor Force Survey (LFS 2020-21) is utilized. The LFS is a nationally representative dataset that provides detailed micro-level information on variables central to our model. Notably, the 36th round of the survey includes a new module on disability, offering unique insights into this dimension. To ensure clarity, conciseness, and reliability in the analysis, certain restrictions have been applied to the data. Individuals currently enrolled in educational institutions are excluded from the sample, as their employment patterns may differ significantly from the general population. Additionally, the study focuses on individuals aged 15 to 65, excluding those below 15 years of age (who are likely to be students) and those above 65 years (who are more likely to be retired or inactive in the labor market). After applying these restrictions, the final dataset consists of 291,479 individuals**.** A detailed description of the variables used in the study is provided in Table 1.

**Table 1:** Descriptions of Variables

| Variable | Type | Description |
|---|---|---|
| Employment (Y) | Categorical | Y = 1 if an individual is employed[1], = 0 otherwise |
| Disability ($DA$) | Categorical | $DA$ = 1 if an individual is Disable[2], = 0 otherwise |
| Level of Education ($EDU$) | Continuous | Years of Schooling |
| Gender ($GEN$) | Categorical | Gender = 1 if Male, = 0 otherwise |
| Marital Status ($MS$) | Categorical | $MS$ =1 if married, = 0 otherwise |
| Region ($R$) | Categorical | $R$ = 1 if rural region, = 0 otherwise |
| Age ($AGE$) | Continuous | Complete years between 15 and 65 |
| Vocational Training ($VT$) | Categorical | $VT$ = 1 if vocational training, = 0 otherwise |
| Head of household ($HH$) | Categorical | $HH$= 1 if head of household, = 0 otherwise |
| Province | Categorical | PP = 1 if Punjab, = 0 otherwise<br>PS = 1 if Sindh, = 0 otherwise<br>PB = 1 if Balochistan, = 0 otherwise<br>KPK is the base category |

[1]"Employed" includes both "Self-employ" and "Regular Paid-employ".

[2]Questions about six distinct disabilities, vision, hearing, mobility, memory and concentration, personal care, and comprehension of communication are asked in the survey. An individual is categorized as "Disable" if he/she reports any form of disability.

# 5. RESULTS AND DISCUSSION

Empirical analysis comprises on descriptive statistics and regression analysis. Table 2 illustrates the difference in employment status of disable and non-disable individuals across provinces, regions, marital status, head of household, vocational training, gender etc.

**Table 2:** Employment Status of Disabled and Non-Disabled Individuals

| **Variables** | **Categories** | **Not Disabled** | | **Disabled** | |
|---|---|---|---|---|---|
| | | **Employed** | **Unemployed** | **Employed** | **Unemployed** |
| Province | KPK | 40.06% | 59.94% | 28.18% | 71.82% |
| | | (*20,915*) | (*31,297*) | (*1,248*) | (*3,181*) |
| | Punjab | 46.19% | 53.81% | 35.13% | 64.87% |
| | | (*53,478*) | (*62,301*) | (*3,999*) | (*7,385*) |
| | Sindh | 45.85% | 54.15% | 32.07% | 67.93% |
| | | (*30,419*) | (*35,923*) | (*1,561*) | (*3,306*) |
| | Balochistan | 40.52% | 59.48% | 37.27% | 62.73% |
| | | (*14,148*) | (*20,767*) | (*578*) | (*973*) |
| Region | Urban | 45.47% | 54.53% | 29.60% | 70.40% |
| | | (*31,953*) | (*38,314)* | (*1,677*) | (*3,988*) |
| | Rural | 43.73% | 56.27% | 34.46% | 65.54% |
| | | (*87,007*) | (*111,974*) | (*5,709*) | (*10,857*) |
| Gender | Male | 79.96% | 20.04% | 58.23% | 41.77% |
| | | (*105,032*) | (*26,323*) | (*6,681*) | (*4,793*) |
| | Female | 10.10% | 89.90% | 6.55% | 93.45% |
| | | (*13,928*) | (*123,965*) | (*705*) | (*10,052)* |
| Marital Status | Married | 45.83% | 54.17% | 34.99% | 65.01% |
| | | (*94,929*) | (*112,205*) | (*6,635*) | (*12,325*) |
| | Un-Married | 38.69% | 61.31% | 22.96% | 77.04% |
| | | (*24,031*) | (*38,083*) | (*751*) | (*2,520*) |
| Vocational Training | Yes | 54.45% | 45.55% | 48.72% | 51.28% |
| | | (*15,384*) | (*12,869*) | (*853*) | (*898*) |
| | No | 42.98% | 57.02% | 31.90% | 68.10% |
| | | (*103,576*) | (*137,419*) | (*6,533*) | (*13,974*) |
| Head of household | Yes | 89.40% | 10.60% | 64.61% | 35.39% |
| | | (*72,933*) | (*8,645*) | (*5,645*) | (*3,092*) |
| | No | 24.53% | 75.47% | 12.90% | 87.10% |
| | | *(46,027)* | (*141,643*) | (*1,741*) | (*11,753*) |

**Note:** Figures in parenthesis are absolute number of individuals in different categories

The data reveals that individuals with disabilities have significantly lower employment rates compared to non-disabled individuals, highlighting the substantial impact of disability on labor force participation. The most pronounced disparity in labor force participation between disabled and non-disabled individuals is observed in Khyber Pakhtunkhwa (KPK). Among disabled individuals, the highest employment rate is found in Balochistan (37.27%), followed by Punjab (35.13%), Sindh (32.07%), and KPK (28.18%)[3]. Employment rates also vary by region, with 34.46% of disabled individuals employed in rural areas, compared to only 29.60% in urban areas. A notable gender disparity is evident, as 93.45% of disabled females are unemployed, compared to 41.77% of disabled males, underscoring the significant barriers faced by women with disabilities in accessing employment opportunities. Tailored interventions are

[3] However, the percentage of disabled employed out of total labor force is the highest in Punjab (3.15%), followed by KPK (2.20%), Sindh (2.19%), and Balochistan (1.59%).

essential to address these disparities, particularly for disabled women, who face compounded challenges in the labor market.

In addition, the data shows that employment rates are higher among disabled individuals who have received vocational training, are married, or are heads of their households, compared to those without vocational training, unmarried, or not serving as heads of households. This highlights the importance of factors such as skills development, marital status, and household responsibilities in shaping employment outcomes for disabled individuals.

The sector, status, and occupation wise employment distribution of disabled individuals is presented below in Table 3.

**Table 3:** Sector, Status, and Occupation Wise Employment Distribution of Disabled Persons

| | | |
|---|---|---|
| Employment Sector | Public | 02.35% |
| | Private | 97.65% |
| Employment status | Regular Employees | 12.10% |
| | Self- Employees | 87.90% |
| Occupations | Managers | 01.76% |
| | Professionals | 03.67% |
| | Technicians and Associate professionals | 02.54% |
| | Clerical support workers | 00.87% |
| | Service and sales workers | 14.26% |
| | Skilled agricultural, forestry and fishery workers | 47.43% |
| | Craft and related trades workers | 10.15% |
| | Plant and machine operators, and assemblers | 05.36% |
| | Elementary occupations | 13.97% |

A significant majority of employed individuals with disabilities are engaged in the private sector (97.65%), with only a small proportion working in the public sector (2.35%). Majority (87.90%) are self-employed, while a smaller share (12.10%) is engaged as regular paid employees. Occupational distribution indicates that most disabled individuals are employed in low-status occupations, such as elementary jobs, agricultural work, and sales workers. Conversely, only 7.97% of employed disabled individuals are found in high-status occupations, including managers, professionals, and technical or associate professionals. This highlights the significant barriers faced by disabled individuals in accessing higher-status and more secure employment opportunities.

The results of the logit model estimation in Table 4 provide key insights into the determinants of employment in Pakistan. The coefficient for disability (-0.867) indicates that disability significantly reduces the log-odds of being employed. This aligns with Zamo-Akono (2013), highlighting the obstacles that functional limitations pose to labor market participation. The negative impact is stronger in urban areas (-0.980) than in rural areas (-0.831), reflecting additional challenges in urban labor markets, such as higher competition and structural barriers for disabled individuals.

Gender has a significant positive effect on employment, with the coefficient of 3.1 for males indicating they are much more likely to be employed compared to females. This disparity is consistent across rural and urban areas, though the effect is somewhat weaker among disabled individuals (2.396) compared to non-disabled individuals (3.136). These findings corroborate the work of Hussain et al. (2016) and Boutros and Fakih (2023), reflecting persistent gender-based barriers in accessing employment opportunities, particularly for women with disabilities.

The positive coefficient for age (0.224) and the negative coefficient for age squared (-0.0023) suggest a non-linear relationship between age and employment. Employment likelihood increases with age but peaks at a certain threshold, after which it declines, consistent with life-cycle theories of labor market participation[4]. Younger individuals are still integrating into the labor market, while older individuals may exit due to retirement or health issues. This pattern aligns with findings by (Hussain et al., 2016; Boutros & Fakih, 2023).

**Table 4:** Results of Logit Model (Dependent Variable: Employment)

| Variables | Overall | Rural | Urban | Disabled | Non-Disabled |
|---|---|---|---|---|---|
| Disability | -0.867* | -0.831* | -0.980* | - | - |
| | (0.023) | (0.026) | (0.045) | | |
| Gender | 3.100* | 3.014* | 3.374* | 2.396* | 3.136* |
| | (0.014) | (0.016) | (0.030) | (0.057) | (0.014 |
| Age | 0.224* | 0.210* | 0.253* | 0.186* | 0.225* |
| | (0.003) | (0.003) | (0.006) | (0.010) | (0.003) |
| Age squared | -0.0023* | -0.002* | -0.003* | -0.002* | -0.003* |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Head of household | 1.811* | 1.840* | 1.734* | 1.468* | 1.860* |
| | (0.016) | (0.019) | (0.035) | (0.053) | (0.017) |
| Marital status | 0.009 | 0.079* | -0.128* | 0.699* | -0.140* |
| | (0.018) | (0.021) | (0.038) | (0.083) | (0.019) |
| Education | 0.018* | 0.017* | 0.024* | 0.037* | 0.015* |
| | (0.001) | (0.002) | (0.003) | (0.007) | (0.002) |
| Vocational Training | 0.536* | 0.543* | 0.514* | 0.552* | 0.533* |
| | (0.018) | (0.021) | (0.037) | (0.068) | (0.019) |
| Rural | 0.182* | - | - | 0.524* | 0.152* |
| | (0.013) | | | (0.046) | (0.014) |
| Punjab | 0.337* | 0.337* | 0.382* | 0.263* | 0.347* |
| | (0.015) | (0.016) | (0.040) | (0.051) | (0.016) |
| Sindh | 0.285* | 0.283* | 0.362* | 0.358* | 0.277* |
| | (0.017) | (0.020) | (0.041) | (0.061) | (0.018) |
| Balochistan | -0.235* | -0.275* | 0.039* | 0.269* | -0.264* |
| | (0.020) | (0.022) | (0.054) | (0.082) | (0.021) |
| Constant | -6.908* | -6.143* | -7.027* | -6.636* | -6.524* |
| | (0.055) | (0.060) | (0.116) | (0.218) | (0.059) |

Note: *p < 0.01, **p < 0.05, and *** p < 0.1 standard error are in parentheses

Being the head of a household significantly increases the log-odds of being employed as shown by the positive coefficient. This reflects the financial responsibility associated with household leadership in Pakistan, where heads of households are expected to manage expenses and support their families. This finding is consistent with Hussain et al. (2016).

The coefficient for marital status is insignificant in overall Pakistan data, but disaggregated results reveal interesting patterns. In rural areas, being married increases the likelihood of employment, likely due to early marriages and the associated sense of financial responsibility to support their family. Conversely, in urban areas, marriage appears to reduce employment likelihood, possibly reflecting shifting societal norms, such as urban married women opting out of the workforce. Among disabled individuals, contrary

[4] The threshold age for overall Pakistan is 48.7 years, for rural, urban, disabled and non-disabled samples are 52.5 years, 42.17years, 46.5years, and 37.5 years, respectively.

to the findings of Boutros and Fakih (2023), marriage increases employment likelihood, potentially due to increasing trend of participation by the disables alongside their partners to attain more sophisticated and upscale lifestyle - a feat that might be deemed challenging without their joint involvement in the workforce.

Education has a positive impact on employment, with a stronger effect for disabled individuals (0.037) compared to non-disabled individuals (0.015). This aligns with Addabbo and Sarti (2016) and Bliksvaer (2018), emphasizing education's role in enhancing human capital and employability. Similarly, vocational training significantly boosts employment prospects, with a larger impact for disabled individuals. These results highlight the critical role of human capital development, especially for marginalized groups, in improving labor market outcomes.

Residing in rural areas increases employment likelihood, likely due to the dominance of the agriculture sector in Pakistan's economy. However, urban areas in Punjab and Sindh offer better employment prospects compared to rural regions, likely reflecting greater industrialization and economic activity. Moreover, compared to urban (rural) KPK the chance of individual to be employed is higher (lower) in urban (rural) Balochistan.

Provincial analysis reveals that individuals in Punjab and Sindh have a higher likelihood of employment compared to those in KPK and Balochistan. Urban areas in these provinces offer relatively better opportunities. Notably, individuals in urban Balochistan have higher employment chances than their rural counterparts, which may be attributed to localized development initiatives.

## 6. CONCLUSION AND POLICY IMPLICATIONS

The study analyzed the impact of disability and other socio-demographic factors on employment in Pakistan using data from the Labor Force Survey 2020-21. The findings provide valuable insights into the barriers faced by disabled individuals in accessing employment opportunities and the broader implications for labor market efficiency. Besides being a humanitarian issue, the exclusion of persons with disability from the workforce is also an inefficient allocation of financial and human resources that decreases economic productivity.

The results of the logit model show that disability significantly lowers the chance of employment, mainly due to functional limitations that hinder participation in the labor market. Moreover, results also reveal gender disparities. Females, particularly those with disability, face significantly smaller chance of employment prospects due to societal norms, household responsibilities, and limited access to opportunities. Additionally, male are more likely to participate in labor market due to their more physical strength compared with female. The human capital development variable including education and vocational training were found as key determinants of employment. The chance of employment was found to be larger in the rural region may be due to agricultural sector opportunities. Similarly disparities among the provinces were also were observed.

To cope with the challenges and issues related to the employment persons with disabilities and thereby enhance inclusive growth, the following policy measures are recommended:

- Encourage collaborations among government, private, and non-governmental sectors to establish comprehensive pathways for persons with disabilities. These collaborations should emphasis on providing smooth transitions through education, training, and career opportunities across different life stages.
- Update the Special Education Needs (SEN) system to make sure that it is in line with the mainstream curricula and promote equal intellectual development of disables. By removing the

physical, attitudinal, and systemic obstacles the mainstream education systems can be strengthen to accommodate persons with disabilities.

- For persons with disabilities the opportunities of education and training often mismatch to the demands of labor market. Skill gaps hinder their employability, as employers perceive them as under qualified. Develop curricula and training programs relevant to the demands of labor market. Invest in skills development programs to address employer concerns about under qualification among disabled job seekers.
- Enhance enforcement measures, such as fines for non-compliance and rewards for organizations that meet or exceed quota requirements of employment and education for individuals with disabilities.
- Develop programs specifically designed to empower women with disabilities to deal with their intersectional challenges through financial literacy, entrepreneurship training, and skill development.
- Develop tailored policies to address regional disparities in employment opportunities. For instance, encourage small-scale entrepreneurship in underdeveloped regions like Balochistan and KPK and promote employment opportunities, other than agricultural, in rural areas.

Properly implementing these policies can create an inclusive labor market that will uphold the rights of persons with disabilities and will harnesses their potential to contribute to economic growth and social development.

**Acknowledgment**
The authors acknowledge the comments made by the reviewers and members of the editorial board on the earlier version of this manuscript.

**Funding Source:**
The author(s) received no specific funding for this work.

**Conflict of Interests:**
The authors have declared that no competing interests exist.

## REFERENCES

Addabbo, T., & Sarti, E. (2016). Access to work and disability: the case of Italy. *Access to Work and Disability: the Case of Italy*, 239-256.

Afzal, M. (1992). Disability prevalence and correlates in Pakistan: a demographic analysis. *The Pakistan Development Review*, 217-257.

Ahmed, T. (1993). *Disabled population in Pakistan: Disabled statistics of neglected people (pp2-6)*. Sustainable Development Policy Institute.

Alin, M., Purwanti, S., & Nirmala, D. (2015). *Barriers to labor market entry for disabled persons in Indonesia: Infrastructure, education, and skill development challenges*. Jakarta: Indonesian Research Institute.

Arsh, M., Khan, A., & Rehman, Z. (2019). *Employment challenges for disabled individuals in government departments: A case study of Khyber Pakhtunkhwa*. Journal of Social Policy and Development, 12(3), 45–60.

Ayub, S., & Babar, M. S. (2022).Attitudinal Obstacles and Fears of the Employers about the Hiring of Persons with Disabilities in Pakistan. *Review of Education, Administration & Law*, *5*(3), 245-255.

Barnay, T., Duguet, E., Le Clainche, C., Narcy, M., & Videau, Y. (2015). The impact of a disability on labour market status: A comparison of the public and private sectors. *Annals of Economics and Statistics/Annales d'Économie et de Statistique*, (119/120), 39-64.

Boutros, P., & Fakih, A. (2023). The disability employment paradox in developing countries: recent evidence from Lebanon. *Development Studies Research*, *10*(1), 2244173.

Bliksvaer, T. (2018). Disability, labor market participation and the effect of educational level: compared to what? *Scand. J. Disabil.* 20, 6–17.

Buckup, S. (2009). *The price of exclusion: The economic consequences of excluding people with disabilities from the world of work.* International Labour Organization. Retrieved from https://www.ilo.org/global/publications/ilo-bookstore/order online/books/WCMS_107845/lang--en/index.htm

Caron, L. (2021). Disability, employment and wages: evidence from Indonesia. *International journal of manpower*, *42*(5), 866-888.

Coleman, N., Sykes, W., & Groom, C. (2013).Barriers to employment and unfair treatment at work. *Equality and Human Rights Commission*.

Fazeelat, S., Ahmed, R., & Qureshi, N. (2020). *Barriers to labor market participation for disabled individuals: Insights from Pakistan*. Disability and Society, 15(2), 101–117.

Greve, B. (2009). The labour market situation of disabled people in European countries and implementation of employment policies: a summary of evidence from country reports and research studies. *Academic network of European disability experts (ANED)*, *140*.

Hogan, A., Kyaw-Myint, S. M., Harris, D., &Denronden, H. (2012).Workforce participation barriers for people with disability. *International Journal of Disability Management*, *7*, 1-9.

Hussain, M., Anwar, S., & Huang, S. (2016). Socioeconomic and demographic factors affecting labor force participation in Pakistan. *Journal of sustainable development*, *9*(4), 70-79.

Jones, M. K. (2008). Disability and the labor market: a review of the empirical evidence. *Journal of Economic Studies*, *35*(5), 405-424.

Jensen, J., Sathiyandra, S., Rochford, M., Jones, D., Krishnan, V., & McLeod, K. (2005). Work participation among people with disabilities: does the type of disability influence the outcome. *Social Policy Journal of New Zealand*, *24*, 134-159.

Jurado-Caraballo, M. Á., Quintana-Garcia, C., & Rodríguez-Fernández, M. (2022). Trends and opportunities in research on disability and work: An interdisciplinary perspective. *BRQ Business Research Quarterly*, *25*(4), 366-388.

Khalid, L., Batool, S. B., & Minhas, K. (2022).Exploring barriers in the Provision of Decent Employment for Persons with Disabilities: A Qualitative Study. *Journal of Policy Research*, *8*(4), 137-142.

Khalid, U., & Yaseen, M. (2023). Social Protection for Persons with Disabilities in Pakistan: Current Scenario and Contribution of BISP. *Ahi Evran Akademi*, *4*(1), 75-93.

Kidd, M. P., Sloane, P. J., & Ferko, I. (2000). Disability and the labour market: an analysis of British males. *Journal of Health Economics*, *19*(6), 961-981.

Lechner, M., & Vazquez-Alvarez, R. (2003). The effect of disability on labour market outcomes in Germany: evidence from matching. *Available at SSRN 487343*.

Mitra, S., & Sambamoorthi, U. (2006). Employment of persons with disabilities: Evidence from the National Sample Survey. *Economic and Political Weekly*, 199-203.

Mitra, S. (2008).The recent decline in the employment of persons with disabilities in South Africa, 1998-2006. *South African Journal of Economics*, *76*(3), 480-492.

Pakistan Bureau of Statistics. (2023). *7th Population and Housing Census - Detailed Results*.

Stern, S. (1989). Measuring the effect of disability on labor force participation. *Journal of human Resources*, 361-395.

Vornholt, K., Villotti, P., Muschalla, B., Bauer, J., Colella, A., Zijlstra, F., & Corbière, M. (2018). Disability and employment–overview and highlights. *European journal of work and organizational psychology*, *27*(1), 40-55.

Wahab, A.H., & Ayub, Z. A. (2017).Employment right of persons with disabilities in Malaysia. *In Social Interactions and Networking in Cyber Society*, 217-232.

Webber, D. A., & Bjelland, M. J. (2015).The Impact of Work-Limiting Disability on Labor Force Participation. *Health Economics*, *24*(3), 333-352.

Wilkins, R. (2004). The effects of disability on labor force status in Australia. *Australian Economic Review*, *37*(4), 359-382.

Zamo-Akono, C. (2013). Disability and labor force participation in Cameroon. *International Journal of Human Resource Studies*, *3*(2), 1.