

Study on Factors Affecting Employment Rate of Persons with Disabilities

– Focus on Analysis by Disability Type and Employer Support Systems

By

Heejung Yun

THESIS

Submitted to

KDI School of Public Policy and Management

in partial fulfillment of the requirements for the degree of

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ABSTRACT

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The purpose of this paper is to compare different factors that affect the employment rate for people with various types of disabilities. In particular, I focus on support programs for employers hiring disabled workers in Korea. There are 15 types of disabilities in Korea.

To compare the types of disability, I divide them into four subcategories: External physical disability, Sensory impairment, Psychological disability and Internal physical disability. For the data analysis, the ‘2014 Survey on the Employment Conditions of the Disabled in the Business Sector’ was used. To distinguish between characteristics of employment and unemployment of disabled workers, 4,975 enterprises that employ disabled workers were chosen for the sample, and there were 2,910, 316, 68, and 47 cases of each disability type, respectively. In this study, the employment rate of persons with disabilities has been transformed to logarithm employment rate.

Keywords: people with disabilities; types of disability; employer support system; mandatory employment enterprises; quota system

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The LORD is my shepherd, I shall not be in want.

He makes me lie down in green pastures, he leads me beside quiet waters, and He restores my soul.

He guides me in paths of righteousness for his name's sake.

Even though I walk through the valley of the shadow of death, I will fear no evil, for you are with me;

your rod and your staff, they comfort me.

You prepare a table before me in the presence of my enemies. You anoint my head with oil;

My cup overflows.

Surely goodness and love will follow me all the days of my life, and I will dwell in the house of the

LORD forever.

(Psalms 23:1-6)

I give glory to the Lord for allowing me all these wonderful opportunities. And I would like to thank Professor Jaeun Shin as well as the KDI School for providing invaluable insight to broaden my perspective on research for the past two years. I also thank Professor Juho Lee for guiding my research direction.

I would also like to express deep appreciation to my family and friends, who pray for me every day. Without their support, I would not have been able to finish this study. I shall never forget your kindness and all that you have done for me.

Though my beginnings may seem humble, I will keep learning to improve my research and contribute to the body knowledge. Furthermore, my goal is to never lose sight of this original intention.

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I. Introduction

About 15% of the world's population, or slightly over a billion people, live with disabilities. Persons with disabilities face obstacles in countless areas, such as healthcare, education, employment, and social services. The World Health Organization has pointed out where the origin of these barriers lie "inadequate legislation, policies, and strategies, lack of services provision, problems with the delivery of said services, lack of awareness and understanding of disability, negative attitudes and discrimination, lack of accessibility, inadequate funding, and lack of participation in decisions that directly affect their lives." Persons with disabilities suffer from poor health, high rates of poverty, and low rates of educational achievement and employment. These obstacles make it difficult to participate as a citizen with equal rights (WHO, 2015).

Getting a job, is an important factor not only for social integration, but also for life in general. To overcome the vicious circle of poverty and to adequately integrate into the society, persons with disabilities need opportunities for wage labor to earn their living. According to the "World Report on Disability", there are several reasons why their participation in the labor market is important. First, it can maximize human resources, to increase both their well-being as well as national output. Second, labor market participation promotes human dignity and social cohesion. All human beings should be able to choose the direction of their lives freely and develop their talents and capabilities to the fullest extent (WHO, 2011).

The United Nations Convention on the Right of Persons with Disabilities (CRPD) addresses work and employment in Article 27. It states that, on an equal basis with others, people with disabilities have the right to work and to earn a living through voluntary employment. In other words, the labor market and work environment should be open, inclusive

and accessible to people with disabilities.

The purpose of this paper is to compare different factors that affect the employment rate for people with various types of disabilities. In this study, I focus on support programs for employers hiring disabled workers in Korea. There are 15 types of disabilities in Korea, represented differently depending on characteristics of population, economic activity, employment issues, and needs for services. To compare the types of disability, I have grouped them into four subcategories: External physical disability (physical disability, brain lesions, and facial disfigurement), Sensory impairment (visual disability, hearing disability, and speech disability), Psychological disability (intellectual disability, autism, mental disorders), and Internal physical disability (kidney dysfunction, cardiac dysfunction, respiratory dysfunction, hepatopathy, intestinal fistula urinary fistula impairment, epilepsy). There are also several support programs for employers of the disabled offered by the Korea Employment Agency. Many researchers have studied influential factors of employment-related issues of people with disabilities, but not many studies have been done on comparison of different types. Specifically, there are many researches about support programs for employers hiring persons with disabilities, but the question remains as to how programs affect employment rate depending on type of disability. Without consideration of each type of characteristics, enforcement of policy can lead to squandering of the nation's resources (Kim, 2011).

By breaking down disabilities into four types, we can identify their unique needs with regard to employment-related factors. Although support programs for employers hiring persons with disabilities were initially designed regardless of disability type, we can find efficient policy measures to cater them more specifically based on needs. In this way, we are able to figure out that if enterprises with employees of a certain type of disability are aware of a certain support program, then they will employ a higher number of persons with disabilities than other enterprises. In other words, awareness of a certain support program can lead

employers to hire people with disabilities by type. Due to limitation of data, awareness of these support programs is the most tangible source of information, which remains as a limitation of this study. That being said, this study encompasses meaningful analysis on factors that affect employment rate of each disability type.

To achieve the purpose of this study, specific research questions are as follows.

If enterprises that employ the disabled (i.e. one or more subcategory) are aware of certain support programs, does it affect employment rate of persons with disability? If so, which programs would they be?

Finally, which factors are related to the employment rate of each type of disabilities?

II. Background

2.1. Overall status analysis on employment of persons with disability

People with disabilities in not only developing countries, but also in developed countries, are all in lower rates of employment than non-disabled people. The employment rates of people with disabilities and non-disabled people are compared by time period: mid-1990s, 2000, and mid-2000s. The OECD average employment rate for people with disabilities was 43.6% in the mid-2000s. In the case of Korea, the employment rate of people with disabilities was 44.7%, which is slightly higher than the OECD average. Relative employment rate refers to the ratio of employment rate of people with disabilities to employment rate for non-disabled people. Korea's relative employment rate, at 0.64, is also slightly higher the OECD average.

Table 1. OECD countries' employment rate of people with disabilities

(%)

| Country | Employment rate of people with disabilities | | | Employment rate of non-disabled people | | | Relative employment rates | | |
|-----------------|---|------|-----------|--|------|-----------|---------------------------|------|-----------|
| | Mid-1990s | 2000 | Mid-2000s | Mid-1990s | 2000 | Mid-2000s | Mid-1990s | 2000 | Mid-2000s |
| Sweden | 54.6 | 53.6 | 62.3 | 77.7 | 80.1 | 83.9 | 0.70 | 0.67 | 0.74 |
| Iceland | | | 61.3 | | | 86.4 | | | 0.71 |
| Estonia | | | 55.8 | | | 82.2 | | | 0.68 |
| Mexico | 47.2 | 60.2 | 55.4 | 61.1 | 65.8 | 66.8 | 0.77 | 0.91 | 0.83 |
| Switzerland | | | 54.9 | | | 85.5 | | | 0.64 |
| Denmark | 55.7 | 50.1 | 52.3 | 79.1 | 81.6 | 81.6 | 0.70 | 0.61 | 0.64 |
| Luxembourg | | 49.7 | 50.4 | | 71.7 | 71.3 | | 0.69 | 0.71 |
| Germany | 52.4 | 60.4 | 50.4 | 74.0 | 77.2 | 73.7 | 0.71 | 0.78 | 0.68 |
| Portugal | 50.2 | 51.8 | 47.9 | 75.7 | 79.3 | 75.4 | 0.66 | 0.65 | 0.63 |
| Canada | | 43.8 | 46.9 | | 76.9 | 79.0 | | 0.57 | 0.59 |
| France | 45.9 | 49.1 | 45.8 | 68.5 | 70.0 | 71.8 | 0.67 | 0.70 | 0.64 |
| United Kingdom | 38.0 | 42.1 | 45.3 | 81.2 | 80.9 | 81.4 | 0.47 | 0.52 | 0.56 |
| Korea | 43.9 | 44.7 | 44.7 | 71.5 | 68.8 | 70.3 | 0.61 | 0.65 | 0.64 |
| Norway | | 47.1 | 44.7 | | 86.0 | 83.4 | | 0.55 | 0.54 |
| Netherlands | 40.2 | 48.5 | 44.5 | 65.5 | 74.8 | 80.5 | 0.61 | 0.65 | 0.55 |
| Austria | 48.9 | 48.7 | 43.9 | 74.8 | 76.7 | 70.8 | 0.65 | 0.63 | 0.62 |
| Finland | 48.4 | 54.4 | 43.5 | 69.7 | 77.3 | 76.8 | 0.69 | 0.70 | 0.57 |
| Slovenia | | | 41.3 | | | 69.7 | | | 0.59 |
| Slovak Republic | | | 41.1 | | | 74.0 | | | 0.56 |
| Italy | 34.9 | 32.8 | 40.7 | 58.3 | 59.1 | 63.7 | 0.60 | 0.55 | 0.64 |
| Australia | 41.9 | | 39.8 | 76.6 | | 79.4 | 0.55 | | 0.50 |
| United states | 40.4 | 35.1 | 38.5 | 84.7 | 83.6 | 83.9 | 0.48 | 0.42 | 0.46 |
| Belgium | 38.6 | 43.9 | 36.3 | 67.5 | 70.6 | 71.5 | 0.57 | 0.62 | 0.51 |
| Spain | 27.0 | 25.5 | 35.7 | 56.3 | 63.0 | 71.1 | 0.48 | 0.41 | 0.50 |
| Czech Republic | | | 35.0 | | | 73.1 | | | 0.48 |
| Greece | 35.0 | 31.7 | 34.2 | 62.5 | 65.0 | 67.0 | 0.56 | 0.49 | 0.51 |
| Ireland | 25.7 | 33.6 | 32.9 | 60.0 | 71.5 | 72.7 | 0.43 | 0.47 | 0.45 |
| Hungary | | | 31.7 | | | 71.3 | | | 0.44 |
| Poland | 24.8 | 21.0 | 17.6 | | | 75.1 | | | 0.28 |
| OECD average | | | 43.6 | | | 75.1 | | | 0.58 |

Source: OECD 2010 as cited in Kwon and Kim, (2016)

Table 2 shows the number of people with disabilities living in Korea, broken down by type. The 「*Registered Disabled Persons*」 is aggregated quarterly by the Division of Policy for Persons with Disabilities within the Ministry of Health and Welfare and is published every year with the title 「*Yearbook on Health and Welfare Statistics 2015*」. The registered number of persons with disabilities of each state or province is the subject of this survey. In 2015, physical disability accounted for 51.5% of all disabilities. Brain lesions, visual/hearing disability, and speech disability accounted for 10.1%, 10.2%, and 10.8%, respectively. The 15 total disabilities¹ can be categorized into four types such that external physical disability represents 61.7%, sensory impairment 21.0%, psychological disability 12.4% and internal physical disability 5.0% of all persons with disabilities.

¹ In the sensory impairment, hearing disability and speech disability are counted as two separate kinds of disabilities

Table 2. Status of people with disabilities by types: Korea, 2011~2015

(In 1,000, %)

| Year | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | |
|------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | | | | | | | | | |
| Type | Total | 2,519 | 100.0 | 2,511 | 100.0 | 2,501 | 100.0 | 2,494 | 100.0 | 2,490 | 100.0 |
| E* | Physical disability | 1,333 | 52.9 | 1,322 | 52.7 | 1,309 | 52.3 | 1,296 | 51.9 | 1,281 | 51.5 |
| | Brain lesion | 261 | 10.3 | 258 | 10.3 | 253 | 10.1 | 251 | 10.1 | 251 | 10.1 |
| | facial disfigurement | 3 | 0.1 | 3 | 0.1 | 3 | 0.1 | 3 | 0.1 | 3 | 0.1 |
| S | Visual disability | 251 | 10 | 252 | 10.1 | 253 | 10.1 | 253 | 10.1 | 253 | 10.2 |
| | Hearing disability, Speech disability | 279 | 11.1 | 276 | 11 | 273 | 10.9 | 271 | 10.9 | 269 | 10.8 |
| P | Intellectual disability | 167 | 6.6 | 173 | 6.9 | 179 | 7.2 | 184 | 7.4 | 190 | 7.6 |
| | Autism | 16 | 0.6 | 17 | 0.7 | 18 | 0.7 | 20 | 0.8 | 21 | 0.8 |
| | Mental disorder | 95 | 3.8 | 95 | 3.8 | 96 | 3.8 | 97 | 3.9 | 99 | 4.0 |
| I | kidney dysfunction | 60 | 2.4 | 63 | 2.5 | 67 | 2.7 | 70 | 2.8 | 74 | 3.0 |
| | cardiac dysfunction | 10 | 0.4 | 8 | 0.3 | 7 | 0.3 | 6 | 0.3 | 6 | 0.2 |
| | respiratory dysfunction | 15 | 0.6 | 14 | 0.6 | 13 | 0.5 | 12 | 0.5 | 12 | 0.5 |
| | Hepatopathy | 8 | 0.3 | 9 | 0.3 | 9 | 0.4 | 10 | 0.4 | 10 | 0.4 |
| | intestinal fistula urinary fistula impairment | 13 | 0.5 | 13 | 0.5 | 14 | 0.5 | 14 | 0.6 | 14 | 0.6 |
| | Epilepsy | 9 | 0.4 | 8 | 0.4 | 7 | 0.3 | 7 | 0.3 | 7 | 0.3 |

*E: external physical disability, S: sensory impairment, P: psychologically disability, I: internal physical disability.

Source: Ministry of Health and Welfare, 「Registered Disabled Persons」

To assess economic activity of the disabled, Table3 represents the status of economic activity of persons with disabilities by type and level. External physical disability represents 16.5% of severe disability employment rate and 44.2% for minor disabilities. Sensory impairment is the second highest in terms of employment rate, with 27.5% and 36.9% indicating severe and minor disability employment rate, respectively. In total, 38.4% is represented as employed.

Internal and severe physical disabilities exhibit the lowest employment rates.

Psychological disability, at 18.4%, stands as the lowest employment rates among the four types. In other words, the psychologically disabled have a higher unemployment rate relative to other types, despite active job-seeking.

Table 3. Status of economic activity of people with disabilities by types and levels: Korea, May, 2015.

| | | Population aged 15 and over | | Economically active population | | | Economically inactive population | Economic activity rate ¹ % | Unemployment rate ² % | Employment rate ³ % | |
|-------------------------------|---------|-----------------------------|--------------|--------------------------------|-----------------|-------------------|----------------------------------|--|-------------------------------------|-----------------------------------|------|
| | | Number of population | Proportion % | Subtotal | Employed person | Unemployed person | | | | | |
| External physical disability* | Severe | 319,197 | 13.1 | 59,603 | 52,564 | 7,039 | 259,594 | 18.7 | 11.8 | 16.5 | 38.4 |
| | Minor** | 1,218,220 | 49.8 | 578,918 | 538,287 | 40,631 | 639,302 | 47.5 | 7.0 | 44.2 | |
| Sensory impairment | Severe | 96,554 | 4.0 | 28,006 | 26,556 | 1,450 | 68,548 | 29.0 | 5.2 | 27.5 | 35.1 |
| | Minor | 420,794 | 17.2 | 168,122 | 155,277 | 12,845 | 252,672 | 40.0 | 7.6 | 36.9 | |
| Psychological disability | Severe | 270,493 | 11.1 | 57,816 | 49,772 | 8,044 | 212,677 | 21.4 | 13.9 | 18.4 | |
| Internal physical disability | Severe | 73,559 | 3.0 | 12,323 | 11,257 | 1,066 | 61,236 | 16.8 | 8.7 | 15.3 | 22.8 |
| | Minor | 45,377 | 1.9 | 17,192 | 15,804 | 1,388 | 28,185 | 37.9 | 8.1 | 34.8 | |
| Population with disability | | 2,444,194 | 100.0 | 921,980 | 849,517 | 72,463 | 1,522,214 | 37.7 | 7.9 | 34.8 | |

* Severity of disability is attached at the end of this paper.

Source: Korea Employment Agency for the disabled, 「2015 Status of economic activity of people with disabilities」.

¹ (Employed persons + Unemployed persons) / population aged 15 and over *100

² Unemployed persons / (Employed persons + Unemployed persons) * 100

³ Employed persons / population aged 15 and over *100

Table 4 work shows detailed information on employed workers. The number of employed persons with disabilities stands at 849,517 of all employed people. Among them, 62.8% are wage workers. This figure has risen 0.8%p compared to 2014. The overall population's proportion of wage workers is 73.6%, 10.8%p higher than that of disabled wage workers. Specifically, wage workers are divided into three categories: regular employee, temporary employee, and daily worker. The regular employees account for 37.1% of wage workers.

Table 4. Work status of employed people (A comparison with overall population):
Korea, May 2015.

| | | | Estimate | Ratio % | Ratio in 2014 % | |
|--|--------------------|----------------------|------------------|------------|-----------------|-------|
| Population of people with disabilities | Wage worker | Regular employee | 315,221 | 37.1 | 36.5 | |
| | | Temporary employee | 127,789 | 15.0 | 14.7 | |
| | | Daily worker | 90,153 | 10.6 | 10.8 | |
| | | Subtotal | 533,163 | 62.8 | 62.0 | |
| | Non-wage worker | Employer | 55,723 | 6.6 | 5.2 | |
| | | Own-account worker | 212,905 | 25.1 | 27.5 | |
| | | Unpaid family worker | 47,725 | 5.6 | 5.4 | |
| | | Subtotal | 316,353 | 37.2 | 38.0 | |
| | Total | | | 849,517 | 100.0 | 100.0 |
| | Overall population | Wage worker | Regular employee | 12,517,000 | 47.8 | 47.1 |
| Temporary employee | | | 5,058,000 | 19.3 | 19.7 | |
| Daily worker | | | 1,710,000 | 6.5 | 6.1 | |
| Subtotal | | | 19,285,000 | 73.6 | 72.9 | |
| Non-wage worker | | Employer | 1,625,000 | 6.2 | 6.0 | |
| | | Own-account worker | 4,077,000 | 15.6 | 16.1 | |
| | | Unpaid family worker | 1,202,000 | 4.6 | 5.0 | |
| | | Subtotal | 6,904,000 | 26.4 | 27.1 | |
| Total | | | 26,189,000 | 100.0 | 100.0 | |

Source: Korea Employment Agency for the disabled, 「 2015 Status of economic activity of people with disability」

In terms of more specific wage worker characteristics, Table 5 shows their gender, age, level of disability, type, area, and education level. When compared to overall population of wage workers, an imbalance in gender ratio is more pronounced in the disabled population than overall. Moreover, when wage workers with disability are compared to the overall population of people with disability, certain variables e.g. male, age 15-59, minor degree of disability, external and sensory disabilities, capital-centric areas, and middle school graduate or higher, are overrepresented relative to the overall disability population. We can assume which variables have relatively more difficulties in the labor market.

Table 5. Demographical variables of wage worker (A comparison with overall population):
Korea, May 2015.

| Variable | | Wage workers of overall population | | Wage workers with disabilities | | | Population of people with disabilities |
|---------------------|-------------------------------------|------------------------------------|---------|--------------------------------|---------|-----------------|--|
| | | Estimate | Ratio % | Estimate | Ratio % | Ratio in 2014 % | |
| Gender | Male | 10,896,000 | 56.5 | 396,094 | 74.3 | 78.2 | 58.0 |
| | Female | 8,389,000 | 43.5 | 137,070 | 25.7 | 21.8 | 42.0 |
| Age | 15~29 | - | - | 29,838 | 5.6 | 6.6 | 5.1 |
| | 30~39 | - | - | 76,362 | 14.3 | 15.7 | 6.6 |
| | 40~49 | - | - | 128,500 | 24.1 | 24.1 | 13.0 |
| | 50~59 | - | - | 160,287 | 30.1 | 31.5 | 21.6 |
| | 60 and over | - | - | 138,177 | 25.9 | 22.0 | 53.6 |
| Level of disability | Severe | - | - | 98,846 | 18.5 | 20.9 | 31.1 |
| | Minor | - | - | 434,318 | 81.5 | 79.1 | 68.9 |
| Type | External physical disability | - | - | 352,772 | 66.2 | 66.8 | 62.9 |
| | Sensory impairment | - | - | 119,836 | 22.5 | 21.3 | 21.2 |
| | Psychological disability | - | - | 43,553 | 8.2 | 8.8 | 11.1 |
| | Internal physical disability | - | - | 17,004 | 3.2 | 3.1 | 4.9 |
| Area | Capital area ¹ | 10,195,000 | 52.9 | 255,434 | 47.9 | 46.1 | 41.6 |
| | Metropolitan city area ² | 3,794,000 | 19.7 | 93,839 | 17.6 | 22.5 | 18.9 |
| | Other cities | 5,298,000 | 27.5 | 183,890 | 34.5 | 31.4 | 39.4 |

¹ "Capital area" indicates Seoul, Incheon and Gyeonggi.

² "Metropolitan city area" indicates Busan, Daegu, Gwangju, Daejeon and Ulsan.

| | | | | | | | |
|--------------------|-------------------------------------|------------|-------|---------|-------|-------|-------|
| | and provinces ³ | | | | | | |
| Level of education | Graduation of middle school or less | - | - | 196,050 | 36.8 | 37.7 | 60.2 |
| | Graduation of high school | - | - | 204,646 | 38.4 | 40.1 | 27.5 |
| | Graduation of college or more | - | - | 132,467 | 24.8 | 22.3 | 12.3 |
| Total | | 19,285,000 | 100.0 | 533,164 | 100.0 | 100.0 | 100.0 |

Source: Korea Employment Agency for the Disabled, 「2015 Status of economic activity of people with disability」.

³ “Other cities and provinces” indicate Gangwon, Chungcheong, Jeonla, Gyeongsang, Sejong, and Jeju

III. Literature Review

3.1. Subsidy for employing disabled people

To promote employment security of persons with disabilities and lead employment promotion, a certain amount of subsidy was granted to employers who employ persons with disabilities over the mandatory employment rate of 2.7% (it has risen to 2.9% in 2017). Employers who employ persons with disabilities above the mandatory rate¹ are eligible to apply for subsidy, given that they pay at least the minimum wage or have pre-approved minimum wage exemptions.

The amount of subsidy varies depending on the severity of working conditions and number of years spent at a particular company, ranging from 150,000 to 600,000 won. For example, in case of a male in mild working conditions with over 5 years of service, an employer would receive the lowest possible subsidy, 150,000 won, while in the case of a woman in severe working conditions with over 5 years of service, an employer is eligible to receive the maximum 600,000 won (KEAD).

This program helps to create and keep jobs for persons with disabilities, and is an essential program among disability support policies (Yu, 2014). In the fourth quarter of 2016, 6,356 companies were awarded roughly 1.58 billion won. Specifically, companies that employ fewer than 50 workers has the highest participation rate, while those employing 50 to 300 workers represent the highest amount of grant.

Table 6. Status of subsidy for employing disabled people by company size

| | Less than 50 | 50~299 | 300 or more |
|---------------------|--------------|--------|-------------|
| Number of companies | 3,379 | 2,554 | 423 |

¹ Monthly mandatory employment number= The number of monthly regular employees x 27/1000(In private employers' case)

| | | | |
|--|--------|--------|--------|
| Amount of grant (in 1 million KRW) | 52,049 | 58,787 | 47,319 |
|--|--------|--------|--------|

Source: KEAD, 2016

According to the “2014 Ways to Improve subsidy system for employing disabled” the subsidy policy has net effects that influence employment of the disabled after controlling for other variables. The smaller the company’s size, the more efficient the subsidy policy was in hiring disabled workers (Yu, 2014).

3.2. Loans and aid to increase funds for facilities for the disabled

According to Clause 21 of the Employment Promotion and Vocational Rehabilitation for Disabled Person Act and Clause 25 of the Employment Insurance Act, the cost of working facilities or employment amenities for persons with disabilities can be supported by low interest loans. All employers who employ or intend to employ disabled workers can apply for this, and the loans can be used for costs related to facilities, equipment, installation, repair, and amenities. In detail, this system is divided into two cases: loan aid and free support. A loan aid is limited to 50 million won per person, and an employer can borrow in five year intervals with various financial conditions. The 4% loan interest rate will be upheld given that the employer employs disabled people during the full five year period. Free support aid is limited to 300million won per employer, and 10 million won per disabled worker (15 million for the severe).

In a study about the loan system’s effect on employment rate of disabled people, it was shown to increase its relative to companies without loans (Yu, 2014). In 2013, 93 companies were granted 19 billion won aid.

Table 7. Status of loans and aid to increase funds for facilities for the disabled in 2013

| | Number of companies | Support amount (1 million KRW) |
|--------------|---------------------|-----------------------------------|
| Loan | 93 | 19,000 |
| Free support | 235 | 3,000 |

Source: KEAD, 2013.

3.3. Assistive Technology Program

To promote persons job security and employment of people with disabilities, assistive technology devices are available for free. An employer can apply on behalf of a disabled worker, or a disabled owner who employs less than four workers can also apply. Disabled workers who work as employees in a company can naturally apply for one as well.

Y. H. Jun and K. M. Rhee (2013) analyzed employment effects of the assistive technology program for the disabled. With propensity score matching, they found that if a company provides assistive technology device for disabled workers, the effect of employing the disabled would be higher than other companies that do not provide it. In a study on uses of such assistive technology devices, physical disabilities showed higher willingness to use this service program than other types and severe speech disabilities represented higher intention to use this than mild disabilities (Jung, 2008).

3.4. Tax deduction

The Special Tax Treatment Control Law, Clause 85-6, clarifies that the enterprise authorized as a standard work place according to Clause 2-8 of the Employment Promotion and Vocational Rehabilitation for Disabled Person Act can get a 100% tax deduction for income and corporate taxes generated from initial income and the next two years' income (under the assumption that income is generated every year). For the two years after that income, 50% of income and corporate taxes are to be exempted by December 31st, 2019.

Moreover, the Special Tax Treatment Control Law Clause 94 states that investment in convenience facilities for disabled workers can receive tax deductions from income or corporate tax of about 7% the amount of investment cost.

3.5. Employment management costs for the disabled

According to Clause 21 of the Employment Promotion and Vocational Rehabilitation for Disabled Person Act, this program supports the costs for job coaching to promote disabled workers' job security. It was suggested in the fourth basic plan for employment promotion and vocational rehabilitation for disabled persons as a strategy task for expanding employment support and customizing the program for disability characteristics. The employer who employs severe disability workers and appoints, elects, and arranges a job coach who can help workers with disability can apply for the Employment management cost for the disabled system. To qualify, the employer needs to have employed new persons with severe disabilities within the previous 90 days and a job coach to train at least 12 hours per month. It supports 140,000 won for one disabled worker per month, and maxed out at five workers. The subsidy period is for a maximum of three years according to the assessment of the Korea Employment Agency for the Disabled.

In the 2016 evaluation of Employment management costs for the disabled, 614 companies were awarded 842 million won as of November 2015. The need for job coaches was also revealed by a high response rate of 14% among severe disability wage workers.

3.6. Support of Workplace Personal Assistance Service (PAS)

PAS helps with secondary tasks of persons with disabilities, and severe disability workers are the primary target group of this service. In other words, the disabled worker must have the relevant abilities for their job, but the PAS may help out with secondary tasks the worker may have some difficulties with. Individually, they have to pay 300 won per hour for assistance, with a maximum of 8 hours per day, 40 hours per week. According to KEAD's internal data, 897 disabled workers were supported with this program in 2015, with a total

budget of 7.33 billion won (Park, 2016).

To support disabled workers efficiently, programs should have a certain degree of customization. Specifically, in Park's report on the employment management cost support program, those with visual disabilities need help with tasks such as looking something up on the internet. Those with physical disabilities need mobility facilitation support. As such, customizing programs by types of disability is needed (Park, 2016).

3.7. Employment connection system on the Quota system

An employer, who is obligated to quota levy payment, can be regarded as employing persons with disabilities if he or she contracts with a linked employment company. In this case, the company uses the linked company's products and the persons involved in said employment company can be counted as an employee, so that he or she can get a deduction on the quota levy payment.

In a 2015 study on improvement plans of this "employment connection" system, Yun and Lee say that it may actually have effects that decrease direct employment. Through such a system, companies can avoid employment of disabled workers in their company. That being said, these linked contract agreements can nonetheless increase the total employment of persons with disabilities. Moreover, some companies have difficulties employing the disabled due to their job characteristics. In this case, regardless of the employment connection system, they cannot employ persons with disabilities (Yun, 2015).

IV. Methodology and Data

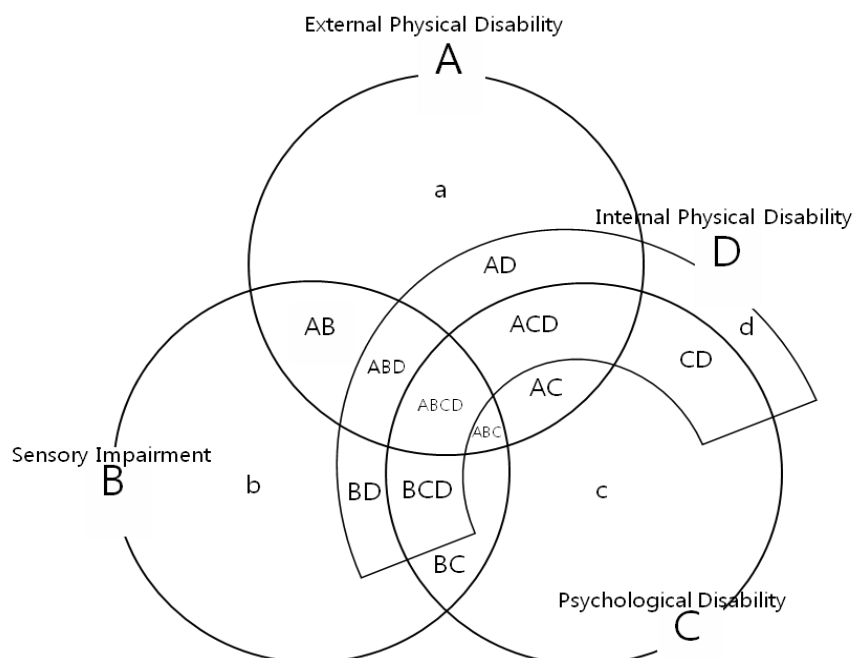
4.1. Data

The Employment Development Institute (EDI) conducted the ‘2014 Survey on the Employment Conditions of the Disabled in the Business Sector’ to assess the current situation of employment and its factors for persons with disabilities, based on the “Employment Promotion and Vocational Rehabilitation Act for People with Disabilities.” Overall, Korea’s businesses are subjects of this survey, with the enterprise as the basic unit. The survey has two versions, basic and in-depth, whereby the basic survey covers all of the nation’s enterprises employing one or more regular employees¹. The in-depth survey is confined to enterprises that employ five or more regular employees, and classifies them into *employment* and *unemployment* categories, depending on their status regarding employment of persons with disabilities. That is if the enterprise has not hired any regular employee with disability, it is defined as an *unemployment* enterprise. The total number of basic survey enterprises in the sample is 30,333. The in-depth survey was conducted on 5,074 enterprises for *employment* and 1,318 enterprises for *unemployment*. The EDI used the Computer Assisted Telephone Interviewing (CATI) method for the basic survey which interviews one to one over the phone using a computer. For the in-depth survey, Computer Assisted Personal Interviewing (CAPI) was used. For some enterprises that refused to respond to the survey with CATI and CAPI, the EDI conducted online and/or fax surveys. The ‘2014 Survey on the Employment Conditions of the Disabled in the Business Sector’ was conducted from May to August, 2014(KEAD, 2015).

¹ Regular employees indicate those who work 60 hours or more per month, except for severely disabled people, among the employees whose basic number of days of wage payment is 16 days per month, regardless of status of workers.

In this paper, the basic survey samples were merged with the in-depth survey sample by list_id variable. To distinguish between characteristics of *employment* and *unemployment* enterprises, I first chose 4,975 enterprises as employing disabled workers. There were initially 5,074 enterprises because, 99 enterprises were categorized as employment by default via the men of national merit program of the Ministry of Patriots and Veterans Affairs. However, as this is a separate disability category on its own, it would be difficult to merge it with the typological analysis and purposes of this study, so I excluded these 99 enterprises. For the *unemployment* enterprises, 1,318 were chosen. Secondly, to see the different factors that affect employment rate of the disabled workers, the 15 disability types were placed into four subcategories as mentioned before. Detailed information is presented in the following Figure 1.

Figure 1. Structure using *Employment* data



| | | | |
|-----------|---------|-----------|---------------|
| a : 2,910 | b : 316 | c : 68 | d : 47 |
| AB : 969 | AC : 89 | AD : 150 | BC : 24 |
| BD : 15 | CD : 2 | ABC : 136 | ABD : 211 |
| ACD : 2 | BCD : 2 | ABCD : 34 | Total : 4,975 |

4.2. Method

To figure out the characteristic of companies that employ disabled workers, I first conduct frequency, percentage and average comparison of Employment and Unemployment companies. Afterwards, to verify the different characteristics of each type of disability, the same examination is applied to the four types, separately. With multiple regressions, we can check the factors that affect employment rate. Here, transformed log employment rate will be used. For the employer support systems, in particular, correct targets have to be classified in accordance with their eligibility. For these, categorization is needed based on the employer support systems' targets. There are four models as shown.

Table 8. Classification of multiple regression model for employer support system

| | Model (1) | Model (2) | Model (3) | Model (4) |
|---|--------------|--------------|--------------|--------------|
| Subsidy for employing disabled people | ○ | ○ | ○ | ○ |
| Loans and aid to increase funds for facilities for the disabled | ○ | ○ | ○ | ○ |
| Assistive Technology Program | ○ | ○ | ○ | ○ |
| Tax deduction | ○ | ○ | ○ | ○ |
| Employment management costs for the disabled | | ○ | | |
| Support of Workplace Personal Assistance Service (PAS) | | ○ | | |
| Standard of mandatory employment | | | ○ | ○ |
| Responsibility of mandatory employment enterprises | | | ○ | ○ |
| Employment connection system on the Quota system | | | | ○ |

Model (1): Systems can be applied to any company if they hire the persons with disabilities.

Subsidy for employing disabled people is eligible to companies employing over 2.7% of the mandatory employment rate. The employment quota of 2.7% is originally for companies with 50 or more employees. However, any enterprise regardless of size is eligible to receive the grant for promoting employment of the disabled if they hire over 2.7% of total employees.

Secondly, loans and aid to increase funds for facilities for the disabled system are for employers who hire disabled workers or intend to hire them. Therefore, any company that needs facilities for the disabled can apply for loans and aid.

Assistive Technology Program is also eligible to companies that employ persons with disabilities. There are no specific conditions as long as the enterprise hires the disabled.

According to the law, tax deductions can be provided to companies that invest their assets for disability facilities.

Model (2): Systems can be applied to enterprises that hire persons with severe disabilities.

Model (2) was conducted for companies hiring the severely disabled. The criteria of Employment management costs for the disabled and Support of workplace personal assistance service (PAS) were added to the criteria for Model 1. This is the system for workers with severe disabilities, as described above.

Model (3): Systems can be applied to enterprises with 50 or more regular employees.

Standards and responsibility of mandatory employment are related to the employment quota system. According to it, enterprises with 50 or more employees have the responsibility of hiring the disabled i.e. 2.7% of all employees. However, there is no embedded responsibility of

quota levy.

Model (4): System can be applied to enterprises hiring 100 or more regular employees.

The Employment connection system on the Quota system is applied to companies that hire 100 or more regular employees, which are responsible for the quota levy. Such companies can use the aforementioned linked contract system.

4.3. Natural logarithm transformation of dependent variable

In this study the employment rate of persons with disabilities is transformed to logarithm employment rate. The linear regression model assumes linearity between the dependent variable and independent variable. If the independent variable changes one unit, then the dependent variable (regressand) changes as much as the coefficient of the independent variable. If the relationship between dependent and independent variables is non-linear, we need to transform the dependent variable y to $\log y$ or square root of y to fit to a line. Moreover, the linear regression analysis assumes dependent variables' normality, and non-normality of the dependent variable can affect tests of significance (Lee,2007). Logarithmic transformation can also be used for normality. To make a highly skewed variable into one that is approximately normal, logarithm of variable could be a solution (Kenneth, 2011).

When we check the dependent variable, employment rate of persons with disabilities, it is revealed as a non-linear and skewed distribution. To conduct an effective significance test, logarithm transformation of the dependent variable, y , makes a more linear and normal distribution.

Figure 3. Employment rate and log transformed employment rate p-p plot

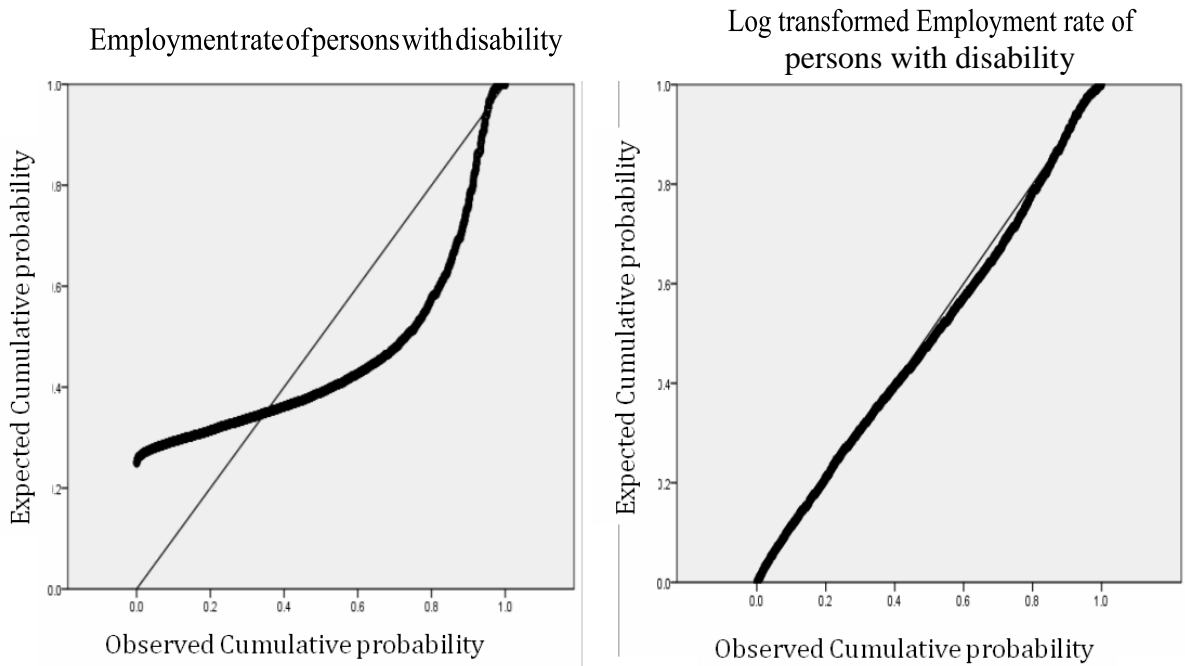
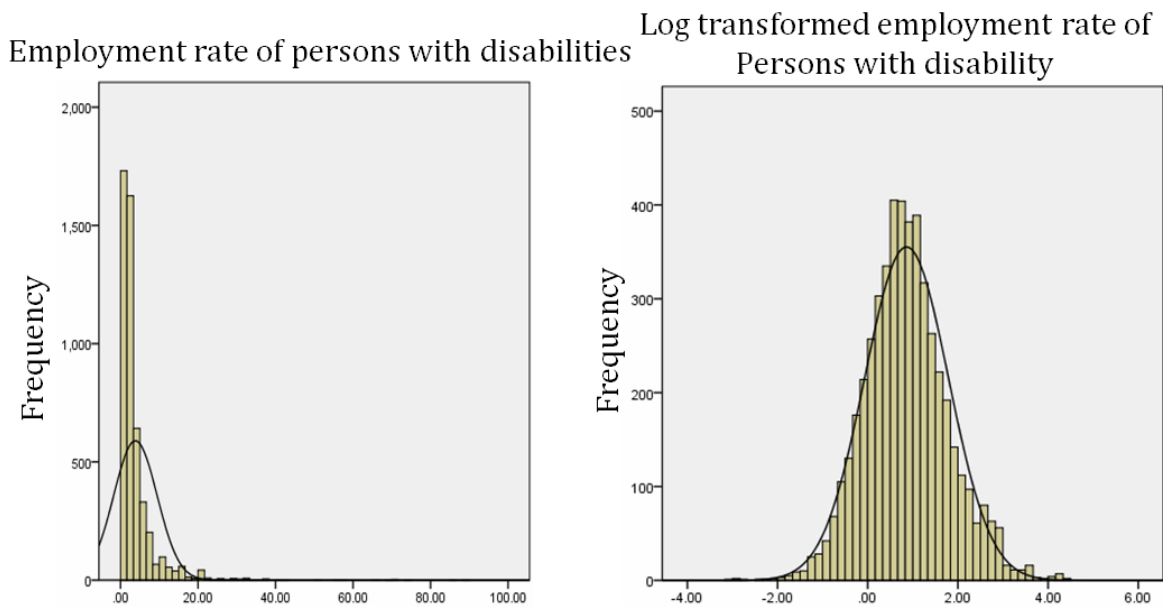


Figure 2. Distribution of employment rate and log transformed employment rate



As above, when we transform only the dependent variable, it is called a ‘log-linear model’ ($\log Y_i = \alpha + \beta X_i + \epsilon_i$) (Kenneth, 2011). Then the multiple regression equation for this study will be as follows.

$$\log(\text{Employment rate}) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k + \epsilon$$

To know the effect of $\log(\text{employment rate})$ for a one unit increase in X_1 , it needs to interpret the exponentiated regression coefficients, $\exp(\beta)$. The exponentiated coefficient $\exp(\beta)$ for X_1 is the geometric mean of employment rate.

4.4. Variable description

Table 9. Variable description

| | | Variable | Definition | Measurement |
|-----------------------|---------------------------------------|--|--|---|
| Dependent Variable | | Logarithm transformed employment rate of Persons with disabilities | LN(The number of disabled workers / Regular workers *100) | Natural Log transformed |
| Independent Variables | Organizational Characteristic factors | Location | Capital area ¹ (standard variable), Metropolitan city area ² , Other cities and provinces ³ | Dummy variables |
| | | Size | The number of regular workers : -49,50-99,100- | -49 : 1 50-99 : 2 100- : 3 |
| | | Business profit | Recent two years' business profit | Decreased : 1 No change : 2 Increased : 3 |
| | Working | Work place Environment | Degree of dust, | 5 scale points |

¹ “Capital area” indicates Seoul, Incheon, and Gyeonggi.

² “Metropolitan city area” indicates Busan, Daegu, Gwangju, Daejeon, Ulsan, and Sejong.

³ “Other cities and provinces” indicate Gangwon, Chungcheong, Jeonla, Gyeongsang, and Jeju.

| | | | | | |
|---|--|---|--|---|---|
| | Environment factors | (5 point scale, 1: Very few ~ 5: Very much) | noise, smell, danger | were added for 4 items (20 points in total) | |
| | | Work characteristic (5 point scale, 1: Very low ~ 5: Very high) | Intensity of physical, mental; Required level of skill, creativity; Need for cooperation; Physical danger | 5 scale points were added for 6 items (30 points in total) | |
| | Enterprises’ perception of employment of persons with disabilities | Ability to perform (5 point scale, 1: Non-disabled are better~ 5: Disabled are better | Employee performance, productivity, ability to follow directions, hard- working | 5 scale points were added for 4 items (20 points in total) | |
| | | Organization social skill (5point scale, 1: Non-disabled are better~ 5: Disabled are better) | Adaptability in organization, Communication skill, cooperation, Personal relationship | 5 scale points were added for 4 items (20 points in total) | |
| | | Enterprise PR | If you employ the disabled workers, do you think it will help your enterprise’s public perception? | Completely unhelpful : 1, 2, Neutral : 3, 4, Very helpful : 5 | |
| | Industry | Manufact -uring | Manufacturing : 1 others : 0 | | Standard variable |
| | | Services : 1 others : 0 | Sewage, waste management, Wholesale and retail trade, Transportation, Accommodation and food service activities, Information and communication, Financial and insurance activities, Real estate activities and renting and leasing, Professional, scientific and technical activities, Business facilities management and business support services, Education, Human health and social work activities, Arts, sports and recreation-related services, Membership organization, repair and other personal services | | Dummy variables |
| | | Other industries (Standard) | Agriculture, forestry and fishing, Mining and quarrying Electricity, gas, steam and water supply, Construction | | |
| | Awareness of Employer support system | Standard of mandatory employment | | | Aware : 1 Unaware: 0 (9 variables in total) |
| | | Responsibility of mandatory employment enterprises | | | |
| Subsidy for employing disabled people | | | | | |
| Loans and aid to increase funds for facilities for the disabled | | | | | |

| | | | |
|--|--|--|--|
| | | Employment management costs for the disabled | |
| | | Support of Workplace Personal Assistance Service (PAS) | |
| | | Assistive Technology Program | |
| | | Employment connection system on the Quota system | |
| | | Tax deduction | |

V. Empirical results and discussion

The ‘employed’ (4,975) and ‘unemployed’ (1318) enterprises are mainly located in capital-centric areas and most of them are incorporated companies at 82.6% and 77.7% respectively. The classification of industry shows similar proportions in three classifications (Manufacturing, Services, and Other industries). In detail, however, ‘transportation’ and ‘business facilities management and business support services’ represent higher percentages than ‘unemployed’ enterprises. On the other hand, ‘wholesale and retail trade’, ‘information and communications’, and ‘professional, scientific, and technical activities’ exhibit higher cases of in ‘unemployed’ enterprises than ‘employed.’ When we look into the size of enterprises, 66.9% of ‘employed’ enterprises have 100 or more employees, while 81.7% of ‘unemployed’ enterprises have less than 100.

Table 10. Basic characteristic comparison of *Employment* and *Unemployment*

| | | Employment | Unemployment |
|---|---------------------------|-------------|--------------|
| Location | Capital area | 2830 (56.9) | 874 (66.1) |
| | Metropolitan city | 891 (17.9) | 175 (13.3) |
| | Other regions | 1254 (25.2) | 272 (20.6) |
| Enterprise type | Individual proprietorship | 453 (9.1) | 221 (16.8) |
| | Incorporated company | 4108 (82.6) | 1024 (77.7) |
| | Non-business corporation | 414 (8.3) | 73 (5.5) |
| Korean standard industrial classification | Manufacturing | 1357 (27.3) | 296 (22.5) |
| | Services | 3375 (67.8) | 919 (69.7) |
| | | 45 (0.9) | 16 (1.2) |

| | | | | | | |
|--|------------------|--|-------|---------------|-------|---------------|
| | | Wholesale and retail trade | | 327 (6.6) | | 201 (15.3) |
| | | Transportation | | 741 (14.9) | | 72 (5.5) |
| | | Accommodation and food service activities | | 81 (1.6) | | 38 (2.9) |
| | | Information and communications | | 245 (4.9) | | 139 (10.5) |
| | | Financial and insurance activities | | 114 (2.3) | | 28 (2.1) |
| | | Real estate activities and renting and leasing | | 100 (2.0) | | 24 (1.8) |
| | | Professional, scientific and technical activities | | 272 (5.5) | | 118 (9.0) |
| | | Business facilities management and business support services | | 716 (14.4) | | 72 (5.5) |
| | | Education | | 162 (3.3) | | 37 (2.8) |
| | | Human health and social work activities | | 442 (8.9) | | 125 (9.5) |
| | | Arts, sports and recreation related services | | 49 (1.0) | | 14 (1.1) |
| | | Membership organization, repair and other personal services | | 81 (1.6) | | 35 (2.7) |
| | Other industries | Agriculture, forestry and fishing | | 10 (0.2) | | 1 (0.1) |
| | | Mining and quarrying | 243 | 4 (0.1) | 103 | - |
| | | Electricity, gas, steam and water supply | (4.9) | 15 (0.3) | (7.8) | 1 (0.1) |
| | | Construction | | 214 (4.3) | | 101 (7.7) |
| Enterprise Size (number of regular employees) | | -49 | 681 | (13.7) | 607 | (46.1) |
| | | 50-99 | 968 | (19.5) | 469 | (35.6) |
| | | 100- | 3326 | (66.9) | 242 | (18.4) |
| Business profit of last two years | | Decreased | 1385 | (27.8) | 364 | (27.6) |
| | | No change | 2615 | (52.6) | 731 | (55.5) |
| | | Increased | 975 | (19.6) | 223 | (16.9) |
| Employment Rate | | 1% under | 823 | (16.5) | | - |
| | | 1-2% under | 1348 | (27.1) | | - |
| | | 2-3% under | 965 | (19.4) | | - |
| | | 3-4% under | 556 | (11.2) | | - |
| | | 4% or over | 1283 | (25.8) | | - |

Specifically, among the enterprises that employ disabled workers, 2,910 of them employed only those with External disabilities. Moreover, 316, 68, and 47 enterprises employed only those with Sensory impairment, Psychological disability, and Internal disability respectively. Compared to other types, enterprises that hired only those with Psychological disability were relatively more likely to be sole proprietorships. In the distribution of industry, External physical disability had the highest proportion in transportation and Sensory impairment was most represented in the information and communications industry. The enterprises that employed Psychological disabilities stood at 36.8% among those with less than 50 regular workers.

Table 11. Frequency and percentage analysis on basic characteristic comparison by type of disabilities

| | | External disability | | Sensory impairment | | Psychological disability | | Internal disability | | |
|--------------------------|---------------------------|--|--------|--------------------|--------|--------------------------|--------|---------------------|--------|--------|
| Location | Capital area | 1588 | (54.6) | 189 | (59.8) | 35 | (51.5) | 27 | (57.4) | |
| | Metropolitan city | 523 | (18.0) | 52 | (16.5) | 11 | (16.2) | 11 | (23.4) | |
| | Other regions | 799 | (27.5) | 75 | (23.7) | 22 | (32.4) | 9 | (19.1) | |
| Type of Company | Individual proprietorship | 304 | (10.4) | 41 | (13.0) | 16 | (23.5) | 7 | (14.9) | |
| | Incorporated company | 2376 | (81.6) | 251 | (79.4) | 45 | (66.2) | 37 | (78.7) | |
| | Non-business corporation | 230 | (7.9) | 24 | (7.6) | 7 | (10.3) | 3 | (6.4) | |
| Distribution of Industry | Manufacturing | 801 (27.5) | | 126 (39.9) | | 27 (39.7) | | 12 (25.5) | | |
| | Service | Sewerage, waste management | 26 | (0.9) | 1 | (0.3) | - | - | - | - |
| | | Wholesale and retail trade | 216 | (7.4) | 39 | (12.3) | 8 | (11.8) | 1 | (2.1) |
| | | Transportation | 503 | (17.3) | 7 | (2.2) | 2 | (2.9) | 5 | (10.6) |
| | | Accommodation and food service activities | 39 | (1.3) | 6 | (1.9) | 2 | (2.9) | 1 | (2.1) |
| | | Information and communications | 150 | (5.2) | 33 | (10.4) | 2 | (2.9) | 4 | (8.5) |
| | | Financial and insurance activities | 69 | (2.4) | 6 | (1.9) | - | - | - | - |
| | | Real estate activities and renting and leasing | 54 | (1.9) | 4 | (1.3) | - | - | 3 | (6.4) |
| | | Professional, scientific and technical activities | 164 | (5.6) | 15 | (4.7) | 5 | (7.4) | 3 | (6.4) |
| | | Business facilities management and business support services | 280 | (9.6) | 26 | (8.2) | 6 | (8.8) | 4 | (8.5) |
| | | Education | 88 | (3.0) | 6 | (1.9) | 2 | (2.9) | 3 | (6.4) |
| | | Human health and social work activities | 278 | (9.6) | 18 | (5.7) | 8 | (11.8) | 6 | (12.8) |
| | | | | 1951 | (67.0) | 173 | (54.7) | 38 | (55.9) | 32 |

| | | | | | | | | | | |
|-----------------------------------|------------|---|--------------|--------------|-------------|-------------|------------|------------|------------|------------|
| | | Arts, sports and recreation related services | | 34 (1.2) | | 3 (0.9) | | - | | - |
| | | Membership organization, repair and other personal services | | 50 (1.7) | | 9 (2.8) | | 3 (4.4) | | 2 (4.3) |
| | Etc. | Agriculture, forestry and fishing | 158 (5.4) | 7 (0.2) | 17 (5.4) | 2 (0.6) | 3 (4.4) | - | 3 (6.4) | - |
| | | Mining and quarrying | | 3 (0.1) | | - | | - | | |
| | | Electricity, gas, steam and water supply | | 8 (0.3) | | 2 (0.6) | | - | | - |
| | | Construction | | 140 (4.8) | | 13 (4.1) | | 3 (4.4) | | 3 (6.4) |
| Company Size | -49 | 487 | (16.7) | 96 | (30.4) | 25 | (36.8) | 6 | (12.8) | |
| | 50-99 | 675 | (23.2) | 78 | (24.7) | 20 | (29.4) | 14 | (29.8) | |
| | 100- | 1748 | (60.1) | 142 | (44.9) | 23 | (33.8) | 27 | (57.4) | |
| Business profit of last two years | Decreased | 798 | (27.4) | 80 | (25.3) | 18 | (26.5) | 10 | (21.3) | |
| | No change | 1595 | (54.8) | 174 | (55.1) | 40 | (58.8) | 25 | (53.2) | |
| | Increased | 517 | (17.8) | 62 | (19.6) | 10 | (14.7) | 12 | (25.5) | |
| Employment Rate | Under 1% | 548 | (18.8) | 86 | (27.2) | 10 | (14.7) | 23 | (48.9) | |
| | 1-2% Under | 824 | (28.3) | 98 | (31.0) | 24 | (35.3) | 15 | (31.9) | |
| | 2-3% Under | 518 | (17.8) | 43 | (13.6) | 5 | (7.4) | 1 | (2.1) | |
| | 3-4% Under | 292 | (10.0) | 11 | (3.5) | 5 | (7.4) | 1 | (2.1) | |
| | 4% Under | 728 | (25.0) | 78 | (24.7) | 24 | (35.3) | 7 | (14.9) | |

Work place environment (dust, noise, smell and level of danger; 20 points in total) and work characteristics (physical, and mental intensity, required level of skill and creativity, need for cooperation, and physical danger; 30 points in total) exhibited similar results. Enterprises' perception of employment of persons with disabilities is represented by their ability to perform (employee performance, productivity, ability to follow directions, and work ethic; 20 points in total) and organizational social skills (adaptability in organization, communication skill, cooperation, and personal relationship; 20 points in total). Unsurprisingly, this was higher in 'employed' enterprises. It means employers. This suggests that employers who have experience in working with the disabled possess good awareness of the work performance and organizational social skills.

Table 12. Average comparison of working environment factors and enterprises' perception of employment of disabled by *Employment* and *Unemployment*

| | Employment | Unemployment |
|---------------------------|------------|--------------|
| Work place environment | 10.8 | 10.2 |
| Work characteristic | 18.9 | 19.2 |
| Ability to perform | 11.8 | 10.1 |
| Organization social skill | 11.7 | 10.2 |

When we compare the four types of disabilities, employers of those with internal disability have good awareness (12.2 and 12.0 points). Enterprises that hire only those with external disability, show relatively higher points than other 'employed' enterprises, such as 19.2 in the work characteristic category.

Table 13. Average comparison of working environment factors and enterprises' perception of employment of disabled by type of disabilities

| | External physical disability | Sensory impairment | Psychological disability | Internal physical disability |
|------------------------|------------------------------|--------------------|--------------------------|------------------------------|
| Work place environment | 10.9 | 10.4 | 11.0 | 9.3 |
| Work characteristic | 19.2 | 18.3 | 18.8 | 18.4 |
| Ability to perform | 11.9 | 11.7 | 11.4 | 12.2 |

| | | | | |
|---------------------------|------|------|------|------|
| Organization social skill | 11.8 | 11.4 | 10.5 | 12.0 |
|---------------------------|------|------|------|------|

Compared to ‘unemployed’ enterprises, ‘employed’ enterprises show a higher rate of awareness in every employer support system.

Table 14. Frequency and percentage comparison of awareness of employer support system by *Employment and Unemployment*

| Awareness | Employment 4975 | Unemployment 1318 |
|---|--------------------|----------------------|
| Standard of mandatory employment | 4611 (92.7) | 863 (65.5) |
| Responsibility of mandatory employment enterprises | 4348 (87.4) | 746 (56.6) |
| Subsidy for employing disabled people | 3573 (71.8) | 619 (47.0) |
| Loans and aid to increase funds for facilities for the disabled | 1641 (33.0) | 235 (17.8) |
| Support for operation of standard work place | 963 (19.4) | 138 (10.5) |
| Employment management costs for the disabled | 768 (15.4) | 114 (8.6) |
| Support of Workplace Personal Assistance Service (PAS) | 586 (11.8) | 96 (7.3) |
| Assistive Technology Program | 911 (18.3) | 111 (8.4) |
| Deduction of quota levy through Employment connection system | 535 (10.8) | 64 (4.9) |
| Tax deduction | 447 (9.0) | 72 (5.5) |

Table 15. Frequency and percentage comparison of experience of employer support system by *Employment and Unemployment*

| | Employment 4975 | Unemployment 1318 |
|---|--------------------|----------------------|
| Subsidy for employing disabled people | 1285 (25.8) | 26 (2.0) |
| Loans and aid to increase funds for facilities for the disabled | 135 (2.7) | 4 (0.3) |
| Support for operation of standard work place | 66 (1.3) | 4 (0.3) |
| Employment management costs for the disabled | 72 (1.4) | 1 (0.1) |
| Support of Workplace Personal Assistance Service (PAS) | 36 (0.7) | 3 (0.2) |
| Assistive Technology Program | 73 (1.5) | 2 (0.2) |
| Deduction of quota levy through Employment connection system | 65 (1.3) | 3 (0.2) |
| Preferential purchase system of the products manufactured by persons with severe disability | 18 (0.4) | - |
| Tax deduction | 105 (2.1) | 8 (0.6) |

Specifically, with regard to awareness of standards and responsibility of mandatory employment enterprises, Internal disability shows high rates of awareness in both criteria. That is because in the frequency analysis, the proportion of companies (50+ employees) hiring those with internal disability was higher in the mandatory employment system relative to others. The awareness of subsidies for employing disabled people was also the highest in the Internal disability category (72.3%), with External disability a close second at 68.4%. In the Loans and aid for facilities for the disabled category, External physical disability showed the highest rates as 32.0%. In the categories of Employment management costs for the disabled and Support of workplace personal assistive service (PAS), Internal physical disability is represented as the highest rate at 19.1% and 12.8% respectively. Especially on Deduction of quota levy through employment connection system, the difference in awareness rates is quite high, again due to relatively higher proportion of *Employment* companies in the Internal disability category.

Table 16. Frequency and percentage comparison of awareness of employer support system by type of disabilities

| Awareness | External disability | Sensory Impairment | Psychological Disability | Internal Disability |
|---|---------------------|--------------------|--------------------------|---------------------|
| | 2910 | 316 | 68 | 47 |
| Standard of mandatory employment | 2654 (91.2) | 271 (85.8) | 60 (88.2) | 43 (91.5) |
| Mandatory employment enterprises' responsibility | 2495 (85.7) | 234 (74.1) | 52 (76.5) | 44 (93.6) |
| Subsidy for employing disabled people | 1990 (68.4) | 176 (55.7) | 46 (67.6) | 34 (72.3) |
| Loans and aid to increase funds for facilities for the disabled | 932 (32.0) | 64 (20.3) | 20 (29.4) | 12 (25.5) |
| Employment management costs for the disabled | 437 (15.0) | 25 (7.9) | 7 (10.3) | 9 (19.1) |
| Support of Workplace Personal Assistance Service (PAS) | 325 (11.2) | 27 (8.5) | 4 (5.9) | 6 (12.8) |
| Assistive Technology Program | 494 (17.0) | 36 (11.4) | 6 (8.8) | 7 (14.9) |
| Deduction of quota levy through Employment connection system | 288 (9.9) | 20 (6.3) | 4 (5.9) | 8 (17.0) |
| Tax deduction | 289 (9.9) | 15 (4.7) | 8 (11.8) | 8 (17.0) |

Table 17 shows the experience of employer support systems, whether current or past. Companies employing those with external physical disability had the most experience relative to other *Employment* companies at 23.3%. Experience rates were generally low among in-depth surveyed companies. Especially, companies hiring those with internal disability had little experience with such support systems. Thus, conducting a regression analysis for experience of employer support systems as the variable would not be very useful in this case.

Table 17. Frequency and percentage comparison of experience of employer support system by type of disabilities

| | External Disability | Sensory Impairment | Psychological Disability | Internal Disability |
|--|---------------------|--------------------|--------------------------|---------------------|
| | 2910 | 316 | 68 | 47 |
| | | | | |

| | | | | |
|---|---------------|--------------|--------------|-------------|
| Subsidy for employing disabled people | 678 (23.3) | 42 (13.3) | 14 (20.6) | 9 (19.1) |
| Loans and aid to increase funds for facilities for the disabled | 71 (2.4) | 6 (1.9) | 4 (5.9) | - |
| Support for operation of standard work place | 29 (1.0) | 4 (1.3) | 1 (1.5) | - |
| Employment management costs for the disabled | 25 (0.9) | 4 (1.3) | 1 (1.5) | - |
| Support of Workplace Personal Assistance Service (PAS) | 11 (0.4) | 4 (1.3) | 2 (2.9) | - |
| Assistive Technology Program | 24 (0.8) | 1 (0.3) | 1 (1.5) | - |
| Deduction of quota levy through Employment connection system | 31 (1.1) | 2 (0.6) | - | - |
| Preferential purchase system of the products manufactured by persons with severe disability | 6 (0.2) | 1 (0.3) | - | - |
| Tax deduction | 65 (2.2) | 2 (0.6) | 1 (1.5) | - |

Table 18 shows Employment companies that hire those with severe disabilities. The total number of such enterprises is 1,646, and 60.9% of them are located in capital-centric areas and 83.7% are incorporated companies. In terms of industrial classification, manufacturing, services, and other industries are represented at 24.7%, 72.0%, and 3.3% respectively. Among services, the business facilities management and business support services had the highest rate 19.0%. Companies with 100+ employees accounted for 77.8% and the employment rate dispersion reveals that such companies also score highest in the “4% or over” category, at 30.4%.

In Table 19 we can see separate information about the companies that hire those with disabilities by type. Compared to other types, External physical disability was the highest in the services sector at 74.7%. In Psychological disability companies with 100 employees or fewer stood at over 65%. In general, larger enterprises have difficulties into hiring those with psychological disabilities, as most of them are employed in relatively small companies.

Table 18. Frequency and percentage of enterprises that employ severely disabled workers

| | | Employment 1646 | | |
|---|---------------------------|--|----------------|-----------|
| Location | Capital area | 1002 | (60.9) | |
| | Metropolitan city | 276 | (16.8) | |
| | Other regions | 368 | (22.4) | |
| Type of Company | Individual proprietorship | 105 | (6.4) | |
| | Incorporated company | 1378 | (83.7) | |
| | Non-business corporation | 163 | (9.9) | |
| Korean standard industrial classification | Manufacturing | 407 | (24.7) | |
| | Services | Sewerage, waste management | 1185 (72.0) | 17(1.0) |
| | | Wholesale and retail trade | | 89(5.4) |
| | | Transportation | | 296(18.0) |
| | | Accommodation and food service activities | | 33(2.0) |
| | | Information and communications | | 68(4.1) |
| | | Financial and insurance activities | | 27(1.6) |
| | | Real estate activities and renting and leasing | | 26(1.6) |
| | | Professional, scientific and technical activities | | 90(5.5) |
| | | Business facilities management and business support services | | 312(19.0) |
| | | Education | | 56(3.4) |
| | | Human health and social work activities | | 138(8.4) |
| | | Arts, sports and recreation related services | | 14(0.9) |
| | | Membership organization, repair and other personal services | | 19(1.2) |
| | Other industries | Agriculture, forestry and fishing | 54 (3.3) | 1(0.1) |
| | | Mining and quarrying | | - |
| | | Electricity, gas, steam and water supply | | 6(0.4) |
| Construction | | 47(2.9) | | |
| Company Size | -49 | 163 | (9.9) | |
| | 50-99 | 202 | (12.3) | |
| | 100- | 1281 | (77.8) | |
| Business profit of last two years | Decreased | 511 | (31.0) | |
| | No change | 780 | (47.4) | |
| | Increased | 355 | (21.6) | |
| Employment Rate | 1% under | 192 | (11.7) | |
| | 1-2% under | 407 | (24.7) | |
| | 2-3% under | 341 | (20.7) | |
| | 3-4% under | 206 | (12.5) | |
| | 4% or over | 500 | (30.4) | |

Table 19. Frequency and percentage comparison of enterprises that employ severely disabled workers by type

| | | External physical disability 554 | | Sensory impairment 68 | | Psychological disability 68 | | Internal physical disability 17 | | |
|---|---------------------------|--|---------------|--------------------------|--------------|--------------------------------|--------------|------------------------------------|--------------|-------------|
| Location | Capital area | 328 | (59.2) | 41 | (60.3) | 35 | (51.5) | 10 | (58.8) | |
| | Metropolitan city | 93 | (16.8) | 10 | (14.7) | 11 | (16.2) | 3 | (17.6) | |
| | Other regions | 133 | (24.0) | 17 | (25.0) | 22 | (32.4) | 4 | (23.5) | |
| Type of Company | Individual proprietorship | 35 | (6.3) | 9 | (13.2) | 16 | (23.5) | 3 | (17.6) | |
| | Incorporated company | 465 | (83.9) | 55 | (80.9) | 45 | (66.2) | 12 | (70.6) | |
| | Non-business corporation | 54 | (9.7) | 4 | (5.9) | 7 | (10.3) | 2 | (11.8) | |
| Korean standard industrial classification | Manufacturing | 122 (22.0) | | 32 (47.1) | | 27 (39.7) | | 4 (23.5) | | |
| | Services | Sewerage, waste management | 414 (74.7) | 5 (0.9) | 35 (51.5) | - | 38 (55.9) | - | 10 (58.8) | - |
| | | Wholesale and retail trade | | 36 (6.5) | | 6 (8.8) | | 8 (11.8) | | - |
| | | Transportation | | 154 (27.8) | | 1 (1.5) | | 2 (2.9) | | 2 (11.8) |
| | | Accommodation and food service activities | | 8 (1.4) | | 2 (2.9) | | 2 (2.9) | | - |
| | | Information and communications | | 32 (5.8) | | 5 (7.4) | | 2 (2.9) | | 1 (5.9) |
| | | Financial and insurance activities | | 10 (1.8) | | 1 (1.5) | | - | | - |
| | | Real estate activities and renting and leasing | | 6 (1.1) | | - | | - | | 1 (5.9) |
| | | Professional, scientific and technical activities | | 32 (5.8) | | 5 (7.4) | | 5 (7.4) | | - |
| | | Business facilities management and business support services | | 56 (10.1) | | 7 (10.3) | | 6 (8.8) | | 3 (17.6) |
| | | Education | | 13 (2.3) | | - | | - | | 1 (5.9) |
| | | Human health and social work activities | | 46 (8.3) | | 6 (8.8) | | 8 (11.8) | | 2 (11.8) |
| | | Arts, sports and recreation | | 9 | | - | | - | | - |

| | | | | | | | | | | |
|-----------------------------------|------------------|---|-------------|-------------|------------|------------|------------|------------|-------------|-------------|
| | | related services | | (1.6) | | | | | | |
| | | Membership organization, repair and other personal services | | 7 (1.3) | | 2 (2.9) | | 3 (4.4) | - | |
| | Other industries | Agriculture, forestry and fishing | 18 (3.2) | 1 (0.2) | 1 (1.5) | - | 3 (4.4) | - | 3 (17.6) | |
| | | Mining and quarrying | | - | | - | | | | |
| | | Electricity, gas, steam and water supply | | 1 (0.2) | | - | | | | |
| | | Construction | | 16 (2.9) | | 1 (1.5) | | 3 (4.4) | | 3 (17.6) |
| Company Size | | -49 | 79 | (13.7) | 18 | (26.5) | 25 | (36.8) | 2 | (11.8) |
| | | 50-99 | 87 | (15.7) | 11 | (16.2) | 20 | (29.4) | 4 | (23.5) |
| | | 100- | 391 | (70.6) | 39 | (57.4) | 23 | (33.8) | 11 | (64.7) |
| Business profit of last two years | | Decreased | 176 | (31.8) | 22 | (32.4) | 18 | (26.5) | 6 | (35.3) |
| | | No change | 276 | (49.8) | 29 | (42.6) | 40 | (58.8) | 8 | (47.1) |
| | | Increased | 102 | (18.4) | 17 | (25.0) | 10 | (14.7) | 3 | (17.6) |
| Employment Rate | | 1% under | 79 | (14.3) | 15 | (22.1) | 10 | (14.7) | 8 | (47.1) |
| | | 1-2% under | 133 | (24.0) | 24 | (35.3) | 24 | (35.3) | 6 | (35.3) |
| | | 2-3% under | 95 | (17.1) | 11 | (16.2) | 5 | (7.4) | - | |
| | | 3-4% under | 74 | (13.4) | 1 | (1.5) | 5 | (7.4) | 1 | (5.9) |
| | | 4% or over | 173 | (31.2) | 17 | (25.0) | 24 | (35.3) | 2 | (11.8) |

The average working environment factors and enterprises' perception of employment of the disabled is represented by type in Table 20. Companies employing those with psychological disability shows 11.0 points on average with regard to workplace environment. This figure can be regarded as getting worse as the number goes up, as it implies worse working conditions. Thus psychological disability scores the worst in this category, which might be related to the size of company. As we checked above, over half of the companies employing those with psychological disability are relatively small in size.

Table 20. Enterprises hiring severely disabled workers: Average comparison of working environment factors and enterprises' perception of employment of disabled

| | Total | External physical disability | Sensory impairment | Psychological disability | Internal physical disability |
|-----------------------------|-------|------------------------------|--------------------|--------------------------|------------------------------|
| Work place environment | 10.7 | 10.8 | 10.3 | 11.0 | 9.0 |
| Work characteristic | 18.7 | 19.1 | 18.5 | 18.8 | 18.8 |
| Ability to perform | 11.7 | 11.8 | 11.8 | 11.4 | 12.0 |
| Organizational social skill | 11.5 | 11.8 | 11.2 | 10.5 | 11.7 |

According to Table 21, enterprises that employ those with sensory impairment exhibit the lowest rate of awareness of subsidies for employing disabled people, at just 51.5%. This category scores relatively low in the other criteria as well. While companies that hire those external physical disability account for the highest rate of awareness in most criteria, figures for employment management costs for the disabled, deduction of quota levy through employment connection system and tax deduction program are still quite low.

Table 21. Frequency and percentage comparison of awareness of employer support systems by disability type (severe)

| | Total | External Disability | Sensory Impairment | Psychological Disability | Internal Disability |
|----------------------------------|----------------|---------------------|--------------------|--------------------------|---------------------|
| Standard of mandatory employment | 1556 (94.5) | 514 (92.8) | 60 (88.2) | 60 (88.2) | 15 (88.2) |

| | | | | | |
|---|----------------|---------------|--------------|--------------|--------------|
| Mandatory employment enterprises' responsibility | 1478 (89.8) | 489 (88.3) | 50 (73.5) | 52 (76.5) | 15 (88.2) |
| Subsidy for employing disabled people | 1292 (78.5) | 412 (74.4) | 35 (51.5) | 46 (67.6) | 12 (70.6) |
| Loans and aid to increase funds for facilities for the disabled | 615 (37.4) | 203 (36.6) | 12 (17.6) | 20 (29.4) | 5 (29.4) |
| Employment management costs for the disabled | 287 (17.4) | 96 (17.3) | 6 (8.8) | 7 (10.3) | 3 (17.6) |
| Support of Workplace Personal Assistance Service (PAS) | 220 (13.4) | 71 (12.8) | 4 (5.9) | 4 (5.9) | 2 (11.8) |
| Assistive Technology Program | 363 (22.1) | 113 (20.4) | 7 (10.3) | 6 (8.8) | 1 (5.9) |
| Deduction of quota levy through Employment connection system | 208 (12.6) | 64 (11.6) | 3 (4.4) | 4 (5.9) | 2 (11.8) |
| Tax deduction | 136 (8.3) | 49 (8.8) | 4 (5.9) | 8 (11.8) | 2 (11.8) |

Table 22. Frequency and percentage comparison of experience of employer support systems by disability type (severe)

| | Whole severe employed | External Disability | Sensory Impairment | Psychological Disability | Internal Disability |
|---|-----------------------|---------------------|--------------------|--------------------------|---------------------|
| Subsidy for employing disabled people | 539 (32.7) | 163 (29.4) | 11 (16.2) | 14 (20.6) | 2 (11.8) |
| Loans and aid to increase funds for facilities for the disabled | 63 (3.8) | 22 (4.0) | 2 (2.9) | 4 (5.9) | - |
| Employment management costs for the disabled | 42 (2.6) | 7 (1.3) | 2 (2.9) | 1 (1.5) | - |
| Support of Workplace Personal Assistance Service (PAS) | 20 (1.2) | 3 (0.5) | 1 (1.5) | 2 (2.9) | - |
| Assistive Technology Program | 47 (2.9) | 8 (1.4) | - | 1 (1.5) | - |
| Deduction of quota levy through Employment connection system | 26 (1.6) | 4 (0.7) | - | - | - |
| Tax deduction | 33 (2.0) | 5 (0.9) | 1 (1.5) | 1 (1.5) | - |

Table 23. Correlation analysis of variables

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) | (23) | |
|--------|--------|--------|-------|--------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 4975 | | | | | | | | | | | | | | | | | | | | | | | |
| .053** | 1 | | | | | | | | | | | | | | | | | | | | | | |
| .000 | | | | | | | | | | | | | | | | | | | | | | | |
| 4975 | 4975 | | | | | | | | | | | | | | | | | | | | | | |
| - | - | 1 | | | | | | | | | | | | | | | | | | | | | |
| .037** | .889** | | | | | | | | | | | | | | | | | | | | | | |
| .010 | .000 | | | | | | | | | | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | | | | | | | | | | | | | | | | | | | | | |
| - | - | - | 1 | | | | | | | | | | | | | | | | | | | | |
| .030* | .139** | .329** | | | | | | | | | | | | | | | | | | | | | |
| .032 | .000 | .000 | | | | | | | | | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | | | | | | | | | | | | | | | | | | | | |
| - | - | - | - | 1 | | | | | | | | | | | | | | | | | | | |
| .131** | .104** | .109** | -.021 | | | | | | | | | | | | | | | | | | | | |
| .000 | .000 | .000 | .136 | | | | | | | | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | | | | | | | | | | | |
| .063** | .002 | -.004 | .004 | - | 1 | | | | | | | | | | | | | | | | | | |
| .000 | .870 | .785 | .800 | .537** | | | | | | | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | | | | | | | | | | |
| .094** | .116** | - | .021 | - | - | 1 | | | | | | | | | | | | | | | | | |
| .000 | .000 | .121** | .140 | .667** | .271** | | | | | | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | - | 1 | | | | | | | | | | | | | | | | |
| .042** | .041** | .036* | -.007 | .049** | -.023 | .036* | | | | | | | | | | | | | | | | | |
| .003 | .004 | .012 | .632 | .000 | .098 | .012 | | | | | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | - | - | 1 | | | | | | | | | | | | | | | |
| .516** | .210** | .212** | -.026 | .091** | .015 | .118** | .006 | | | | | | | | | | | | | | | | |
| .000 | .000 | .000 | .066 | .000 | .276 | .000 | .647 | | | | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | |
|---------|---------|---------|--------|---------|--------|--------|---------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|------|------|
| .000 | .000 | .000 | .000 | .000 | .000 | .000 | .004 | .000 | | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | | | |
| -.043** | .019 | -.060** | .090** | -.106** | .027 | .097** | -.041** | .045** | .352** | 1 | | | | | | | | | | | | |
| .003 | .171 | .000 | .000 | .000 | .055 | .000 | .003 | .002 | .000 | | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | | | |
| .032* | -.018 | .025 | -.016 | -.047** | .064** | -.003 | -.018 | -.020 | .056** | .068** | 1 | | | | | | | | | | | |
| .023 | .204 | .083 | .258 | .001 | .000 | .838 | .212 | .168 | .000 | .000 | | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | | |
| .033* | -.014 | .012 | .002 | -.037** | .052** | -.004 | -.026 | -.027 | .047** | .084** | .686** | 1 | | | | | | | | | | |
| .020 | .329 | .384 | .897 | .009 | .000 | .782 | .069 | .061 | .001 | .000 | .000 | | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | | |
| -.010 | -.061** | .065** | -.015 | .031* | .009 | .043** | .027 | .086** | -.031* | .071** | .139** | .143** | 1 | | | | | | | | | |
| .461 | .000 | .000 | .276 | .030 | .524 | .002 | .059 | .000 | .026 | .000 | .000 | .000 | | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | | |
| -.220** | -.097** | .104** | -.026 | .069** | .038** | .045** | .001 | .321** | -.055** | .007 | -.025 | -.024 | .074** | 1 | | | | | | | | |
| .000 | .000 | .000 | .068 | .000 | .008 | .002 | .936 | .000 | .000 | .641 | .074 | .086 | .000 | | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | | |
| -.266** | -.141** | .146** | -.024 | .017 | -.004 | -.015 | -.006 | .407** | -.065** | .005 | -.004 | .000 | .080** | .647** | 1 | | | | | | | |
| .000 | .000 | .000 | .097 | .239 | .763 | .281 | .677 | .000 | .000 | .734 | .782 | .984 | .000 | .000 | | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | | |
| -.073** | -.118** | .133** | .045** | .053** | -.013 | .049** | .005 | .281** | -.063** | -.008 | .040** | .047** | .106** | .225** | .295** | 1 | | | | | | |
| .000 | .000 | .000 | .002 | .000 | .370 | .001 | .731 | .000 | .000 | .583 | .004 | .001 | .000 | .000 | .000 | | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | | |
| -.054** | -.067** | .074** | -.022 | .073** | .037** | .051** | .006 | .171** | -.024 | .092** | -.002 | .011 | .129** | .123** | .178** | .373** | 1 | | | | | |
| .000 | .000 | .000 | .119 | .000 | .009 | .000 | .684 | .000 | .096 | .000 | .884 | .422 | .000 | .000 | .000 | .000 | | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | | |
| -.065** | -.027 | .042** | .035** | .039** | .031* | .017 | .026 | .120** | -.056** | .086** | .012 | .014 | .124** | .069** | .115** | .202** | .378** | 1 | | | | |
| .000 | .058 | .003 | .014 | .006 | .028 | .225 | .064 | .000 | .000 | .000 | .414 | .330 | .000 | .000 | .000 | .000 | .000 | | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | | | |
| -.058** | -.045** | .059** | .037** | .029* | .018 | .018 | .027 | .112** | -.051** | .070** | .030* | .031* | .115** | .064** | .099** | .168** | .331** | .476** | 1 | | | |
| .000 | .002 | .000 | .010 | .038 | .205 | .213 | .060 | .000 | .000 | .000 | .033 | .028 | .000 | .000 | .000 | .000 | .000 | .000 | | | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 |

| | | | | | | | | | | | | | | | | | | | | | | |
|--------|--------|--------|-------|--------|-------|-------|------|--------|--------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| .063** | .060** | .069** | -.025 | .038** | -.026 | -.020 | .015 | .136** | .069** | -.002 | .016 | -.008 | .116** | .101** | .123** | .245** | .368** | .350** | .369** | 1 | | |
| .000 | .000 | .000 | .074 | .008 | .067 | .160 | .282 | .000 | .000 | .910 | .258 | .583 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | |
| .133** | .039** | .042** | -.009 | .026 | -.017 | -.015 | .013 | .128** | .092** | .016 | .006 | -.001 | .130** | .065** | .104** | .161** | .259** | .306** | .334** | .294** | 1 | |
| .000 | .006 | .003 | .506 | .069 | .241 | .299 | .346 | .000 | .000 | .254 | .657 | .950 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | |
| -.026 | .008 | -.006 | -.003 | .021 | -.026 | -.001 | .021 | .018 | .036* | .017 | .028* | .031* | .056** | .050** | .068** | .170** | .153** | .163** | .182** | .138** | .220** | 1 |
| .068 | .572 | .653 | .848 | .140 | .069 | .939 | .131 | .208 | .011 | .234 | .045 | .028 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | |
| 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 | 4975 |

** 0.01, * 0.05

| | | |
|---|---|--|
| (1) Natural Log on employment rate | (2) Manufacturing | (3) Services |
| (4) Other industries | (5) Capital area | (6) Metropolitan city area |
| (7) Other cities and provinces | (8) Recent two year's business profit | (9) Size (The number of regular workers, -49, 50-99, 100-) |
| (10) Work place Environment | (11) Work characteristic | (12) Ability to perform |
| (13) Organizational social skill | (14) Enterprise PR | (15) Standard of mandatory employment |
| (16) Mandatory employment enterprises' responsibility | (17) Subsidy for employing disabled people | (18) Loans and aid to increase funds for facilities for the disabled |
| (19) Employment management costs for the disabled | (20) Support of Workplace Personal Assistance Service | (21) Assistive Technology Program |
| (22) Deduction of quota levy through Employment connection system | (23) Tax deduction | |

The results of Model (1) are represented in Table 24. Before comparing the companies that employ different types of persons with disabilities, note that the first column, (1) shows all *employment* companies i.e. all enterprises that employ the disabled. The adjusted R^2 indicates the independent variables account for 31% of the variation in logged employment rate. Among awareness of employer support system variables, subsidy for employing disabled people and tax deduction variables are significantly related to logged employment rate. Specifically, for awareness of subsidy for employing disabled people, holding the other independent variables constant, employment rate is expected to increase by 8% ($\exp(.0078)=1.081123$). The awareness of tax deduction is revealed as a negative coefficient in the whole employment sample, but insignificant in (2), (3), (4), and (5). The regression coefficient for metropolitan city is 0.077. For companies located in metropolitan cities, the employment rate is expected to rise 8% higher than in capital-centric areas ($\exp(.077)=1.080042$). In the case of other regions, the employment rate will be 7% higher than in capital-centric areas. In the industry category, manufacturing is significantly related to log transformed employment rate. In detail, for manufacturing firms, holding the other independent variables constant, employment rate is expected to increase by 5% ($\exp(.045)=1.046028$). In environment factors, the workplace environment and work characteristic criteria are represented significantly related to logged employment rate. Specifically, the worse a company's work place environment is, one can expect a 18% higher employment rate of the disabled ($\exp(.164)=1.178214$). Inversely, as work characteristic credits increase, the employment rate decreases. Finally, in enterprise PR, holding the other predictor variables constant, increase in enterprise PR credits is expected to increase the employment rate by 3%. That is, when enterprises perceive employing those with disabilities is helpful for their image, they prefer to hire the disabled. Through this result, companies with high awareness of the subsidy system for employing disabled people, located in metropolitan areas, in the manufacturing sector, with relatively bad work place environments

and low intensity work, are the most likely candidate to hire persons with disabilities in general.

When we compared disability types, all types of disabilities are represented as negative coefficients. As previous studies mentioned, the bigger the company, the less likely it is to employ the disabled. External physical disability shows significant relation with logged employment rate in the following criteria: subsidy for employing disabled people, loans and aid to increase funds for facilities for the disabled, metropolitan city, other regions, services, company size, business profit of last two years, work place environment, work characteristic and enterprise PR. The coefficient for business profit of last two years shows negative. The (3) column, ability to perform is significantly related to logged employment rate. It means that, holding other predictor variables constant, as the ability to perform increases, the employment rate of those with sensory impairment will increase by 12% ($\exp(.112)=1.118513$).

Table 24. Model (1) multiple regression results

| Model (1) | | (1) | (2) | (3) | (4) | (5) | |
|--|--|--------------------------------------|------------------------------------|-----------------------|-----------------------------|------------------------------------|------------------|
| | | Whole <i>employment</i> sample | External physical disability | Sensory impairment | Psychological disability | Internal physical disability | |
| | | Beta* | Beta* | Beta* | Beta* | Beta* | |
| | | (SE) | (SE) | (SE) | (SE) | (SE) | |
| (Constant) | | - | - | - | - | - | |
| | | (0.136) | (0.175) | (0.488) | (1.634) | (1.054) | |
| Awareness of Employer support system | Subsidy for employing disabled people | 0.078*** (0.028) | 0.042*** (0.035) | 0.052 (0.092) | 0.114 (0.316) | 0.051 (0.240) | |
| | Loans and aid to increase funds for facilities for the disabled | 0.008 (0.027) | 0.002** (0.035) | 0.026 (0.113) | -0.036 (0.303) | -0.132 (0.235) | |
| | Assistive Technology Program | -0.004 (0.031) | -0.007 (0.041) | -0.052 (0.135) | -0.050 (0.431) | -0.040 (0.299) | |
| | Tax deduction | -0.022* (0.039) | -0.012 (0.048) | -0.045 (0.193) | 0.063 (0.368) | 0.087 (0.249) | |
| | Basic Characteristic of Enterprise | Metropolitan city | 0.077*** (0.030) | 0.082*** (0.039) | -0.006 (0.111) | 0.066 (0.323) | 0.070 (0.216) |
| | Other regions | 0.063*** | 0.071*** | -0.008 | 0.128 | -0.030 | |

| | | | | | | |
|--|-----------------------------------|-----------|-----------|-----------|-----------|-----------|
| | | (0.027) | (0.034) | (0.100) | (0.299) | (0.266) |
| | Manufacturing | 0.045* | 0.015 | 0.000 | 0.296 | 0.044 |
| | | (0.054) | (0.066) | (0.183) | (0.608) | (0.432) |
| | Services | 0.144 | 0.106** | -0.031 | 0.080 | 0.051 |
| | | (0.052) | (0.064) | (0.182) | (0.585) | (0.389) |
| | -49,50-99,100- | -0.542 | -0.591*** | -0.752*** | -0.663*** | -0.833*** |
| | | (0.016) | (0.020) | (0.051) | (0.148) | (0.164) |
| | Business profit of last two years | -0.03 | -0.050*** | -0.025 | 0.092 | -0.015 |
| | | (0.016) | (0.021) | (0.059) | (0.193) | (0.147) |
| "Working Environment factors" | Work place Environment | 0.164*** | 0.126*** | 0.032 | 0.044 | 0.111 |
| | | (0.004) | (0.005) | (0.014) | (0.041) | (0.027) |
| | Work characteristic | -0.081*** | -0.049** | 0.035 | 0.012 | 0.153 |
| | | (0.004) | (0.005) | (0.015) | (0.041) | (0.037) |
| Enterprises' perception of employment of persons with disabilities | Ability to perform | 0.003 | 0.020 | 0.112** | -0.095 | -0.108 |
| | | (0.009) | (0.011) | (0.030) | (0.061) | (0.080) |
| | Organizational social skill | 0.010 | -0.008 | -0.029 | -0.155 | 0.195 |
| | | (0.009) | (0.012) | (0.029) | (0.068) | (0.078) |
| | Enterprise PR | 0.034*** | 0.042*** | -0.061 | 0.175 | -0.034 |
| | | (0.019) | (0.025) | (0.072) | (0.214) | (0.159) |
| Observations | | 4975 | 2910 | 316 | 68 | 47 |
| Adjusted R-squared | | 0.310 | 0.361 | 0.575 | 0.502 | 0.693 |
| Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | | | | | | |

The results of Model (2) which conduct multiple regression to companies employing the severely disabled are represented in Table 25. The adjusted R² indicates the independent variables account for 31%, 33%, 56% and 50% of the variation in logged employment rate, respectively. In Model (2), after the overall analysis, each type was conducted separately. In the internal physical disability case, the regression model turned out improper. In the (1) column, the overall sample reveals that subsidies for employing disabled people, services, company size, work place environment, and work characteristic are significantly related to logged employment rate. In detail, for companies that employ those with severe disabilities, the employment rate is expected to rise by 12% as companies become aware of the subsidy system ($\exp(0.117)=1.124119$). As for companies located in metropolitan cities, the employment rate is expected to be 5% higher than in capital-centric areas ($\exp(0.052)=1.053376$). In the industry category, services are significantly related to the log of

employment rate. Specifically, for services sector companies, holding the other independent variables constant, the employment rate is expected to increase by 17% ($\exp(.156)=1.168826$). As in Model (1), all coefficients of the company size are revealed as negative. Workplace environment is positively related to log of employment rate. The worse the environment is, there is a 26% likelihood of employment of the severely disabled ($\exp(.230)=1.2586$). On the other hand, as the work characteristic figure increases, the employment rate decreases.

In column(2), external physical disability showed significance in the company size, work place environment, work characteristic and enterprise PR. In terms of in enterprise PR, as the perception of employing disabled becomes more positive, the employment rate will be increase by 9%, holding the other predictor variables constant.

In column(3), sensory impairment revealed significance in employment management costs for the disabled, support of workplace personal assistance service, company size, work characteristic, and ability to perform. For awareness of employment management costs for the disabled, holding the other regressors constant, employment rate is expected to decrease. For awareness of support of workplace personal assistance service, holding the other independent variables constant, employment rate is expected to increase by 46% ($\exp(0.376)=1.456447$). There is also positive significance in work characteristic and ability to perform for sensory impairment in the severe case. If company's work characteristic is intensive and ability to perform is high, the employment rate is expected to increase by 18% and 24% respectively.

In the psychological disability case, the company's perception on hiring the disabled in improving its image is significantly related to logged employment rate. As this perception

Increases by one point, holding the other independent variables constant, employment rate is expected to increase by 21% ($\exp(.1885)=1.207437$)

Table 25. Model (2) multiple regression results

| Model (2) | | (1) | (2) | (3) | (4) |
|--|---|------------------------|------------------------------|----------------------|--------------------------|
| | | Whole employed sample | External physical disability | Sensory impairment | Psychological disability |
| | | Beta* | Beta* | Beta* | Beta* |
| | | (SE) | (SE) | (SE) | (SE) |
| (Constant) | | - | - | - | - |
| | | (0.236) | (0.410) | (1.346) | (1.709) |
| Awareness of Employer support system | Subsidy for employing disabled people | 0.117*** (0.052) | 0.019 (0.088) | 0.119 (0.231) | 0.111 (0.323) |
| | Loans and aid to increase funds for facilities for the disabled | -0.007 (0.047) | -0.030 (0.082) | -0.046 (0.348) | -0.074 (0.316) |
| | Assistive Technology Program | 0.015 (0.053) | 0.062 (0.092) | -0.060 (0.382) | -0.059 (0.472) |
| | Tax deduction | -0.032 (0.071) | -0.045 (0.123) | -0.098 (0.440) | 0.092 (0.379) |
| | Employment management costs for the disabled | -0.044 (0.060) | -0.001 (0.102) | -0.313*** (0.395) | 0.128 (0.488) |
| | Support of Workplace Personal Assistance Service(PAS) | 0.003 (0.066) | -0.035 (0.115) | 0.376*** (0.495) | -0.102 (0.537) |
| | Basic Characteristic of Enterprise | Metropolitan city | 0.052** (0.053) | 0.052 (0.095) | -0.073 (0.263) |
| Other regions | | 0.027 (0.048) | 0.017 (0.082) | -0.070 (0.223) | 0.160 (0.315) |
| Manufacturing | | 0.041 (0.111) | -0.102 (0.197) | 0.511 (0.762) | 0.284 (0.613) |
| Services | | 0.156*** (0.107) | 0.047 (0.190) | 0.448 (0.762) | 0.054 (0.597) |
| -49,50-99,100- | | -0.525*** (0.032) | -0.528*** (0.052) | -0.641*** (0.112) | -0.697*** (0.157) |
| Business profit of last two years | | -0.020 (0.027) | -0.085** (0.049) | 0.008 (0.133) | 0.079 (0.204) |
| Working Environment factors | | Work place Environment | 0.230*** (0.006) | 0.226*** (0.011) | 0.007 (0.033) |
| | Work characteristic | -0.108*** (0.007) | -0.067* (0.013) | 0.166* (0.036) | -0.022 (0.043) |
| Enterprises' perception of employment of persons with disabilities | Ability to perform | -0.011 (0.013) | 0.010 (0.025) | 0.218* (0.066) | -0.093 (0.062) |
| | Organization social skill | 0.045 (0.014) | 0.028 (0.026) | -0.044 (0.061) | -0.174 (0.069) |
| | Enterprise PR | 0.023 (0.030) | 0.0875** (0.055) | -0.1223 (0.216) | 0.1885* (0.215) |

| | | | | |
|--|-------|-------|-------|-------|
| Observations | 1646 | 554 | 68 | 68 |
| Adjusted R-squared | 0.309 | 0.328 | 0.561 | 0.498 |
| Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | | | | |

In Table 26, multiple regression results of companies employing 50 or more people are presented. The adjusted R^2 of (1), (2), (3), (4), and (5) indicates the independent variables account for 11%, 13%, 12%, 4% and 63% of the variation in logged employment rate, respectively. In column (1), whole employed sample represents significant relation with log of employment rate for subsidies for employing disabled people. That is, with increased awareness of such a subsidy, holding the other independent variables constant, employment rate is expected to increase by 11% ($\exp(.106)=1.111822$). Awareness of tax deduction shows negative effects in the whole employed sample, but shows positive in Internal physical disability, column (5). In the basic characteristic analysis, metropolitan cities and other regions are represented as significantly related to logged employment rate. Specifically, for company located in a metropolitan city, holding the other independent variables constant, employment rate is expected to be 11% higher than in capital-centric areas ($\exp(.102)=1.107383$). In other regions, the employment rate will be higher than in capital-centric areas by 10%, holding the other predictor variables constant ($\exp(.090)=1.107383$). In the industry category, manufacturing and services are significantly related to log transformed employment rate. In detail, for manufacturing companies, holding the other independent variables constant, employment rate will be higher than other industries by 9% ($\exp(.082)=1.085456$). Except for psychological disability, in (1), (2), (3), and (5) there are negative coefficients in company size ‘- 49, 50-99, 100.’ Also in the business profit of the last two years variable, coefficients of columns (1) and (2) are negative. This seems to be related to the size of the company. In working environment factors, the whole employed sample as well as external physical disability show similar patterns as previous results. In the perception of employment of persons with disabilities

criterion, the enterprise PR is revealed as a significant factor. Holding the other predictor variables constant, companies which employ 50 or more regular employees have a 5% higher likelihood of employment, as they perceive this is good for their image.

In column (2), External physical disability, these criteria were significant: subsidy for employing disabled people, mandatory employment enterprises' responsibility, metropolitan city, other regions, services, size of company, business profit of last two years, work place environment, work characteristic, and enterprise PR. The mandatory employment enterprises' responsibility variable turned out negative, which means that the awareness of such a responsibility decreases the rate of employment. On the other hand, Internal physical disability shows a positively significant coefficient.

Column (5), Internal physical disability, shows a coefficient of 0.497 on the standard of mandatory employment variable. For companies employing 50 or more regular workers, their awareness of the mandatory standard increases the rate of employment by 64% ($\exp(0.497)=1.643783$). The work characteristic variable also shows a positive coefficient. It means that for companies that solely hire those with Internal physical disability, those with intensive work are more likely to employ the disabled. This result is opposite from the first two columns. Also, in organizational social skill, Internal physical disability shows significance. For companies that solely hire those with Internal physical disability, there is a 69% higher likelihood of employment ($\exp(.526)=1.69215$) when their social skill is perceived as good.

Table 26. Model (3) multiple regression results

| Model (3) | (1) | (2) | (3) | (4) | (5) |
|------------|-----------------------|------------------------------|--------------------|--------------------------|------------------------------|
| | Whole employed sample | External physical disability | Sensory impairment | Psychological disability | Internal Physical disability |
| | Beta* | Beta* | Beta* | Beta* | Beta* |
| | (SE) | (SE) | (SE) | (SE) | (SE) |
| (Constant) | - | - | - | - | - |

| | | | | | | |
|--|---|-----------|-----------|---------|-----------|---------|
| | | (0.170) | (0.218) | (0.643) | (2.335) | (0.923) |
| Awareness of Employer support system | Subsidy for employing disabled people | 0.106*** | 0.087*** | 0.048 | 0.027 | -0.052 |
| | | (0.030) | (0.039) | (0.109) | (0.467) | (0.176) |
| | Loans and aid to increase funds for facilities for the disabled | 0.009 | -0.003 | 0.042 | -0.030 | -0.176 |
| | | (0.027) | (0.036) | (0.120) | (0.458) | (0.167) |
| | Assistive Technology Program | -0.008 | -0.015 | -0.055 | 0.211 | 0.038 |
| | | (0.031) | (0.041) | (0.141) | (0.640) | (0.200) |
| | Tax deduction | -0.026* | -0.014 | -0.092 | 0.167 | 0.278** |
| | | (0.040) | (0.050) | (0.194) | (0.652) | (0.190) |
| Standard of mandatory employment | -0.006 | -0.001 | 0.013 | - | -0.497*** | |
| | (0.075) | (0.092) | (0.232) | - | (0.368) | |
| Mandatory employment enterprises' responsibility | -0.026 | -0.055** | 0.035 | -0.021 | 0.311** | |
| | (0.057) | (0.072) | (0.171) | (0.655) | (0.521) | |
| Basic Characteristic of Enterprise | Metropolitan city | 0.102*** | 0.114*** | 0.094 | -0.052 | 0.149 |
| | | (0.032) | (0.041) | (0.137) | (0.483) | (0.143) |
| | Other regions | 0.090*** | 0.114*** | 0.030 | 0.152 | 0.027 |
| | | (0.029) | (0.037) | (0.122) | (0.526) | (0.209) |
| | Manufacturing | 0.082** | 0.058 | 0.128 | 0.149 | 0.139 |
| | | (0.059) | (0.073) | (0.234) | (0.812) | (0.281) |
| | Services | 0.233*** | 0.216*** | 0.118 | -0.084 | 0.096 |
| | | (0.056) | (0.070) | (0.227) | (0.823) | (0.258) |
| -49,50-99,100- | -0.184*** | -0.214*** | -0.363*** | -0.268 | -0.384** | |
| | (0.028) | (0.034) | (0.100) | (0.375) | (0.171) | |
| Business profit of last two years | -0.040*** | -0.064*** | -0.049 | -0.046 | -0.095 | |
| | (0.017) | (0.022) | (0.066) | (0.270) | (0.099) | |
| Working Environment factors | Work place Environment | 0.200*** | 0.163*** | 0.016 | 0.023 | 0.043 |
| | | (0.004) | (0.005) | (0.015) | (0.056) | (0.018) |
| | Work characteristic | -0.089*** | -0.055*** | 0.040 | 0.121 | 0.277** |
| | | (0.004) | (0.006) | (0.018) | (0.054) | (0.024) |
| Enterprises' perception of employment of persons with disabilities | Ability to perform | 0.003 | 0.019 | 0.140 | -0.078 | -0.226 |
| | | (0.009) | (0.012) | (0.037) | (0.082) | (0.054) |
| | Organization social skill | 0.030 | 0.022 | 0.016 | -0.292 | 0.526** |
| | | (0.009) | (0.013) | (0.035) | (0.085) | (0.052) |
| | Enterprise PR | 0.046*** | 0.063*** | -0.094 | 0.208 | 0.043 |
| | | (0.019) | (0.025) | (0.086) | (0.314) | (0.104) |
| Observations | | 4294 | 2423 | 220 | 43 | 41 |
| Adjusted R-squared | | 0.112 | 0.126 | 0.123 | 0.036 | 0.629 |
| Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | | | | | | |

Finally, Table 27 shows enterprises that hire 100 or more employees. In this Model (4), deduction of quota levy through employment connection system variable was inserted. The adjusted R^2 of the whole employed sample and external physical disability indicates the dependent variables account for 10% of the variation in logged employment rate. As in the previous models, the subsidy for employing disabled people variable exhibits significant relation with log of employment rate. The coefficient for deduction of the quota levy through the employment connection system was negative in both categories. This may be due to the fact that indirect employment is possible with this system, i.e. employers do not need to hire disabled workers directly. Instead, they can set up contracts with a linked company that employs persons with disabilities. That number of disabled workers can be counted to avoid the quota levy. Previous studies also point out this indirect employment issue.

Table 27. Model (4) multiple regression results

| Model (4) | | Whole employed sample | External physical disability |
|--------------------------------------|---|-----------------------|------------------------------|
| | | Beta* | Beta* |
| | | (SE) | (SE) |
| (Constant) | | - | - |
| | | (0.177) | (0.246) |
| Awareness of Employer support system | Subsidy for employing disabled people | 0.098*** (0.037) | 0.092*** (0.050) |
| | Loans and aid to increase funds for facilities for the disabled | 0.013 (0.032) | -0.004 (0.044) |
| | Assistive Technology Program | 0.005 (0.036) | 0.007 (0.050) |
| | Tax deduction | -0.003 (0.049) | 0.001 (0.064) |
| | Standard of mandatory employment | -0.004 (0.094) | 0.003 (0.125) |
| | Mandatory employment enterprises' responsibility | -0.025 (0.072) | -0.060** (0.101) |
| | Deduction of quota levy through Employment connection system | -0.109*** (0.043) | -0.107*** (0.061) |

| | | | |
|--|-----------------------------|-----------|----------|
| Basic Characteristic of Enterprise | Metropolitan city | 0.111*** | 0.124*** |
| | | (0.037) | (0.051) |
| | Other regions | 0.092*** | 0.108*** |
| | | (0.035) | (0.047) |
| | Manufacturing | 0.0898*** | 0.059 |
| | | (0.068) | (0.090) |
| Services | 0.266*** | 0.240*** | |
| | (0.065) | (0.085) | |
| Business profit of last two years | -0.041** | -0.071*** | |
| | (0.019) | (0.027) | |
| Working Environment factors | Work place Environment | 0.204*** | 0.163*** |
| | | (0.004) | (0.006) |
| Work characteristic | -0.090*** | -0.045* | |
| | (0.005) | (0.007) | |
| Enterprises' perception of employment of persons with disabilities | Ability to perform | 0.014 | 0.021 |
| | | (0.011) | (0.015) |
| | Organizational social skill | 0.045* | 0.037 |
| | | (0.011) | (0.016) |
| | Enterprise PR | 0.059*** | 0.092*** |
| | | (0.022) | (0.031) |
| Observations | | 3326 | 1748 |
| Adjusted R-squared | | (0.105) | (0.105) |
| Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | | | |

VI. Conclusion

Employment of persons with disabilities needs to be supported by well-targeted policy to compensate for difficulties. For this, the government has several systems to help the disabled and incentivize the employer. Each types of disability elicits different needs and companies also have different characteristics. This paper examines the factors that affect employment of persons with disabilities. To distinguish between each type of disability, it focuses on. Moreover, the employer support system was classified based on various targets, to examine it more correctly. The ‘2014 Survey on the Employment Conditions of the Disabled in the Business Sector’, published by EDI, was the primary data source.

Model (1) targeted all companies that employ the disabled and then analyzed by type separately. Awareness of the subsidy for employing disabled people affected log of

employment rate positively in the overall sample as well as companies employing those with external physical disability. Metropolitan cities and, “other” regions were more likely to increase employment than in capital-centric cities such as Seoul (columns (1) and (2)), and the manufacturing sector was revealed as positive affecting factors of the whole sample. In working environment factors, work place environment showed positive coefficients in the overall sample and the external disability sample, and work characteristic revealed negative coefficients in the two samples Enterprise PR also turned out to be a positive factor. Through this, enterprises that solely employ those with external physical disabilities tend to increase employment of the disabled when they perceive it as improving their image. However, according to the results, a one point increase in work characteristic decreases employment of persons with disability. Companies employing those with sensory impairment exhibited significant positive relation in ability to perform. In Model (2), for sensory impairment, there was a coefficient of 0.376 for awareness of PAS system. On the other hand, awareness of management costs for the disabled system led to a negative coefficient of -0.313. Internal physical disability showed a positive significant relation with the dependent variable in Model (3) on tax deduction, mandatory employment standards, and enterprise responsibility.

The limitation of this paper is the data on employer support systems. In the ‘2014 Survey on the Employment Conditions of the Disabled in the Business Sector,’ there are variables that ask for awareness of the system and current/past experiences. However, after categorizing the sample, its size was decreased on the experience variable, and thus it was difficult to conduct analysis on the experience data. Even though it is possible, most of it was based on experience history, as opposed to the current status. For these reasons, conducting an examination to assess which services are most effective for each type of disability had its limitations with regard to awareness of the system.

Further studies are needed on employment of persons with a more detailed comparison of each type. If the relevant data becomes available, panel analysis could be a desirable way to more accurately assess the factors that affect employment of the disabled.

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Severity of disability

| | Grade1 | | Grade2 | | Grade3 | | Grade4 | | Grade5 | | Grade6 | |
|---|--------|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| | M | F | M | F | M | F | M | F | M | F | M | F |
| Physical disability | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | |
| Brain lesion | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | |
| facial disfigurement | □ | □ | ■ | ■ | | | | | | | □ | □ |
| Visual disability | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | |
| Hearing disability, | □ | □ | ■ | ■ | | | | | | | | |
| Speech disability | □ | □ | □ | □ | | | | | □ | □ | □ | □ |
| Intellectual disability | ■ | ■ | ■ | ■ | ■ | ■ | □ | □ | □ | □ | □ | □ |
| Autism | ■ | ■ | ■ | ■ | ■ | ■ | □ | □ | □ | □ | □ | □ |
| Mental disorder | ■ | ■ | ■ | ■ | ■ | ■ | □ | □ | □ | □ | □ | □ |
| kidney dysfunction | □ | □ | ■ | ■ | □ | □ | □ | □ | | | □ | □ |
| cardiac dysfunction | ■ | ■ | ■ | ■ | ■ | ■ | □ | □ | | | □ | □ |
| respiratory dysfunction | ■ | ■ | ■ | ■ | ■ | ■ | □ | □ | | | □ | □ |
| Hepatopathy | ■ | ■ | ■ | ■ | | | □ | □ | | | □ | □ |
| intestinal fistula urinary fistula impairment | □ | □ | ■ | ■ | | | | | | | □ | □ |
| Epilepsy | □ | □ | ■ | ■ | ■ | ■ | | | □ | □ | □ | □ |

Severe disability
 Minor disability