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A Comparison of the Functional Criteria of Disability with the Medical Criteria by Their Effects on Disability Employment Probability

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Abstract

This article examines what difference the functional criteria of disability based on the ICF make to the probability of disabled people's being employed, relative to the medical criteria based on the ICD which are currently used in Korea. Using the Panel Survey of Employment for the Disabled, this article conducts probit and other analyses of the effect of functional disability on the probability of employment against medical disability. The result shows that functionally disabled people are much less likely to be employed in the competitive labor market than are medically but not necessarily functionally disabled people. This suggests that there is a wide gap between the functional and medical criteria of disability. In light of this result, this article makes a case for a tran-

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sition from the medical to functional criteria of disability in the implementation of disability employment policies in Korea.

Key Words: functional criteria of disability; medical criteria of disability; severe disability; disability employment policies; Panel Survey of Employment for the Disabled (PSED)

1. Introduction

The incumbent Park administration has embarked on the plan of abolishing the current disability determination/classification system, which classifies disabilities into fifteen types each of which has six degrees of severity, and developing and adopting an alternative system by 2017. Two main reasons have been invoked for this transition. First, the current system is based on the International Statistical Classification of Diseases and Related Health Problems (ICD) which represents a medical approach to disability. The medical approach sees disability as an abnormal attribute of an individual person which should be cured or cared for by medical professionals or policy makers. This medical model of disability has been vehemently criticized by advocates of other models, most notably, the social model which views impairment as "normal for any population" (Albert and Hurst 2004, 2; also see Oliver 1990) and which argues that "disability is the result of society's failure to provide adequate and appropriate services" (Lang 2001, 4). Second, it is stigmatizing and morally wrong for the current system to grade human beings with disabilities into six degrees of disability severity as if they were things.

The current medical model also causes a good deal of problems to disability employment policies as it constitutes a basic template for them. For example, any private employer who hires more than 50 regular workers is legally obliged to hire at least 2.5% of workers with disabilities out of the total (3.0% for the public sector). Under what is called a double count sys-

tem, one severely disabled worker is counted as two, where severe disability is defined as the first, second and third severity degrees in any of the 15 types of disability with some exceptions. This system has been adopted to promote the employment of those severely disabled people who have greater difficulty finding jobs in the labor market. Yet, since one's medically defined disability does not necessarily correspond to one's workability, the medical criteria are susceptible to the possibility that those who are severely disabled in terms of workability but not in medical terms would not have opportunities to acquire proper employment services. As this example shows, the current medical way of defining disability and distinguishing mild from severe disability is likely to miss the proper targets of disability employment policies.

Hence, there are various reasons for rapidly moving away from the medical model of disability to alternative models which can redress its flaws. In fact, a few researchers have argued for some time now for a transition to what are called the functional criteria of disability inspired by the International Classification of Functioning, Disability and Health (ICF). Despite a need for further clarification and development, the conceptual framework of the ICF appreciates a dialectical relationship between biology and society, providing "a coherent, if uneven, guide through the competing conceptions of disability" such as medical, social, human rights approaches (Imrie 2004, 287). Inspired by the ICF, Hwang (2004), Byeon et al (2005), Lee and Jeong (2009), Jeon (2011) and others pioneered a case for the transition by introducing the concept of functional disability and showing that it was more useful than the medical approach in determining the proper targets of disability employment policies. Yet their arguments had limitations as their operational definitions of functional disability were still based largely on the medical criteria mainly because no survey data were available which included information on respondents' functional disabilities.

While moving fast to an alternative model of disability, therefore, we have not seen so far any convincing, strictly empirical study which reveals the empirical flaws of the medical model, aside from its conceptual and moral shortcomings. This study uses the Panel Survey of Employment for the Disabled (PSED) to show that the functional criteria are a better pre-

dictor of the probability of employment of people with disabilities than are the medical criteria and thus provide another empirical support for the transition from the perspective of disability employment. There is a good reason to expect that the functional criteria would be the better predictor for disability employment. For the kind of functional criteria of disability that is provided by the ICF, especially its "activities and participation" part, attempts to measure people's functioning in the contexts of everyday, occupational, and civic lives. As will be discussed in more detail in the next section, the first and second waves of the PSED translate many codes in the ICF into statements for five-point Likert scale measurements of the respondents' functional disabilities. It is possible, therefore, to give a more appropriate operational definition of functional disability than did previous studies and empirically compare the effectiveness of the medical criteria of disability with that of the functional model.

2. Review of Prior Studies

Since the medical criteria of disability see disability primarily as illnesses or bodily or mental impairments, they can provide criteria to determine what kinds of welfare services regarding disability-related treatment, rehabilitation and benefits may be given to persons with disabilities. Yet they do not provide exact criteria to determine what types of employment services can be given to them.

Several studies have been conducted to redress the flaws of the medical criteria in disability employment policies. Choi (2002) and Byeon et al. (2003) were the first to point to the problems of the medical criteria citing examples in foreign countries and argue for the adoption of what they called the vocational criteria of disability. Byeon et al (2005) further developed evaluation tools to measure the job competency of persons with disabilities and put forward a method to classify them into the mildly and severely disabled according to their job competency. However, their evaluation tools produced no significantly different results from

the medical criteria in predicting the employment statuses of people with disabilities, even though the components of their tools were different from those of the medical criteria.

Hwang (2004), Lee and Jeong (2009), and Jeon (2011) used the functional conception of disability adopted by the ICF to show that the functional criteria were superior to the medical criteria in determining the proper targets of disability employment policies. Their definitions of functional disability were different from each other, though. Using the sixth wave of the Korea Labor & Income Panel, Hwang (2004) defined the functionally disabled as those who have any one of disabilities in sensory organs, body, mind, self-maintenance, mobility and vocational activities. Her definition, however, did not take into account the fact that functional disability is the result of not only interactions between environmental factors and disability factors (impairments, activity limitations and participation restrictions) but also interactions between disability factors themselves. An impairment in a certain bodily function does not necessarily affect everyday or vocational activities in significant ways. In that case, an impairment would not constitute functional disability. Thus, functional disability should be defined considering all the six types of disability in their interactions as well.

Relying on the 2005 Survey on the Current Conditions of People with Disabilities, Lee and Jeong (2009) operationally defined the functionally severely disabled as all severity degrees of people with brain lesion, hepatic dysfunction, respiratory dysfunction, and developmental disorder; people with hearing disability, speech disability, facial disfigurement, and intestinal/urinary fistula among the severely disabled as are defined by the legal criteria of disability; people with the first and second degrees of disability among people with limb disability, visual disability and cardiac dysfunction; and all severity degrees of people with mental disorder, kidney dysfunction and epilepsy. As is obvious, however, their definition is somewhat arbitrary, so that we do not really know how it can measure one's functional disability in any systematic way.

Jeon (2011) used the first and second waves of the PSED to compare the employment probabilities of the medically and functionally disabled. For this purpose, he reclassified six degrees of medical disability into five degrees of functional disability. Underlying this oper-

ation is the assumption that all medically disabled persons are functionally disabled as well. This assumption simply does not hold. Neither does it allow us to discern which one of medically disabled persons is functionally disabled.

So far, therefore, no prior study has put forward non-arbitrary, strictly empirical functional criteria of disability. This study attempts to propose an empirically verifiable operational definition of functional disability and statistically test its usefulness against the current medical definition of disability by showing that the functional model of disability is a better predictor of the probability of employment for people with disabilities than is the medical model.

3. Data and Methods

1) Data

The PSED, which started out with 5,092 registered disabled respondents in 2008, has been annually conducted by the Employment Development Institute in the Korea Employment Agency for the Disabled (KEAD). It includes a whole variety of questions about personal, environmental, and policy factors which can affect the economic activities of people with disabilities in order to provide information necessary to develop and evaluate disability employment policies. It is the only survey in Korea to include the kind of questions which allow us to measure functional disabilities based on the ICF.

2) Dependent and Independent Variables

The dependent variable of this study is employment status coded 1 if employed and 0 otherwise. The main independent variable is functional disability. In what follows, we explain

how it was constructed.

The ICF is composed of four parts: body functions, body structures, activities and participation, and environmental factors. In order to gain information on respondents' functional disability in their everyday, economic and civic lives, the first and second waves of the PSED translate into statements for five-point Likert scale measurements the components of the "activities and participation" part which has nine chapters, as [Table 1] shows. The first wave of the PSED includes statements formulated from the first four chapters of the "activities and participation" part in the ICF, while the second wave contains statements based on the later five chapters. For example, d110 in the ICF is about "watching" as one of purposeful sensory experiences and takes the examples of watching sports games or watching children play. The PSED converts this item into the statement "I can see books or chalkboards or watch sports games etc." which is followed by the following answering scheme: 1. cannot do at all (the degree of doing it is 0-5%; 2. can do with considerable difficulty (6-25%); 3. can do with difficulty (26-70%); 4. can do with mild difficulty (71-95%); and 5. can do with little or no difficulty (96% or greater) (see Yoo et al. 2012, pp. 48-53 for the entire details on how the PSED used the ICF items). Not all items in the "activities and participation" are translated into statements in the PSED. "Activities and participation" includes 82 codes together. The PSED excluded 44 of them from the survey as they were expected to be unable to draw effective answers from respondents. The 38 codes used in this survey are shown in [Table 1] below: six codes for "learning and applying knowledge," two for "general tasks and demands," five for "communication," five for "mobility," five for "self-care," three for "domestic life," three for "interpersonal interactions and relations," five for "major life areas," and five for "community, social and civic life." The PSED combines several sets of two or more items in the ICF into single questions as shown in the table. For example, d840 (apprenticeship [work preparation]), d845 (acquiring, keeping and terminating a job), d850 (remunerative employment), and d855 (non-remunerative employment) are combined into the statement "I can acquire and keep a job and maintain satisfactory vocational life." One might well wonder whether such a combination is justified, but we have no choice but to accept it as the PSED is the

only data set that contains information on the functional disability of people. One is also warned against other limitations of the PSED: that the PSED includes only registered disabled people even though the functional definition of disability is supposed to be applied to the wider public than to the registered disabled medically defined and that the respondents chose their answers on the basis of self-evaluation.

[Table 1] The ICF Codes Used in the PSED

ICF		Codes used in PSED
Chapter	Code	
Learning & Applying Knowledge	d110-d177	d110, d115, d166, d170, d172, d175
General Tasks and Demands	d210-d240	d210, d220
Communication	d310-d360	d310, d315, d330, d335, d350
Mobility	d410-d480	d430, d440, d450, d470, d475
Self-Care	d510-d570	d510, d530, d540, d550, d570
Domestic Life	d610-d660	d620, d640, d660
Interpersonal Interactions & Relations	d710-d770	d740, d750, d760
Major Life Areas	d810-d870	d815a, d820a, d825, d830a, d840b, d845b, d850b, d855b, d860, d865
Community, Social and Civic Life	d910-d950	d910, d920, d930, d940c, d950c

Notes: The codes with a,b, or c were combined into one question, respectively.
Further information can be found on the ICF website: www.who.int/classification/icf.

Now, the operational definition of functional disability is laid out in the following way. The ICF measures one's functioning level using the five-point Likert scale: no (0-4%), mild (5-24%), moderate (25-49%), severe (50-95%), and complete difficulty (96-100%). Using this scheme, the PSED assigns 1, 2, 3, 4 or 5 to respondents according to their reported difficulty for each of 38 statements. 1 corresponds to complete, 2 to severe, 3 to moderate, 4 to mild, and 5 to no difficulty. We reversed the original coding scheme and obtained the total score for each respondent which was then converted to a percentage in the ICF way.[1] Suppose the re-

1) It is theoretically possible that a respondent has complete difficulty for a code and no difficulty for all other codes so that he or she turns out to have no or little difficulty overall but that the one complete difficulty has so dominant influence on his participation in the labor market that he or she chooses to stay out of it. A further consideration of all these possibilities should be a future task, as this article limits itself to showing the general superiority of the functional criteria to the medical criteria at least for disability employment policies.

spondent A gets the score of 90. As there are 38 statements, the greatest possible score is 190. Then the respondent A's functional level is 47.4% (90 divided by 190 times 100) and thus has moderate difficulty in the ICF scheme. Based on such a construction, we operationally define functional disability as disability with any level of difficulty except no difficulty. Since all the respondents in the data are registered disabled people, the respondents coded 0 ("Medically Disabled") for the variable functional disability are medically but not functionally disabled, while those coded 1 ("Functionally Disabled") are disabled functionally as well as medically.

In order to provide a descriptive comparison of functional disability with medical disability, we also give two operational definitions of functionally severe disability: disability with 50 or greater percents of difficulty and 75 or greater percents of difficulty. The first definition corresponds to disability with severe or complete difficulty in the ICF scheme, so that it is plausible on the prima facie basis. The second definition requires some explanation, however. In the data, people with severe disabilities in the current medical classification scheme occupy about 25% of the total respondents. If we suppose that severity degrees are randomly distributed from 0 to 100%, the existence of the 25% severely disabled respondents could mean that 75% or greater difficulty constitutes severe disability. Based on this reasoning, we used 75% or greater difficulty as another criterion for functionally severe disability. One is justified to think that this procedure is more or less arbitrary. It really is arbitrary. Yet, the very distinction between severe and mild disability is arbitrary in the first place. For example, people with 50% or greater difficulty are regarded as severely disabled in Germany, while about 65% or greater difficulty is known to be the criterion of severe disability in Korea. Also consider that the purpose of constructing these two operational definitions is simply to descriptively show that there is a wide gap between the functional and medical criteria of disabilities regardless of whether we use more conservative or more liberal criteria of functional disability. The variable functional disability (5% or greater difficulty) is analytically sufficient to show that the functional criteria are the better predictor of the probability of employment of people with disabilities than are the medical criteria.

Other control variables listed in [Table 2] include gender, age, education, marital status,

health condition, acquisition of qualifications, respondents' experience of disability employment services, respondents' experience of governmental subsidies, and household income. These variables have been frequently used by prior studies such as Kim and Kim's (2013), Jeon's (2014), and Kim et al.'s (2014) which use the PSED to examine the various determinants of disability employment.

Males, coded 1, are less prevalent among functionally disabled respondents (59.1%) than medically disabled ones (72.3%). Respondents were asked to answer a question about their education in five categories: no schooling, elementary school, middle school, high school, and college or higher. The functionally disabled have lower levels of education than the medically disabled: 16.7% versus 3.2% for no schooling and 5.2% versus 15.5% for college or higher. There are more unmarried respondents, coded 1, among the functionally disabled (22.2%) than among the medically disabled (11.3%). The variable health, coded 1 for good health, shows a distribution where medically disabled respondents (61.2%) are in better health than are functionally disabled respondents (30.0%). The variable qualification measures whether or not a respondent has at least one qualification which may be helpful for his or her job search. The functionally disabled (13.2%) have fewer qualifications than the medically disabled (31.2%). The variable employment service measures whether or not a respondent has received public or private employment services such as job search, job training, and so on during the past year. Respondents are equally distributed between the two criteria of disability (3.7%). The variable government benefit measures whether or not a respondent has been granted what the Korean government calls Basic Livelihood Security Benefits during the past year, and much more of functionally disabled respondents (41.2%) answered yes than did medically disabled ones (13.1%). This means that more of the former live under poverty than do the latter. Finally, annual household income is divided into six categories: less than 10 million won, 10-20 million, 20-30 million, 30-40 million, 40-50 million, and 50 million or more. Again, functionally disabled respondents are much worse off than are medically disabled ones: 43.5% versus 19.0% for less than 10 million won, for example. Overall, it is very clear that

functionally disabled respondents live under worse personal and socio-economic conditions than do medically disabled respondents. This seems only natural provided that the former are likely to lose more of their workability than do the latter.

[Table 2] Descriptive Statistics of Control Variables

	Functionally Disabled	Medically Disabled	Total
Gender (Male)	59.1	72.3	63.3
Mean Age	49.6	48.5	49.3
Educational Level			
No Schooling	16.7	3.2	12.8
Elementary School	29.5	20.6	26.9
Middle School	20.6	20.3	20.5
High School	28.1	40.4	31.6
College or Higher	5.2	15.5	8.2
Marital Status (Unmarried)	22.2	11.3	19.0
Health	30.0	61.2	39.0
Qualification	13.2	31.2	18.4
Employment Service	3.74	3.73	3.74
Government Subsidy	41.2	13.1	33.3
Annual Household Income			
Less than 10m	43.5	19.0	36.5
10m – 20m	30.8	29.3	30.4
20m – 30m	12.3	20.2	14.6
30m – 40m	7.1	16.1	9.7
40m – 50m	3.1	7.9	4.5
50m or more	3.1	7.6	4.4

Sources: Panel Survey of Employment for the Disabled (2008).

We have used the probit model to estimate the effects of the independent and other control variables on the probability of respondents' being employed. Only those aged between 16 and 64 years are included in this analysis to exclude the possibility of functional weakening due to aging.

Before we turn to the results of the analysis, there is one caveat to be mentioned. Although this study uses the second wave of the PSED for the main analysis, it combines two pieces of information on functional disability from two different waves to explore the relationship between respondents' functional disabilities and their employment statuses. One may well wonder if the combination is justified. There are two possible excuses for this. First, there simply is no good alternative. Second, the government gives a person the official status of disability only if his or her disability is assessed to be more or less permanent. This means that the registered disabled tend to stay in the same physical or mental conditions for an extended period of time, though some people might well function better or worse over time. The permanent disability qualification, along with the short interval between waves, allows us to play down the possibility of drastic progress or regress of respondents' functionality.

4. Results

1) A Descriptive Comparison of Functional Disability with Medical Disability

In this section, we provide a descriptive comparison of medically disabled respondents with functionally disabled ones as they are operationally defined in the previous section. [Table 3] presents the percentages of functionally disabled respondents among medically disabled ones for each of 15 official disability types. The percentages are particularly high for people with linguistic, intellectual, autistic, and mental disabilities, while they are very low for people with impairments or dysfunctions in limbs, vision, heart, lung, and face and intestine/urinary fistula. For example, only 64% of visually impaired people and 40.7% of people with facial disfigurement under the medical criteria have difficulty in everyday activities and participation. In short, there is a wide gap between the functional and medical criteria of disability with a few exceptions.

[Table 3] Percent Comparison of Functional and Medical Disability

Types	Medically Disabled	Functionally Disabled	Percentage
Limb	2,155	1,386	64.3
Brain	400	361	90.3
Vision	484	310	64.0
Hearing	496	364	73.4
Language	41	36	87.8
Intellect	201	195	97.0
Autism	29	29	100.0
Mind	141	136	96.5
Kidney	101	84	83.2
Heart	66	45	68.2
Respiration	48	33	68.8
Lung	25	14	56.0
Face	27	11	40.7
Fistula	32	17	53.1
Epilepsy	34	25	73.5
Total	4,280	3,046	71.2

Sources: Panel Survey of Employment for the Disabled (2008).

[Table 4] presents a comparison of functional and medical disability in terms of the severity of disability using the first operational definition of severe disability (50% difficulty or greater). Among 2,411 medically mildly disabled respondents, functionally able persons amount to as many as 1,057 and constitute 43.8% of them, while they amount to 177 and occupy 9.5% among 1,869 medically severely disabled respondents. The number of functionally severely disabled respondents is 35 (1.5%) among medically mildly disabled ones and 452 (24.2%) among medically severely disabled ones. When using the 75% difficulty or greater criterion for severe disability, 34.5% of medically severe disability is functionally mild disability.

There then is a wide gap between functional and medical disability and between functional and medical severity. As the government and other civilian disability service agencies have given more and more focus on severely disabled people, such a wide gap means that

many functionally severely disabled people will be excluded from various employment services and that some of medically severely disabled people may fare well without such services. It also means that even people with no functional disability are likely to receive various disability services.

[Table 4] Comparison of Functional and Medical Disability in Terms of Severity

50% or greater difficulty						
		Functional Disability			No Functional Disability	Total
		Mild	Severe	Subtotal		
Medical Disability	Mild	1,319 (54.7)	35 (1.5)	1,354 (56.2)	1,057 (43.8)	2,411 (100)
	Severe	1,240 (66.3)	452 (24.2)	1,692 (90.5)	177 (9.5)	1,869 (100)
75% or greater difficulty						
Medical Disability	Mild	1,058 (43.9)	296 (12.3)	1,354 (56.2)	1,057 (43.8)	2,411 (100)
	Severe	645 (34.5)	1,047 (56.0)	1,692 (90.5)	177 (9.5)	1,869 (100)

Sources: Sources: Panel Survey of Employment for the Disabled (2008).
Notes: Numbers in parentheses are percentages.

When we compare functional and medical disability in terms of employment rate, the gap becomes even wider. [Table 5] shows that 1,805 (42.2%) out of 4,280 medically disabled people and 913 (30.0%) out of 3,046 functionally disabled people are employed and that the employment rates for severely disabled people are 23.7% and 8.4%, respectively. In clear contrast, as many as 72.3% of medically but not functionally disabled people are employed. [Table 5] suggests that functional disabilities matter more than do medical disabilities when persons with disabilities try to find jobs and that many functionally able persons have fewer difficulties in finding jobs even if they have medical disabilities.

[Table 5] Comparison of Functional and Medical Disability in Terms of Employment Rate

	Functional Disability			Medical Disability	
	Yes		No	Mild	Severe
	Mild	Severe			
Number of the Disabled	2,559 (1,703)	487 (1,343)	1,234	2,411	1,869
Number of the Employed	872 (708)	41 (205)	892	1,362	443
Employment Rate	34.1 (41.6)	8.4 (15.3)	72.3	56.5	23.7

Sources: Panel Survey of Employment for the Disabled (2008).
Notes: The numbers outside parentheses in the "Yes" column are for 50% or greater difficulty, while the numbers in parentheses are for 25% or greater difficulty.

It appears that the descriptive comparison provided so far seems to be already sufficient to call into serious question the entire medical classificatory scheme of disability, at least for the purpose of disability employment policies. Let us now see how much difference the functional and medical criteria of disability make in the probability of disabled people's being employed.

2) Probit Analysis

Our probit analysis is conducted over two groups of the respondents: all the respondents and the medically severely disabled respondents (first, second and third severity degrees). As both groups include those who do not necessarily have functional disabilities, the coefficients of the variable functional disability give us the probabilities of functionally disabled respondents being employed against only medically disabled respondents.

[Table 6] presents the results of the probit analysis. The coefficients of the independent variable are -0.729 for all the respondents and -0.661 for severely disabled respondents and are both significant. In plain words, functionally disabled respondents are less likely to be employed than medically but not functionally disabled ones, with other variables constant. This result suggests that there may be not a few people with medical disabilities who are not really in need of disability policy intervention. The descriptive comparison in the previous section

strongly suggested that the medical criteria of disabilities would not be appropriate for determining the proper targets of disability employment policies. The probit result gives a more definitive conclusion about this by controlling other variables which can affect a respondent's employment status.

[Table 6] Effects of Functional Disability on the Probability of Employment

Dependent Variables	All (4,280)		Severely Disabled (1,869)	
	Estimate	Chi-Square	Estimate	Chi-Square
Functional Disability	-0.729***	195.82	-0.661***	35.57
Gender	0.554***	133.42	0.525***	43.05
Age	0.125***	52.36	0.134***	31.27
Age*Age	-0.001***	60.34	-0.002***	34.53
Educational Level				
Elementary	0.058	0.58	-0.007	0.00
Middle	-0.193*	5.55	-0.156	1.59
High	-0.312***	15.14	-0.260*	4.84
College or higher	-0.303**	7.66	-0.275	2.77
Unmarried	-0.266***	11.64	-0.251*	5.27
Health	0.403***	70.10	0.485***	40.83
Qualification	0.158**	6.94	0.096	0.92
Employment Service	-0.134	1.47	-0.024	0.02
Government Benefit	-0.933***	271.01	-0.683***	65.65
Household Income				
10-20m	0.381***	45.69	0.336***	14.18
20-30m	0.481***	44.65	0.493***	17.3
30-40m	0.355***	17.84	0.403**	7.51
40-50m	0.368**	10.72	0.450*	4.96
50m or more	0.256***	4.95	0.276	1.89
Constant	-2.493***	35.97	-3.033***	28.69

Notes: ***p<0.001,**p<0.01,*p<0.05
The numbers in parentheses in the first row are observations.

Although other control variables are included in this study only to see the net effect of the main independent variable on the probability of employment and thus are of less interest, some of them do deserve our attention. The coefficients of the education variables are all negative regardless of their significance. That is, more educated respondents are less likely to get employed than are respondents with no schooling. Even those who have college education

have a lower probability of employment than those who have no education at all. The result suggests that the levels of formal education do not really matter in disability employment in Korea. We can figure out one of the main reasons why this is so by looking at the distribution of the respondents by their occupations according to the Korean Standard Classification of Occupations: managers occupy 2.9% of the respondents; professionals and related workers 4.9%; clerks 6.8%; service workers 11%; sales workers 7.2%; skilled agricultural, forestry and fishery workers 14.9%; craft and related trades workers 13.4%; equipment, machine operating and assembling workers 5.5%; and elementary workers 33.4%. In the long shadow of the discrimination-ridden past against disability, a majority of Korean workers with disabilities are concentrated in low-paid jobs that do not require higher educational levels. The first three categories, which would require at least high school level education, combine to occupy no more than 14.6%, while as many as 33.4% of the respondents have simple manual jobs. In this kind of disability labor market, disabled workers with higher levels of education are likely to either be resigned to low-paid jobs or postpone their labor market participation until better jobs are available (a phenomenon called the effect of reservation wage).

Equally interesting and embarrassing is the coefficient of the variable employment service which is negative though insignificant. Those who received employment services are less likely to be employed than are those who did not. One might be tempted to conclude from this result that the employment services[2] provided by the government, semi-governmental organizations, and civilian agencies are ineffective either because they are of low quality or because they miss proper targets or both. This might be true, but the negative coefficient seems to come primarily from a methodological problem. This study simply regresses the variable employment service on the probability of being employed regardless of the respondents' current employment status. As more of the respondents who used employment services are currently unemployed or out of the labor market, it is rather natural that the coefficient is negative. This

2) Many employment services are available for people with disabilities. The services listed in the Panel Survey amount to 30, including job consultation, job information, workability assessment, job search, career guidance, job placement, post-employment adaptation guidance, home office support, vocational education, vocational rehabilitation training, independent life skills training, information education, sheltered employment, and many other financial supports.

methodological problem also plagues some other studies (Jo 2010, Lee and Heo 2012, Kim and Kim 2013, Roh 2012) that use different waves of the PSED which find negative effects of employment services on the probability of employment. The unemployed are much more likely than the employed to use employment services, but they do not necessarily succeed in landing a job simply because they have received employment services. The effect of employment service should be measured using more sophisticated methods, for example, matching those who use employment services with those who do not but who have similar characteristics to service users. This study could not do this, as it is mainly concerned with the usefulness of the functional criteria of disability relative to the medical criteria.

5. Conclusions

The descriptive and analytical comparison of the functional and the medical approach to the classification of disabilities in the previous sections has shown that the latter would not be appropriate in determining the proper targets of disability employment policy intervention.

Under the medical approach, there is high chance of mismatch between disability and workability. In our sample, as many as 28.8% of the respondents, who are registered persons with disabilities, are not disabled in terms of functioning. They are likely to have as much workability as persons without disability, other things being equal, and need no disability employment policy intervention. In an extreme case, a person with a medically severe disability with no functional difficulty might choose to stay out of the labor market in order to receive various Basic Livelihood Security benefits plus medical and other benefits related to severe disability the Korean government provides for poor severely disabled people. In actuality, this kind of choice happens not infrequently. It has been reported that not a few Basic Livelihood Security recipients with disabilities get around the government's eye to participate in the competitive labor market in order to supplement their income, though to do so is supposed to de-

prive them of their entitlement (Seoul Digital University 2008). Employers often exploit their predicaments in the labor market to pay extremely low wages by threatening to notify to the government about their dual play, but this is another issue.

On the other hand, people with severe functional disabilities will not necessarily receive government and other supports and services they otherwise deserve. If they are not medically severely disabled, they are not eligible for the medical benefits provided by the government. They are also likely to be disadvantaged in employment services. In our data, there are 160 people with disabilities who got employment services among whom there are 86 with medically mild disabilities and 74 medically severe disabilities. Out of the latter, 48 persons are functionally mildly disabled, while 26 persons (16.2% of the total) are functionally severely disabled. Given that only 1.5% of people with medically mild disability are functionally severely disabled, as [Table 4] shows above, the percentage of employment services devoted to the functionally severely disabled in the most urgent need of them is only 18% approximately.

Also, the discrepancy between the medical and functional criteria of disability might cause cream-skimming committed by public and private agencies for disability employment. The government is focusing policy efforts more on people with severe disabilities and their participation in the labor market. Yet, various agencies implementing government policies in the front line may be tempted to direct less of their efforts to people with functionally severe disabilities who have the greatest difficulty in finding jobs, if the government's financial support for the agencies depends on their performance in helping people with disabilities get a job.

These three points should suffice to point to the inadequacy of the medical criteria of disability for disability employment policies, though there may well be many other problems. Korea's employment policies for people with disabilities have made great progress since the introduction of the quota system in 1990. Korea's disability employment rate is relatively high among nations. Yet the progress has been rather quantitative. The disabled are likely to find only low-paid, simple manual jobs. Many Korean scholars and practitioners have made call for a qualitative leap in disability policies. A transition from the medical to the functional criteria of disabilities based on the ICF is an important part of such a leap.

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◖ 요 약 ◗

기능적 장애기준과 의학적 장애기준의 고용 효과

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본 논문은 ICF에 기초한 기능적 장애 기준이 ICD에 기초한 현행 의학적 장애 기준과 비교할 때 장애인의 고용 확률에 어떤 차이를 주는지를 검토한다. 제1, 2차 장애인고용패널조사는 ICF 장애 기준의 일부를 이용해 장애인의 기능적 장애 정도를 물어보았으며, 본 논문은 이 정보에 대해 프로빗 및 기술적 통계 분석을 수행한다. 분석 결과, 기능적 장애인은 의학적 장애인보다 고용 확률이 훨씬 더 낮은 것으로 나타났다. 이는 기능적 장애 기준과 의학적 장애 기준 사이에 큰 간극이 있음을 뜻한다. 이러한 분석 결과에 따라, 본 논문은 장애인 고용정책의 이행에 있어 의학적 장애 기준을 기능적 장애 기준으로 전환시키는 것이 시급함을 주장한다.

주제어: 기능적 장애 기준, 의학적 장애 기준, 중증 장애, 장애인 고용정책, 장애인고용패널조사

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