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RESEARCH

Factors Associated with Occupational Disability Classification

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To provide disabled people with the same opportunities to participate in working life as everyone else, certain measures, such as wage subsidies, compensating for a reduced work capacity, might be necessary. To ascertain that these measures are limited to the most needy a system that identifies the target group is required. The Swedish Public Employment Service's (PES') classification of occupational disability constitutes such a system. In this study we document how jobseekers' demographic characteristics, socioeconomic position, and health-related conditions are associated with being classified as occupationally disabled by the PES, and how this classification might be distorted by unintended incentive mechanisms. Our empirical analyses show that both previous health conditions and previous socioeconomic disadvantages were associated with a higher likelihood of being classified as occupationally disabled. To what extent these jobseekers actually had impairments that entailed reduced work capacity cannot be concluded from the available data, but our results indicate that also the goals set by the government may have influenced how the PES classified jobseekers.

Keywords: disability; codification; impairment; jobseekers; unemployment

Introduction

In Sweden, almost one million individuals, or one out of six, ages 16–64 years have any kind of impairment according to the Labour Force Surveys. For almost 60 percent the impairment also entails reduced work capacity. Among them, only half participate in the labour force, which can be compared to 78 percent among both those without any impairment and those with an impairment that does not entail a reduced work capacity. The unemployment rate among the former is also more than twice the unemployment rate among the others (Statistics Sweden, 2009). Hence, the group of people with impairments that entail reduced work capacity seems to face considerable difficulties on the labour market.

Sweden has a long tradition of labour market policies explicitly targeting jobseekers with disabilities – ranging from in-work aids to subsidized employment – aiming at strengthening their position in the labour market. All these programs are regulated in Government Ordinance 2000:630 respecting special contributions for persons with disabilities entailing a reduced capacity of work. Given the large costs associated with, for example, wage subsidies and the scarcity of public resources it is essential that these programs are limited to the most needy. To ascertain that this is the case, they are constrained to jobseekers that are classified as occupationally disabled by the Public Employment Service (PES).

The objective of this study is to document how jobseekers' demographic characteristics, socioeconomic position, and health-related conditions were associated with being classified as occupationally disabled by the PES during the period 2003–2008,[1] and how this classification might have been distorted by incentive mechanisms unintentionally induced by the Governments goals for the PES concerning jobseekers with occupational disabilities. How to define disability is highly contentious, and the PES and the jobseekers also have different incentives to classify and to accept a disability code, respectively. On the one hand, from the PES' point of view, the goals set by the Government in the annual appropriation directions may unintentionally affect the incentive structure. On the other hand, from the jobseeker's

[1] The demographic characteristics include sex, age, nativity, marital status, having children in ages 0–6 and 7–17 years, respectively. Socio-economic status is measured by attained education, and previous earnings, unemployment, and means-tested social benefit recipiency. The health-related conditions are measured by previous disability insurance recipiency, insured sickness absence, and hospital in-patient care (including discharge diagnoses).

point of view, the incentives may differ from person to person, since having a disability code does not only imply that the jobseeker may enjoy certain measures but being labelled as occupationally disabled may also be stigmatizing.

Four previous studies have investigated the classification of occupational disability by the PES. Johansson and Skedinger (2009) investigated whether there was systematic misreporting of disability by the PES. They found that the PES' disability measure was more strongly related to previous accumulated individual unemployment experience than were self-reported measures of disability. This was interpreted as evidence for misreporting on behalf of the caseworkers, possibly due to the presence of various incentives to do so. More evidence can be found in Holmqvist (2008, 2009), who examined the disability classification process by interviews with staff at the PES and concluded that most jobseekers classified as occupationally disabled did not consider themselves as such, and that it was their unemployment rather than any biological impairment, or objective disorder, that was the main reason for being classified as disabled. Similarly, Garsten and Jacobsson (2014) concluded, based on interviews with staff at a rehabilitation unit within the PES, that 'to be non-employable becomes a disability and conversely, to be disabled can make one employable.'

Background

Impairment, disability, work capacity, and the PES' occupational disability coding system

The conceptualization of disability has been an ongoing process for decades. In rough outlines, the focus has shifted from medically-oriented to socially- or environmentally-oriented. In 2001, Sweden and the other 190 WHO Member States officially endorsed the International Classification of Functioning, Disability and Health (ICF) for use as the international standard to describe and measure health and disability. The framework of the ICF attempts to combine the medical and social focus into a biopsychosocial model, where disability is understood as a dynamic interaction between impairments and personal and environmental factors (The National Board of Health and Welfare, 2003b).

The terminology used by the PES has been 'work handicap', which is defined as '[a] person who due to a physical injury, disorder or injury of the brain, or mental vulnerability has a somatic, mental, or socio-medical impairment and who has or is expected to get difficulties to get or keep a gainful employment is said to have a "work handicap"' (The Swedish Labour Market Agency, 1999). However, the use of the term 'work handicap' was criticized, not only by the disability rights movement but also in state inquiries (e.g., SOU 2003:95).[2] The main criticism was that the term led the thought to medicalization and diagnostization, focused on individual deficits instead of environmental conditions, and emphasised the disability instead of the actual ability to work.[3] The inquiry proposed that the term should be abolished and instead be replaced with two terms: 'reduced work capacity' and 'need of special support'.[4] This resulted in that a Government Bill (2005/06:1) stated that the term should be changed to 'people with functional impairments that entail reduced work capacity', a change that took effect 1st January 2006.[5] The concept 'work capacity', is not legally regulated, but the PES' internal documents state that their definition of work capacity is connected to the ICF and that work capacity is determined by the interplay of a jobseeker's individual characteristics, a specific work task, and the work environment. Hence, although a medical condition is a necessary condition for being classified as occupationally disabled, it is not a sufficient condition because a jobseeker's work capacity is not to be determined based on his or her impairments alone, but an environmental context is necessary (PES, 2011a).

The PES' occupational disability coding system serves three purposes: to ensure that the jobseeker as early as possible receives adequate support in the job search process; to make the person eligible to certain measures and programs targeted to jobseekers with disabilities; and to facilitate planning and evaluation of the targeted measures and provide statistics for the estimation of resource needs (PES, 2011b).

The initiative for coding a jobseeker as occupationally disabled is taken by the responsible caseworker.[6] In some cases the impairment is obvious (e.g., if the jobseeker uses a wheelchair), in other cases it might be much more subtle and perhaps not even recognized by the jobseeker him-/herself (e.g., some mental or socio-medical disabilities). In such cases, it might take some time before the caseworker suspects that the jobseeker actually has a disability. When a jobseeker is expected to have an impairment that affects the work capacity, the caseworker will initiate an investigation. By discussions with the jobseeker and by reviewing medical reports (and/or other relevant documents) the caseworkers will asses both if the jobseeker has an impairment and if so to what extent it affects the capacity to work. In most cases a medical report, or a report from another specialist (e.g., a psychologist or speech therapist), describing the extent of

[2] 'Work handicap' is a direct translation of the Swedish term *arbetshandikapp*. Henceforth, we will instead use the term 'occupational disability'.

[3] For studies on the medicalization of unemployment, see Holmqvist (2009) and Garsten and Jacobsson (2013).

[4] The same inquiry (SOU 2003: 95) proposed that the disability coding system described above also should be abolished and replaced with needs assessments. However, although the term was changed, the coding system remained unaffected.

[5] This change of terminology did not aim to affect who were defined to belong to the target group but to reduce the negative signal associated with the original term.

[6] This brief description of the process of coding a jobseeker as occupationally disabled is based on the PES' internal documents. See also Seing (2015) for a comprehensive description of the process in practice.

impairment and its effect on work capacity is required. The caseworker can, if necessary to confirm the impairment and establish how it affects the conditions for work, consult the PES' own specialists. These specialists have a toolbox of methods including an activity-based assessment of the work capacity, a work-related psychological investigation, and a work-related social investigation. These methods include conversations and interviews, but also various test instruments. Finally, the caseworker, together with the jobseeker, makes a collective judgment concerning if, and to what extent, the impairment entails a reduced work capacity. If a reduced work capacity is established an occupational disability code should be recorded. However, the jobseeker also has to approve the coding. Although the jobseeker has the right to refuse being coded as occupationally disabled, this seems to rarely happen (Garsten and Jacobsson, 2014).

The PES do not only record whether or not a jobseeker has an occupational disability but also the type of disability according to 11 different occupational disability codes: (11) cardio, vascular, and/or respiratory disease; (20) hearing impairment and deafness; (30) visual impairment; (40) motor disability; (51) other somatically related disabilities; (61) mental disability; (71) learning disability; (81) socio-medical disability; (91) asthma, allergy, and hypersensitivity; (92) dyslexia and specific learning difficulties; and (93) acquired brain injury.[7,8,9]

Incentive mechanisms associated with disability coding

Although the coding of disability is dichotomous, i.e., a jobseeker either receives a code or not, 'occupational disability' and 'impairment that entails reduced work capacity' are floating concepts. Hence, the coding leaves some discretion to the particular caseworker and it is therefore essential to elucidate the potential incentive structure. From the jobseeker's perspective, having a disability code implies certain advantages such as access to a number of special labour market measures (e.g., subsidized jobs) exclusively available to the occupationally disabled.[10] On the other hand, being labelled as occupationally disabled, might be stigmatizing both through negative attitudes and stereotypes about persons with disabilities and through adverse effects on self-perception and self-confidence.

To elucidate the PES' incentives to give, or not to give, a disability code to a particular jobseeker it is necessary to first review the PES' goals. From reading the appropriation directions for the PES it is clear that there have been a number of specific goals concerning jobseekers with disabilities. In the appropriation directions for 2003–2007 it is explicitly stated that both the share of transitions from subsidized employment to regular employment and the number of jobseekers with a weak position at the labour market getting a permanent and unsubsidized employment should increase relative to the year before.[11]

Following the ratification of the national action plan for disability policy in year 2000 (Government Bill 1999/2000: 79) the PES was assigned the overall responsibility for disability issues within the labour market (Government Ordinance 2001: 526). The long-term goal was that people with disabilities on the labour market should have the same opportunities to participate in working life as people without disabilities. To reach this goal the PES was assigned the task to prepare a number of step goals to be approved by the Government and fulfilled no later than in year 2010. These step goals were:

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[7] From July 2000, there has, actually, been 14 codes, since the codes 20, 30, and 40, were replaced by 21–22, 31–32, and 41–42, respectively, to also categorize the severity of the impairment. However, we will not make this distinction but only refer to the codes 20, 30, and 40.

[8] As all, but one, of the disability codes are self-explanatory, no comprehensive description will be provided here. Socio-medical disability, however, is a code that lacks an international equivalent. The PES' internal documents state that the contained impairments are caused either by social difficulties that have led to long-lasting need of means-tested social benefits, or by complex relational problems, substance abuse, criminality, or difficult childhood and adolescence (PES, 2011c). See also Garsten and Jacobsson (2013).

[9] Most of these disability codes (i.e., codes 11, 30, 40, 51, 61, 71, 91, 92, and 93) require a medical report or a report from a specialist (e.g., a psychologist or speech therapist) describing the extent of impairment and its effect on work capacity. For those with congenital deafness (code 20) or learning disability (code 71) documentation from a specialist school is sufficient. For those with a socio-medical disability (code 81) either an investigation – that confirms the socio-medical problems, and establishes how it affects the conditions for work – by another government agency (e.g., the Social Services) or by the PES' own social consultants is necessary.

[10] There were eight labour market programs targeting jobseekers with occupational disability accessible during the full period under study here (i.e., 2003–2008): (1) wage-subsidised employment, (2) sheltered employment with a public sector employer, (3) sheltered employment at *Samhall*, (4) support for working aids at the workplace, (5) support for a personal assistant, (6) special introduction and follow up support (SIUS), (7) special support for jobseekers with visual or hearing impairment, and (8) special support while starting a business. In 2006, two new programs were introduced: (9) security employment and (10) development employment. For participation in any of these programs being classified as occupationally disabled is a necessary, but not sufficient, condition. Five of the programs (i.e., [1], [2], [3], [9], and [10]) are various forms of subsidized employment, all requiring that the jobseekers deems not to be able to get or keep an employment without the subsidy.

[11] The explicit statements of these goals were left out in the appropriation directions from 2008 and 2007, respectively.

(1) the work capacity of people with disabilities should be utilized so that in the long run, their employment rate corresponds to that of the general population; (2) the employment rate among the people with disabilities should increase faster than among the rest of the labour force; (3) the share of long-term registered jobseekers with impairments that entail reduced work capacity should have a more positive development than that of other long-term registered jobseekers; (4) the share of jobseekers with impairments that entail reduced work capacity who participate in preparatory education and labour market training should, every year, significantly exceed the corresponding share among all unemployed; and (5) the share of employers who are willing to hire a person with impairments that entail reduced work capacity should increase considerably. In 2004, these goals were incorporated in the appropriation directions, and in 2006 and 2007, they were complemented by goals concerning certain groups – prioritized groups – of jobseekers with disabilities. The prioritized groups were those with cognitive and mental disabilities, neuropsychiatric impairments, or multiple impairments that together entail an extensively reduced work capacity. The goals were that at least 40 percent of the recruited employees to sheltered employment at the state-owned company Samhall should belong to the prioritized groups and that at least an equally large share received other sheltered employment (*Trygghetsanställning*).

From the above we can conclude, first, that the jobseekers' incentives to accept a disability code were mixed. Second, the PES might have had incentives for an over-classification of jobseekers as occupationally disabled. From 2004, the PES' had incentives to classify more 'able' jobseekers as occupationally disabled to fulfil the goal of a more positive development than that of other registered jobseekers. Moreover, from 2006, the PES' had incentives to classify more 'able' jobseekers as having a cognitive disability or a neuropsychiatric impairment, mental disability, or multiple impairments, to fulfil the goals concerning the prioritized groups. Certainly, the intention behind the goals set by the Government was not to create such counteracting incentives, but from the caseworkers' point of view lowering the threshold for whom is classified as occupationally disabled might have been considered as a viable strategy to reach goals otherwise deemed as unattainable.

Related literature

The current study is also related to the literature on socioeconomic determinants of disability retirement and of self-reported disability. Studies on the former have found that both socio-demographic characteristics and socioeconomic position predict disability retirement: High age is a strong predictor (Gjesdal et al., 2004; Leinonen et al., 2011; Bruusgaard et al., 2010; Støver et al., 2012), as well as being a woman (Samuelsson et al., 2012; Krokstad and Westin, 2004; Bruusgaard et al., 2010; Støver et al., 2012), or unmarried (Leinonen et al., 2011; Samuelsson et al., 2012). Lower socioeconomic position has consistently been found to be strongly negatively associated with disability retirement, regardless of what measure of socioeconomic position that has been used: occupational class (Krokstad and Westin, 2004; Leinonen et al., 2011; Samuelsson et al., 2012), education (Gravseth et al., 2007; Samuelsson et al., 2012; Leinonen et al., 2011; Bruusgaard et al., 2010; Støver et al., 2012), income (Gjesdal et al., 2004; Leinonen et al., 2011), and unemployment (Leinonen et al., 2011; Støver et al., 2012). Studies on the socioeconomic determinants of impairment or disability per se are scarcer, but their findings suggest, unsurprisingly, that the same factors found to predict disability retirement also predict (self-reported) impairment and disability (Pascual and Cantarero, 2007; Reinhardt et al., 2013; Melo and Valdes, 2011).

Data and method

The sample

We have constructed a sample containing all those of ages 18–64 years who registered as jobseekers with the PES during 2003–2008. To be classified as occupationally disabled in our sample, a disability code had to be recorded within the ongoing registration spell and also within two years from the date of registration. These data were linked to Statistics Sweden's longitudinal databases (i.e., LOUISE and LISA) and the National Patient Register maintained by the National Board of Health and Welfare.

From **Table 1** we can see that each year 390–670 thousand jobseekers registered with the PES and about 7 percent of them were given a disability code. Over time the number of jobseekers, both with and without disabilities, has decreased. However, the share of jobseekers with disabilities has been increasing: from 5.7 percent in 2003 to 8.0 percent 4 years later. Hence, our sample contains 220 thousand jobseekers classified as occupationally disabled and 3 million jobseekers without any disability code.

Table 2 shows the frequency of each of the 11 disability codes. The most common reason for receiving a disability code was that the jobseeker had a motor disability (code 40). Almost 40 percent of those who were classified as disabled had received such a code. Mental and socio-medical disability (codes 61 and 81) were the second and third most common disability codes and together accounted for one third.

Statistical method

To investigate which characteristics were associated with being classified as occupationally disabled, and of having a particular disability code, conditional on having registered with the PES, we have estimated a series of logistic regressions. The estimated coefficients are presented as odds ratios (ORs) and their associated standard errors are made robust to

Table 1: The number and percentages of registered jobseekers that were classified as occupationally disabled, by registration year.

	Job seekers with disabilities		Job seekers without disabilities	
Registration year	***N***	**Fraction**	***N***	**Fraction**
2003	37,853	5.7	629,326	94.3
2004	41,906	6.2	630,161	93.8
2005	42,009	6.7	580,809	93.3
2006	35,432	6.8	488,069	93.2
2007	31,682	8.0	361,902	92.0
2008	31,278	7.9	365,813	92.1
2003–2008	220,160	6.7	3,056,080	93.3

Table 2: The number and percentages of the registered jobseekers that had received a certain disability code.

Disability code	***N***	**Fraction**
Code 11: Cardio, vascular, and/or lung disease	5,152	2.3
Code 20: Hearing impairment and deafness	6,818	3.1
Code 30: Visual impairment	2,817	1.3
Code 40: Motor disability	84,680	38.5
Code 51: Other somatically related disabilities	22,672	10.3
Code 61: Mental disability	39,364	17.9
Code 71: Learning disability	7,731	3.5
Code 81: Socio-medical disability	31,874	14.5
Code 91: Asthma, allergy, and hypersensitivity	5,242	2.4
Code 92: Dyslexia and specific learning difficulties	12,362	5.6
Code 93: Acquired brain injury	1,448	0.7

within municipality correlations. The dependent variable takes the value one if a jobseeker was classified as disabled, or had a certain disability code, and zero otherwise. The set of explanatory variables consists of the year of registration with the PES (which might tell us something about the importance of changes in the PES' goals concerning jobseekers with disabilities), and measures of demographic characteristics (i.e., sex, age, nativity, marital status, having children in ages 0–6 and 7–17 years respectively), socio-economic status (i.e., attained education, earnings, unemployment, and means-tested social benefit recipiency), and health-related conditions (i.e., previous disability insurance recipiency, insured sickness absence, and hospital in-patient care including discharge diagnoses).

Descriptive statistics

Table 3 presents descriptive statistics for the sample of registered jobseekers. The age distribution is highly skewed to the right with more than 40 percent being between 18 and 29 years. The majority has never been married, has no children, and has upper secondary schooling. One quarter of the sample is foreign born. During five preceding years, a small fraction (2.5 percent) had received disability insurance (full- or part-time), more than a quarter had received mean-tested social benefits, and more than three quarters had experienced unemployment. While the majority had no insured sickness absence at all, 10 percent had more than 60 days of sickness absence per year. Moreover, 29 percent had received in-patient treatment during these years.[12,13]

[12] In-patient treatment is also categorized by discharge diagnoses according to the chapters of ICD-10. Not all diagnoses, or groups of diagnoses, are expected to be related to disability, but for completeness all groups (i.e., all ICD-chapters) are reported and also included in the following analyses.

[13] Among the general working age population less than 7 percent are treated in hospital at least once during a year (The National Board of Health and Welfare, 2003a).

Table 3: Descriptive statistics.

Variable	*N*	Fraction
Sex		
Female	1,624,767	49.6
Male	1,651,473	50.4
Age		
18–24 years	697,383	21.3
25–29 years	628,318	19.2
30–34 years	488,190	14.9
35–39 years	408,910	12.5
40–44 years	340,707	10.4
45–49 years	249,368	7.6
50–54 years	190,724	5.8
55–59 years	161,689	4.9
60–64 years	110,951	3.4
Nativity		
Native born	2,485,209	75.9
Foreign born	791,031	24.1
Marital status		
Never- married	1948,249	59.5
Married	956,789	29.2
Divorced	352,160	10.7
Widowed	19,042	0.6
Having children ages		
0–6 years	698,735	21.3
7–17 years	773,798	23.6
Education		
Unknown	17,467	0.5
Compulsory school	613,623	18.7
Upper secondary school	1,720,948	52.5
University studies	924,202	28.2
DI receiver[a]	81,908	2.5
SB receiver[a]	941,875	28.8
Earnings (in 1,000 SEK)[b]		
0	311,280	9.5
1–20	563,046	17.2
21–70	751,776	23.0
71–150	796,356	24.3
151–	918,327	28.0
Unemployment (days)[b]		
0	767,450	23.4
1–50	692,547	21.1
51–100	564,169	17.2
101–200	743,191	22.7
201–	508,883	15.5
Insured sickness (days)[b]		
0	2,126,734	64.9
1–30	391,221	11.9
31–60	436,327	13.3
61–120	142,010	4.3
121–	179,948	5.5
Hospital in-patient care		
Any episode[a]	964,451	29.4
Discharge diagnosis[a]		
Ch. I: Infectious and parasitic diseases	60,813	1.9
Ch. II: Neoplasms	78,497	2.4
Ch. III: Diseases of the blood and blood-forming organs	13,929	0.4
Ch. IV: Endocrine, nutritional and metabolic diseases	41,780	1.3

(Contd.)

Variable	*N*	Fraction
Ch. V: Mental and behavioural disorders	116,830	3.6
Ch. VI: Diseases of the nervous system	27,874	0.9
Ch. VII: Diseases of the eye and adnexa	6,824	0.2
Ch. VIII: Diseases of the ear and mastoid process	9,177	0.3
Ch. IX: Diseases of the circulatory system	55,242	1.7
Ch. X: Diseases of the respiratory system	64,405	2.0
Ch. XI: Diseases of the digestive system	106,545	3.2
Ch. XII: Diseases of the skin and subcutaneous tissue	14,936	0.5
Ch. XIII: Diseases of the musculoskeletal system	57,515	1.8
Ch. XIV: Diseases of the genitourinary system	71,150	2.2
Ch. XV: Pregnancy, childbirth and the puerperium	382,003	11.7
Ch. XVII: Congenital anomalies	7,945	0.2
Ch. XIX: External causes	264,548	8.1

[a] Any incidence during years *t*-5 to *t*-1.
[b] Annual average during years *t*-5 to *t*-1.

Results

This section will present the results from a series of logistic regressions of the likelihood of having been classified as disabled by the PES and having received a certain disability code, respectively.[14] **Table 4** presents the estimated odds ratios (ORs) for the associations of the jobseekers' individual characteristics with being classified as occupationally disabled and with each of the 11 groups of disability codes.

The individual characteristics can broadly be categorized as demographic, socioeconomic, and health-related. Regarding the association between the demographic characteristics or variables, we can observe that: First, women generally seem to have been less likely to receive a disability code. Especially the codes associated with socio-medical disability (code 81), cardio, vascular, or lung diseases (code 11), acquired brain injury (code 93), and dyslexia and specific learning difficulties (code 92) are much less likely. However, women were more likely to have a code of asthma, allergy, and hypersensitivity (code 91), mental disability (code 61), and other somatically related disabilities (code 51). Second, higher age is generally positively associated with having been classified as occupationally disabled, and especially to have received a code of cardio, vascular, or lung diseases (code 11).[15] However, learning disability (code 71), and dyslexia and specific learning difficulties (code 92) constitute two notable exceptions. Third, being foreign born was generally negatively associated with having been classified as occupationally disabled. Especially less likely were the foreign born jobseekers to have a code of dyslexia and specific learning difficulties (code 92), socio-medical disability (code 81), mental disability (code 61), and learning disability (code 71), while they had an elevated risk of having a code of cardio, vascular, and/or lung diseases (code 11) and motor disability (code 40). Fourth, there was generally a weak association between marital status and disability classification, albeit being married was negatively associated with having a code of learning disability (code 71) and socio-medical disability (code 81). As with marital status, there was a rather weak association between having children and most disability codes. However, analogously to the lower likelihood of having a code of socio-medical disability if being married, there is a lower likelihood of having codes of mental and socio-medical disability (codes 61 and 81) if having children. Hence, the general relationships between these demographic characteristics and occupational disability are both in line and in conflict with those found in earlier studies on disability retirement and on self-reported impairment/disability. That the association with sex is the opposite, and the association with marital status is weaker, than found in previous studies may partly be due to that we study a selected (and different) sample of people with disabilities, but also that these estimated associations are conditional on previous recorded health conditions.[16]

We have investigated four measures of socioeconomic status: attained educational level, and previous earnings, unemployment, and means-tested social benefit recipiency during the five preceding years. The general finding is that lower socio-economic position, regardless of the measure, is positively associated with being classified as occupationally disabled. However, for unemployment there seem to be a U-shaped relationship with all disability codes but socio-medical disability (code 81), where both having no previous unemployment at all and having longer periods

[14] For brevity, when discussing the results, we do not stress the fact that the estimate for a specific variable is always obtained while holding the rest of the observed variables fixed, but this should be kept in mind.

[15] However, the relationship is not monotonic as many of those with disabilities who are approaching (mandatory) retirement age are likely to already have left the labour force by disability retirement.

[16] If dropping all the health-related variables from the regression model the negative association with being a woman disappears and the association with marital status becomes stronger. For brevity, tables containing the estimates from these regressions have not been included in the paper.

Table 4: The estimated odds ratios (ORs) using logistic regression for the associations of the jobseekers' individual characteristics with being classified as occupationally disabled, and with each of the 11 disability codes, during 2003–2008.

Variable	Codes 11–93	Code 11	Code 20	Code 30	Code 40	Code 51	Code 61	Code 71	Code 81	Code 91	Code 92	Code 93
Female	0.78***	0.43***	0.90**	0.62***	0.91***	1.07***	1.19***	0.81***	0.28***	1.20***	0.55***	0.52***
Age												
18–24 years	0.53***	0.34***	0.97	0.94	0.33***	0.43***	0.52***	1.60***	0.26***	0.44***	1.62***	0.78
25–29 years	0.63***	0.40***	0.76***	0.76***	0.51***	0.57***	0.72***	0.95	0.48***	0.65***	1.22***	1.00
30–34 years	0.82***	0.67***	0.82***	1.08	0.78***	0.82***	0.91***	1.10	0.74***	0.80***	1.10**	1.04
35–39 years (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40–44 years	1.16***	1.61***	1.23***	1.44***	1.23***	1.16***	1.01	0.86**	1.20***	1.14**	0.94	0.90
45–49 years	1.33***	2.92***	1.33***	1.54***	1.51***	1.28***	1.04	0.73***	1.46***	1.37***	0.79***	0.92
50–54 years	1.51***	4.39***	1.70***	1.78***	1.84***	1.48***	1.03	0.53***	1.61***	1.52***	0.59***	0.92
55–59 years	1.55***	5.29***	1.98***	1.88***	1.98***	1.58***	0.87***	0.36***	1.51***	1.45***	0.40***	0.82
60–64 years	1.07***	5.05***	1.80***	1.28*	1.45***	1.09	0.43***	0.11***	0.87**	1.00	0.10***	0.29***
Foreign born	0.79***	1.33***	0.94	1.01	1.21***	0.93**	0.65***	0.63***	0.52***	0.92*	0.47***	0.56***
Marital status												
Never married	1.14***	0.94	0.98	0.99	0.94***	1.00	1.31***	1.73***	2.25***	1.01	1.38***	1.14
Married (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Divorced	0.99	0.89**	0.87***	0.84**	0.90***	0.90***	1.08***	1.02	2.08***	0.96	1.06	0.77***
Widowed	0.94**	0.82	0.87	0.66	0.80***	0.92	1.11	0.90	2.04***	0.69**	1.25	0.53*
Having children ages												
0–6 years	0.80***	0.85*	1.04	0.92	0.99	0.87***	0.69***	0.71***	0.68***	1.03	0.87***	0.93
7–17 years	0.97***	1.03	1.01	0.87**	1.09***	1.05**	0.96**	0.84***	0.67***	0.91**	0.97	0.81**
Education												
Unknown	1.80***	1.13	0.95	0.93	0.54***	0.44***	0.48***	15.39***	0.78*	0.41**	2.80***	0.38
Compulsory school	1.38***	1.09**	0.82***	1.01	1.20***	1.12***	1.01	3.19***	1.72***	1.09**	1.95***	0.89
Upper sec. school (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
University studies	0.51***	0.58***	0.88***	1.08	0.39***	0.55***	0.88***	0.11***	0.30***	0.44***	0.33***	0.73***

(Contd.)

Variable	Codes 11–93	Code 11	Code 20	Code 30	Code 40	Code 51	Code 61	Code 71	Code 81	Code 91	Code 92	Code 93
DI receiver[a]	3.91***	2.38***	11.40***	9.07***	2.88***	2.77***	2.83***	38.96***	0.78***	1.80***	6.52***	8.73***
SB receiver[a]	1.42***	1.18***	1.03	0.90*	0.98	1.02	1.25***	1.24***	4.93***	1.09**	1.23***	0.73***
Earnings (SEK 1,000s)[b]												
0 (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1–20	0.98	0.93	0.90*	0.83***	0.92***	0.93**	0.89***	1.21***	0.88***	1.08	1.20***	0.92
21–70	0.64***	0.76***	0.63***	0.47***	0.76***	0.72***	0.59***	0.57***	0.58***	0.77***	0.65***	0.69***
71–150	0.50***	0.65***	0.58***	0.42***	0.61***	0.57***	0.45***	0.48***	0.36***	0.61***	0.42***	0.61***
151–	0.38***	0.53***	0.70***	0.51***	0.45***	0.43***	0.34***	0.75***	0.21***	0.47***	0.33***	0.47***
Unemployment (days)[b]												
0 (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1–50	0.86***	0.86***	0.76***	0.73***	0.82***	0.85***	0.90***	0.65***	1.09***	0.87**	0.87***	0.62***
51–100	0.91***	0.88**	0.83***	0.74***	0.85***	0.89***	0.92**	0.71***	1.10**	0.97	1.15**	0.60***
101–200	1.09***	0.95	1.10	1.17*	0.93**	1.04	0.98	1.33***	1.30***	1.30***	1.93***	0.66***
201–	1.86***	1.54***	2.25***	2.57***	1.45***	1.96***	1.39***	4.81***	2.01***	2.36***	4.65***	1.07
Insured sickness (days)[b]												
0 (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0–30	1.35***	1.39***	1.08	0.91	1.75***	1.60***	1.37***	0.86***	1.14***	1.66***	1.07	0.88
31–60	2.51***	2.09***	1.43***	1.30***	4.03***	2.98***	3.40***	0.77***	1.48***	2.69***	1.26***	1.91***
61–120	5.61***	3.65***	1.91***	1.85***	10.28***	6.51***	10.54***	0.64***	1.78***	3.77***	1.40***	4.75***
121–												
Hospital in-patient care												
Any episode[a]	1.15***	1.46***	0.95	1.25***	0.98	1.22***	0.95**	1.06	1.25***	1.01	1.06	2.36***
Discharge diagnosis[a,c]												
Chapter I	1.10***	1.16*	0.80**	0.91	0.96*	1.17***	0.70***	0.55***	1.62***	1.01	0.81**	0.88
Chapter II	0.98	0.99	1.38***	1.48***	0.90***	1.36***	0.80***	1.07	0.87**	1.01	1.05	2.16***
Chapter III	0.98	1.15	0.59**	0.74	0.89**	1.59***	0.73***	1.13	0.98	0.92	1.19	0.62*
Chapter IV	1.09***	1.34***	0.90	2.02***	0.90***	2.24***	0.81***	1.46***	0.72***	0.98	1.19*	0.74**
Chapter V	1.23***	0.60***	0.68***	0.59***	0.44***	0.49***	2.52***	0.47***	2.72***	0.48***	0.81***	0.52***

(Contd.)

Variable	Codes 11–93	Code 11	Code 20	Code 30	Code 40	Code 51	Code 61	Code 71	Code 81	Code 91	Code 92	Code 93
Chapter VI	1.48***	1.01	1.28**	1.69***	1.58***	2.70***	0.92	1.32***	0.85***	1.11	1.34***	7.10***
Chapter VII	1.43***	0.85	1.07	51.08***	0.84**	1.47***	0.69***	0.73	0.72**	1.18	0.97	2.97***
Chapter VIII	1.47***	0.64**	19.85***	0.81	1.16**	1.10	0.96	1.60**	0.82	0.45**	1.37*	1.62
Chapter IX	1.08***	13.59***	0.79***	1.05	0.76***	0.99	0.69***	0.96	0.77***	0.70***	0.86	5.96***
Chapter X	1.00	1.98***	0.92	0.78*	1.00	1.11**	0.84***	1.06	0.91*	2.91***	1.10	0.96
Chapter XI	0.98	0.73***	1.01	0.91	0.99	1.74***	0.83***	0.91	0.89***	1.14	1.14**	0.45***
Chapter XII	1.07*	0.79	0.46***	1.06	1.06	1.50***	0.71***	1.08	1.13*	3.21***	0.82	0.71
Chapter XIII	1.22***	0.62***	0.77**	0.48***	2.22***	0.94	0.34***	0.80*	0.71***	0.64***	0.82**	0.38***
Chapter XIV	0.94***	0.75***	0.92	0.81	1.06***	1.15***	0.88***	0.92	0.86**	0.98	1.01	0.44***
Chapter XV	0.71***	0.74**	1.04	0.83*	0.72***	0.62***	0.72***	1.30***	0.74***	0.72***	0.91	0.61***
Chapter XVII	1.65***	5.48***	3.12***	2.84***	1.89***	1.58***	1.01	1.49**	0.75	1.02	1.25	1.68**
Chapter XIX	1.10***	0.89**	1.01	1.02	1.26***	0.91***	0.89***	0.78***	1.34***	0.80***	0.97	1.99***
Cohort												
2003 (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2004	1.10***	0.96	1.12***	1.03	1.05***	1.00	1.15***	1.19***	1.18***	1.09**	1.35***	0.77***
2005	1.18***	1.07	1.03	1.09	1.07***	1.02	1.37***	1.30***	1.32***	1.05	1.53***	0.90
2006	1.15***	0.97	0.92**	0.96	1.01	0.86***	1.47***	1.25***	1.37***	0.87**	1.50***	1.19
2007	1.27***	0.89*	1.05	1.03	1.04	0.96	1.89***	1.38***	1.39***	0.90**	1.65***	1.31***
2008	1.23***	0.83***	0.96	0.99	0.99	0.85***	1.91***	1.35***	1.36***	0.71***	1.84***	1.37***
Municipality fixed effects	X	X	X	X	X	X	X	X	X	X	X	X
N	3,276,240	3,053,255	3,058,737	3,015,740	3,140,760	3,078,752	3,095,444	3,061,425	3,087,954	3,057,375	3,064,315	2,885,711
LL	−621,029	−25,155	−43,011	−19,011	−277,794	−106,946	−160,489	−39,078	−126,624	−34,429	−6,9177	−9,110
Pseudo R2	0.23	0.34	0.11	0.15	0.29	0.20	0.24	0.28	0.29	0.11	0.14	0.27

Note: ***, **, and * denotes statistical significance at the levels .05, .01, and .001, respectively.
[a] Any incidence during years *t*-5 to *t*-1.
[b] Annual average during years *t*-5 to *t*-1.
[c] See Table 3 for a description of the content in each ICD-chapter.

of unemployment is positively associated with disability classification; although the latter more strongly so. Hence, like previous studies we find socio-economic disadvantage, regardless of the measure, to be positively associated with disability (classification) in general. However, a few specific occupationally disability codes seem to differ in how they are related to at least some of the measures of socioeconomic position: Educational level seem to be unrelated to the likelihood of receiving occupational disability codes of hearing impairment and deafness (code 20), visual impairment (code 30), and mental disability (code 61). To have a disability code of socio-medical and mental disability (codes 81 and 61) was much more likely if one had received means-tested social benefits, while the likelihood of having any other disability code was only slightly increased.

Our health-related measures comprise indicators of having received disability insurance, in-patient treatment and the associated discharge diagnosis (grouped by the chapters of the ICD-10), and the average annual number of insured sickness days. If one has received disability insurance in the past that is an obvious sign of an underlying disability. Hence, it comes as no surprise that it was strongly associated with all disability codes, except for the one corresponding to socio-medical disability. Previous insured sickness absence was a strong predictor of all disability classifications but the two codes associated with learning disability (code 71) and dyslexia and specific learning difficulties (code 92). Especially, longer periods of sickness absence were associated with disability codes corresponding to mental disability (code 61), motor disability (codes 40–42), or other somatically related disabilities (code 51). A history of hospital inpatient treatment is an indicator of health problems, which may, or may not, be disabling.[17] There are also, more or less, obvious links between the various disability codes used by the PES and the specific (groups of) diagnoses. Hence, we would expect to find positive associations between the type of disability code and resembling diagnoses observed in the hospital in-patient data. Of course, the mapping needs not to be perfect, since we lack information on whether a particular condition also entails a reduced work capacity and we, as researchers, and the PES' caseworkers do not share the same information set. Generally, positive associations are also what we find: Having been treated in hospital was positively associated with disability codes of cardio, vascular, and/or lung disease (code 11), visual impairment (code 30), other somatically related disabilities (code 51), socio-medical disability (code 81), and acquired brain injury (code 93). For the specific disability codes there were also strong associations with the resembling prior discharge diagnoses. For example, there were strong positive associations between a discharge diagnosis of any diseases of the circulatory system (Ch. IX) and a disability code of cardio, vascular, and/or lung disease (code 11), a discharge diagnosis of any disease of the ear or mastoid process (Ch. VIII) and a disability code of hearing impairment (code 20), a discharge diagnosis of any diseases of the eye or adnexa (Ch. VII) and a disability code of visual impairment (code 30), and a discharge diagnosis of any mental or behavioural disorders (Ch. V) and a disability code of mental disability (codes 61) and socio-medical disability (code 71).

Finally we have investigated how the likelihood of being classified as occupationally disabled has changed over time. In general it has been increasing, but when considering the specific disability codes it is rather striking that (holding the jobseekers' characteristics constant) the likelihood of receiving a disability code related to physical impairments (codes 11, 20, 30, 40, 51, and 91) has either decreased or remained unchanged over time, while there is an opposite trend for disability codes related to mental (codes 61 and 81) and learning (codes 71 and 92) disabilities. Recall from the section on the incentive mechanisms associated with disability coding that from 2006 the PES' may have had incentives to classify more 'able' jobseekers as having a cognitive disability or a neuropsychiatric impairment, mental disability, or multiple impairments, to fulfil the goals concerning these prioritized groups. Our results suggest that, unless the composition of disabilities among the jobseekers actually changed during these years, the PES may have responded to these goals by lowering the threshold for giving such disability codes.

Conclusions

To be able to reach the goal – in the United Nations Standard Rules for the Equalization of Opportunities of Persons with Disabilities – that disabled people should have the same opportunities to participate in working life as everyone else, certain measures, such as wage subsidies, compensating for a reduced work capacity, or sheltered employment might be necessary. However, to ascertain that these measures are limited to those belonging to the target group a system that identifies this group is required. The PES' coding of occupational disability is such a system and the target group is 'jobseekers with functional impairments that entail reduced work capacity'. In this study we have investigated how jobseekers' demographic characteristics, socioeconomic position, and health-related conditions were associated with being classified as occupationally disabled by the PES, and how this classification has changed over time. Obviously, this is closely related to the literature on socioeconomic determinants of disability retirement and of self-reported disability. However, like the literature on disability retirement, we focus on a particular, albeit different, group of people with disabilities: those who have registered as jobseekers with the PES. The literature on the determinants of disability in

[17] While the PES' classification of occupational disability is described as related to ICF, we have to rely solely on ICD-10. Although there is overlap between ICD-10 and ICF, the former provides no information on functioning. However, recall that having a medical condition is a necessary (with a few exceptions), but not sufficient, condition for being classified as occupationally disabled.

more general terms concerns a more representative group of all people with disabilities, but is instead afflicted with the problems of subjective and self-reported disability measures.

Similar to the studies on disability retirement and self-reported disability we find higher age and socio-economic disadvantage to be positively associated with disability classification. All four of our measures of socioeconomic position are consistent with this finding: the likelihood of being classified as occupationally disabled was decreasing in education and previous earnings, while previous unemployment and receipt of means-tested social benefits were positively associated with receiving a disability code. Unsurprisingly, all variables indicating poor health, may it be disabling or not, were positively associated with being classified as occupationally disabled. Both previous number of days of insured sickness absence and disability insurance recipiency were strong predictors. Hospital inpatient treatment may also indicate health issues that are, or may become, disabling, and the estimates do suggest – to varying degrees depending on the associated diagnosis – a positive association with being classified as occupationally disabled. For the specific disability codes, there was also a strong association with resembling discharge diagnoses. A final finding is that it has been increasingly likely to be classified as occupationally disabled over time. The codes related to mental (codes 61 and 81) and learning (codes 71 and 92) disabilities accounts for most of the increase. Worth mentioning is that these groups of disabilities became to be considered as prioritized groups during these years, which might suggest that, in practise, the classification is not only based on a judgement of a jobseeker's impairment and work capacity but also on the goals, set by the government, that the PES faces.

To conclude, it is clear from the analysis that being classified as occupationally disabled by the PES is associated with previous health conditions and socioeconomic disadvantages. At least in that perspective, it seems that the more needy do receive a disability code. To what extent these jobseekers actually had impairments that entailed reduced work capacity – that is, belong to the target group – we cannot tell from the available data, which is also the main limitation with this study. Moreover, our results indicate that this is not the only consideration: also the goals set by the government seem to have played an unintended role. However, given the contested and floating nature of the concept of occupational disability, and disability in general, this might be inevitable. Nevertheless, it needs to be kept in mind when setting policy goals concerning targeted groups.

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Competing interests

The authors have no competing interests to declare.

References

Bruusgaard, Dag, Lisbeth Smeby, and Bjørgulf Claussen. 2010. "Education and disability pension: a stronger association than previously found." *Scandinavian Journal of Public Health* 38(7): 686–690. DOI: https://doi.org/10.1177/1403494810378916

Garsten, Christina, and Kerstin Jacobsson. 2013. "Sorting people in and out: The plasticity of the categories of employability, work capacity and disability as technologies of government." *Ephemera*: *Theory and Politics in Organization* 13(4): 825–850.

Gjesdal, Sturla, Peder R. Ringdal, Kjell Haug, and John Gunnar Mæland. 2004. "Predictors of disability pension in long-term sickness absence: Results from a population-based and prospective study in Norway 1994–1999." *The European Journal of Public Health* 14(4): 398–405. DOI: https://doi.org/10.1093/eurpub/14.4.398

Government Bill. 1999/2000:79. "From patient to citizen–A national action plan for disability policy (Från patient till medborgare–en nationell handlingsplan för handikappolitiken)." Ministry of Health and Social Affairs.

Government Bill. 2005/2006:1. The Budget Bill for 2006, Expense category 13, The Labour market [In Swedish]. Ministry of Finance.

Government Ordinance. 2000:630. "Ordinance on Special Initiatives for Disabled Persons with Reduced Work Capacity (Förordning om särskilda insatser för personer med funktionshinder som medför nedsatt arbetsförmåga)." Ministry of Employment.

Government Ordinance. 2001:526. "Ordinance on Central Government Agencies' Responsibilities for the Implementation of Disability Policy (Förordning om de statliga myndigheternas ansvar för genomförande av funktionshinderspolitiken)." Ministry of Health and Social Affairs.

Gravseth, Hans Magne, Tor Bjerkedal, Lorentz M. Irgens, Odd O. Aalen, Randi Selmer, and Petter Kristensen. 2007. "Life course determinants for early disability pension: a follow-up of Norwegian men and women born 1967–1976." *European Journal of Epidemiology* 22(8): 533–543. DOI: https://doi.org/10.1007/s10654-007-9139-9

Holmqvist, Mikael. 2008. "Creating the disabled person: A case study of recruitment to 'work-for-the- disabled' program." *Scandinavian Journal of Disability Research* 10(3): 91–207. DOI: https://doi.org/10.1080/15017410801932567

Johansson, Per, and Per Skedinger. 2009. "Misreporting in register data on disability status: evidence from the Swedish Public Employment Service." *Empirical Economics* 37(2): 411–434. DOI: https://doi.org/10.1007/s00181-008-0238-6

Krokstad, Steinar, and Steinar Westin. 2004. "Disability in society—medical and non-medical determinants for disability pension in a Norwegian total county population study." *Social Science & Medicine* 58(10): 1837–1848. DOI: https://doi.org/10.1016/S0277-9536(03)00409-X

Leinonen, Taina, Olli Pietiläinen, Mikko Laaksonen, Ossi Rahkonen, Eero Lahelma, and Pekka Martikainen. 2011. "Occupational social class and disability retirement among municipal employees-the contribution of health behaviors and working conditions." *Scandinavian Journal of Work, Environment & Health* 37(6): 464–472. DOI: https://doi.org/10.5271/sjweh.3182

Melo, Pedro Zitko, and Báltica Cabieses Valdes. 2011. "Socioeconomic determinants of disability in Chile." *Disability and Health Journal* 4(4): 271–282. DOI: https://doi.org/10.1016/j.dhjo.2011.06.002

National Board of Health and Welfare. 2003a. "Inpatient diseases in Sweden 1987–2012 (Sjukdomar i sluten vård 1987–2012)." Official Statistics of Sweden.

National Board of Health and Welfare. 2003b. "International Classification of Functioning, Disability and Health (ICF) (Klassifikation av funktionstillstånd, funktionshinder och hälsa)." National Board of Health and Welfare.

Pascual, Marta, and David Cantarero. 2007. "Socio-demographic determinants of disabled people: An empirical approach based on the European Community Household Panel." *The Journal of Socio-Economics* 36(2): 275–287. DOI: https://doi.org/10.1016/j.socec.2005.11.041

PES (Public Employment Service). 2011a. "Administrative support for reduced work capacity (Handläggarstöd om Arbetsförmåga)." AFHS 105/2011.

PES (Public Employment Service). 2011b. "Revision of administrative support for the investigation and coding of impairments that entail reduced work capacity (Revidering av handläggarstöd för utredning och kodning av funktionsnedsättning som medför nedsatt arbetsförmåga)." AFHS 24/2011.

PES (Public Employment Service). 2011c. "Administrative support for the work with job seekers with socio-medical complex of problems (Handläggarstöd för att arbeta med arbetssökande som har socialmedicinsk problematik)." AFHS 4/2011.

Reinhardt, Jan D., Morten Wahrendorf, and Johannes Siegrist. 2013. "Socioeconomic position, psychosocial work environment and disability in an ageing workforce: a longitudinal analysis of SHARE data from 11 European countries." *Occupational and Environmental Medicine* 70(3): 156–163. DOI: https://doi.org/10.1136/oemed-2012-100924

Samuelsson, Åsa, Kristina Alexanderson, Annina Ropponen, Paul Lichtenstein, and Pia Svedberg. 2012. "Incidence of disability pension and associations with socio-demographic factors in a Swedish twin cohort." *Social Psychiatry and Psychiatric Epidemiology* 47(12): 1999–2009. DOI: https://doi.org/10.1007/s00127-012-0498-5

Seing, Ida. 2015. "A labour market of opportunities? Specialists assess work ability and disability." In: *Makeshift Work in a Changing Labour Market – The Swedish Model in the Post-Financial Crisis Era*, edited by Christina Garsten, Jessica Lindvert, Renita Thedvall, 65–84. Cheltenham: Edward Elgar Publishing Limited.

SOU. 2003:95. "ManPower (ArbetsKraft)." Report from the Commission for wage subsidies. Stockholm: Fritzes.

Statistics Sweden. 2009:3. "Labour market situation for disabled persons–4th quarter 2008 (Funktionsnedsattas situation på arbetsmarknaden–4: e kvartalet 2008)." *Information on Education and the Labour Market*. Labour Force and Work Environment Surveys Unit.

Støver, Morten, Kristine Pape, Roar Johnsen, Nils Fleten, Erik R. Sund, Bjørgulf Claussen, and Johan H. Bjørngaard. 2012. "Unemployment and disability pension-an 18-year follow-up study of a 40-year-old population in a Norwegian county." *BMC Public Health* 12: 148. DOI: https://doi.org/10.1186/1471-2458-12-148

Swedish Labour Market Agency. 1999. "Disability knowledge (Handikappkunskap)." Stockholm: Swedish Labour Market Agency.

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