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Factors associated with occupational disability classification

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Factors associated with occupational disability classification[a]

by

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Abstract

Sweden has a long tradition of labour market policies explicitly targeting job seekers with disabilities, ranging from in-work aids to subsidized employments, aiming at strengthening their position at the labour market. To ascertain that these programs are limited to the needy they are constrained to those job seekers that are classified as occupationally disabled by the Public Employment Service. In this study we have investigated the determinants of being classified as occupationally disabled by the PES. Similar to the studies on disability retirement and self-reported disability we find that men were more likely to be classified as disabled and also that higher age and various measures of socio-economic disadvantages were associated with a higher likelihood. Rather naturally, also all measures indicating poor health were associated with an increased likelihood of being classified as occupationally disabled. A final point is that over the time period under study it became increasingly likely to be classified as occupationally disabled and especially to receive a code related to mental, socio-medical, and learning disabilities.

Keywords: Disability, codification, impairment, job seekers, unemployment
JEL-codes: J14; J64; J68; H83

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1 Introduction

In Sweden, almost one million individuals, or one out of six, ages 16–64 years have any kind of impairment. 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 job seekers 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 needy. To ascertain that this is the case they are constrained to job seekers that are classified as occupationally disabled by the Public Employment Service (PES). However, how to define disability is highly contentious. Moreover, the PES and the job seekers have different incentives to classify and to accept a disability code. On the one hand, from the PES' point of view the goals set by the Government in the annual appropriation directions may affect the incentive structure. On the other hand, from the job seeker's point of view, the incentives may differ from person to person, since having a disability code implies that the job seeker may enjoy more exclusive measures, but being labelled as occupationally disabled may also be stigmatizing. This stigma may both be external, i.e., through negative attitudes and stereotypes about persons with disability, and internal, i.e., through adverse effects on self-perception and self-confidence.

The objective of this study is to give a description of the importance of various individual characteristics, observed in administrative registers, as determinants of the likelihood of being classified as disabled and receiving a certain disability during the period 2003–2008. Our objective is intentionally formulated in generic terms since we intend to cover several aspects of the coding of occupational disability. The main point of de-

parture, however, is that if the coding is executed the way it is intended then there should be a clear association between the job seeker's history of diseases and the specific disability code. The various disability codes used by the PES have, more or less, obvious links to specific diagnoses. Hence, we would expect to find positive associations between the type of disability code and resembling disease measures observed in register 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' case workers do not share the same information set. If we were to find an insignificant, or even negative, association that might suggest that the incentives of the PES' or the job seekers, described above, are of greater importance than the impairment per se. If we instead would find a clear positive association that does not necessarily imply that the PES' goals, the job seeker's fear of being stigmatized, or other incentives play no role in the coding of occupational disability.

Three 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 case workers, possibly due to the presence of various incentives to do so. Evidence for this feature of the coding process can also be found in Holmqvist (2008), who examined the disability classification process by interviews with staff at the PES. He concludes that most job seekers classified as occupationally disabled do not consider themselves as such, and that it is their unemployment rather than any biological impairment, or objective disorder, that is the main reason for being classified as disabled. Similarly, Garsten and Jacobsson (2014) conclude, 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."

The rest of the paper is structured as follows: The next section gives a background including a brief discussion of the concept of disability, the PES' occupational disability coding system, and the PES' and the job seekers' incentives to give and to accept a disability code, respectively. Section 3 presents the data and the statistical method. Section 4 presents the results and, finally, Section 5 concludes.

2 Background

2.1 Impairment, disability, work handicap, work ability, and employability

The conceptualization of disability has been an ongoing process during recent 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 "bio-psycho-social" model, where disability is understood as a dynamic interaction between impairments and personal and environmental factors (The National Board of Health and Welfare, 2003).

The terminology used by the PES has been "work handicap" (*arbetshandikapp*) or "occupational disability", 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 an 'occupational disability'" (The Swedish Labour Market Agency, 1999). The use of the term "work handicap" was criticized, however, not only by the disability rights movement but also in state inquiries (e.g., SOU 2003:95). The main criticism was that the term leads the thought to medicalization and diagnostization, focuses on individual deficits instead of environmental conditions, and that emphasis has been on the disability instead of the actual ability to work. 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. The concept "work capacity", however, is not legally regulated, but the PES' internal documents state that work capacity is determined by the interplay of a job seeker's individual characteristics, a specific work task, and the work environment. Hence, a job seeker's work capacity cannot be determined based on his or her impairments alone, but an environmental context is necessary (PES, 2011l)

[4] The same inquiry (SOU 2003:95) proposed that the disability coding system described in Section 2.2 also should be abolished and replaced with needs assessments.

2.2 PES' occupational disability coding system[5]

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

The initiative for coding a job seeker as occupationally disabled is taken by the responsible caseworker. In some cases the disability is obvious (e.g., if the job seeker uses a wheelchair), in other cases the impairment might be much more subtle and perhaps not even recognized by the job seeker him-/herself (e.g., some specific learning disabilities and mental disabilities). In such cases it might take some time before the case worker suspects that the job seeker has a disability and that an investigation by the PES' own social consultants is necessary to confirm the impairment and establish how it affects the conditions for work. However, in most cases a medical report or a report from another specialist (e.g., a psychologist or speech therapist) describing the extent of impairment and its effect on work capacity is required and the job seeker also has to approve the coding. Although the job seeker has the right to refuse being coded as occupationally disabled, this seems to rarely happen (Garsten and Jacobsson, 2014).

The PES not only registers whether or not a job seeker has an occupational disability but also the type of disability according to 11 different occupational disability codes:[6] [7]

Cardio, vascular, and/or lung disease (code 11) – This code contains impairments caused by cardio, vascular, or lung diseases. In the PES' internal documents for the case workers, a number of examples for each disease category are given: angina pectoris, myocardial infarction, heart failure, chronic bronchitis, chronic obstructive pulmonary disease, silicosis, and pneumoconiosis. Most of these diseases lead to reduced physical capacity and the afflicted may have difficulties to manage a physically strenuous work.

Hearing impairment and deafness (code 20) – This code includes various degrees of hearing impairment, but also hearing problems such as tinnitus and hyperacusis. Hearing impairment is one of the most common impairments. To be hearing impaired may

[5] This section draws heavily on the PES' internal documents (i.e., PES 2010a,b; 2011a–k).
[6] The description of the various codes draws heavily upon the PES' internal documents (PES 2010a,b; 2011a-k).
[7] From July 200, there has, actually, been 14 codes, since codes 20, 30, and 40, were replaced by 21–22, 31–32, and 41–42, respectively, also categorizing the severity of impairment. However, we will not make this distinction but only refer to the codes 20, 30, and 40.

cause several difficulties at the workplace such as: running the risk of missing important information; difficulties to catch words when several people talk at the same time or when there is background noise; fatigue and stress from constant concentration on trying to catch what is being said; limited ability to talk in the phone; and perceiving common coffee breaks too noisy to attend.

Visual impairment (code 30) – Visual impairments that cannot be remedied by glasses can be congenital or acquired later in life, in the latter case most often by an eye disease. The internal documents state that a visual impairment per se does not have to be an obstacle for work but has to be viewed in relation to the work tasks.

Motor disability (code 40) – This code includes a large number of various diagnoses and symptoms. Common to all is that they limit the ability to move, regardless of whether the origin is changes in the skeleton, joints, muscles, or the nervous system. The degree of impaired ability to move may vary from pain problems to complete paralysis. The motor disability can be congenital, but can also appear suddenly through an accident or gradually by, for example, rheumatic and neurological diseases. Depending on the specific underlying cause the prognosis may vary greatly. The most common impairment within this code is pain in soft tissues and joints, which leads to reduced ability to perform physically demanding work activities.

Other somatically related disabilities (code 51) – This code contains somatic diseases not coded elsewhere. These include, for example, epilepsy, diabetes, diseases of the digestive system, and psoriasis. These diseases do not necessarily affect work life although they may affect occupational choice. For example, epileptics and diabetics may not be able to hold jobs that involve driving, working at high heights, or with potentially hazardous machines. Suffering from psoriasis may also reduce the ability to hold jobs that involve contact with skin-irritating materials. For those suffering from digestive diseases it may be necessary that the employment allows for regular meals and sufficient access to lavatory facilities.

Mental disability (code 61) – This code contains job seekers with impairments caused by extensive and long-lasting mental ill-health or disease. The impairment may for instance manifest in weak self-esteem, lack of stamina and consistency, relationship problems, strong and sometimes seemingly unprovoked emotional reactions, and cognitive difficulties. Hence, these job seekers may have difficulties managing intellectually

demanding work tasks, need more time for new learning, and not be able to work full time.

Learning disability (code 71) – Two groups of job seekers may receive this code: those with a mild intellectual disability who have completed school for the intellectually disabled, and those who has completed compulsory school, but due to learning disabilities have had difficulties completing upper secondary school. Both groups have reduced work ability due to their reduced intellectual capacity, which implies difficulties with remembering, comprehending, and following instructions, performing intellectually demanding work tasks, manage demands for flexibility, manage to work under pressure, and to get on well with other workers.

Socio-medical disability (code 81) – The impairments included in this code are caused by social difficulties that have led to long-lasting need of means-tested social benefits, complex of relational problems, abuse, criminality, or difficult childhood and adolescence. The ability to cope with demands from work may be reduced by, for example, insufficient knowledge or skills; difficulties to take initiative, to plan, and to complete work tasks; lack of attention, focus, flexibility, responsibility, social skills, and ability to cope with stress; inhibitions, fear, and anxiety.

Asthma, allergy, and hypersensitivity (code 91) – Job seekers with this occupational disability code have symptoms from the respiratory passages, eyes, digestive system, or the skin when exposed to otherwise harmless substances in the environment. The hypersensitivity can be either congenital or developed by repeated exposure to the particular substance. Those suffering from hypersensitivity have no or limited ability to hold jobs where exposed to the particular subject. In other jobs, the hypersensitivity may cause no or only limited impairment.

Dyslexia and specific learning difficulties (code 92) – This code contains a number of disorders which imply specific learning difficulties in persons with otherwise normal intelligence such as specific reading disorder or dyslexia; specific speech articulation disorder; expressive language disorder; specific disorder of arithmetical skills; specific developmental disorder of motor function; and attention deficit disorder. None of the difficulties should be caused by intellectual difficulties, mental illness, acquired brain injury, or hearing or sight impairment. Those with language disorders may have difficulties understanding instructions and make themselves understood, while those with

attention deficit disorders may have difficulties go ahead with work tasks, but also with planning, carrying out, and completing tasks.

Acquired brain injury (code 93) – This code contains impairments due to an acquired brain injury, i.e., it is caused by events after birth rather than as part of a genetic or congenital disorder. The most common causes for the brain injury are accidents, stroke, tumours, encephalitis, and diseases of the central nervous system such as Parkinson's disease and multiple sclerosis. Brain injuries may affect physical, cognitive, and mental capacity as well as the personality. Common physical impairments are motor disabilities, sensory loss, sight impairment, and speech disturbances. Examples of intellectual impairments are reduced learning capacity, impairment of memory, reduced ability to focus on a task for more than brief periods, and speech disturbances. Examples of mental and behavioural disturbances are depression, feeling of mental fatigue, difficulties with expression of emotions, needs and impulses.

Most of the disability codes above (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.

2.3 The PES' incentives to give a disability code and the job seekers incentives to accept one

Although the coding of disability is dichotomous, i.e., a job seeker either gets the code or s/he does not, "occupational disability" and "impairment that entails reduced work capacity" are floating concepts. Hence, the coding leaves some discretion to the particular case worker and it is therefore essential to elucidate the incentive structure. From the job seeker's perspective, having a disability code implies certain advantages such as access to a number of special labour market measures (e.g., subsidized jobs and sheltered employment) exclusively targeted to the occupationally disabled. On the other hand, being labelled as occupationally disabled might be stigmatizing, both through negative attitudes and stereotypes about persons with disabilities (i.e., external stigma)

and through adverse effects on self-perception and self-confidence (i.e., internal stigma).

To elucidate the PES' incentives to give or not to give a disability code to a particular job seeker 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 job seekers 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 job seekers with a weak position at the labour market getting a permanent and unsubsidized employment should increase relative to the year before. The explicit statements of these goals were left out in the appropriation directions from 2008 and 2007, respectively.

Following the ratification of the national action plan for disability policy in 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 is 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 long-term 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:

- 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.
- The employment rate among the people with disabilities should increase faster than among the rest of the labour force.
- The share of long-term registered job seekers with impairments that entail reduced work capacity should have a more positive development than that of other long-term registered job seekers.
- The share of job seekers 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.
- The share of employers who are willing to hire a person with impairments that entail reduced work capacity should increase considerably

These goals were incorporated in the appropriation directions first in 2004. In 2006 and 2007 goals concerning certain groups – prioritized groups – of job seekers with disabilities were introduced in the appropriation directions. These prioritized groups comprised those with cognitive and mental disabilities, a neuropsychiatric impairment, or several 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 job seekers' incentives to accept a disability code were mixed. Second, the PES might have had incentives for an over-classification of job seekers as occupationally disabled. From 2004, the PES' might have had incentives to classify more "able" job seekers as occupationally disabled to fulfil the goal of a more positive development than that of other registered job seekers. Moreover, from 2006, the PES' might have had incentives to classify more "able" job seekers as having a cognitive disability or a neuropsychiatric impairment, mental disability, or multiple impairments, to fulfil the goals concerning the prioritized groups.

2.4 Related literature

The current study is also related to the literature on socioeconomic determinants of disability insurance and of (self-reported) disability. Studies on the determinants of disability insurance 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 associated with disability pension, 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 socioeconomic determinants of impairment or disability are scarcer, but their findings suggest, not surprisingly, that the same risk factors found for

disability retirement also are associated with (self-reported) impairment and disability (Pascual and Cantarero, 2007; Reinhardt et al., 2013; Melo and Valdes, 2011).

3 Data and method

3.1 The sample

To investigate who gets a disability code by the PES we have identified a sample containing all in 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 has to be recorded within the ongoing registration spell and also with 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.

Table 1 The number and percentages of registered job seekers who were classified as occupationally disabled, by registration year

	Job seekers with disabilities		Job seekers without disabilities	
Registration year	#	%	#	%
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
2003–2009	220,160	6.7	3 056,080	93.3

From Table 1 we can see that each year 390–670 thousand job seekers registered with the PES and about 7 percent of them were given a disability code. Over time the numbers of job seekers, both with and without disabilities, have decreased. However, the share of job seekers with disabilities has been increasing: from 5.7 percent in 2003 to 8.0 percent 4 years later. Hence, the sample used in the present paper contains 220 thousand job seekers classified as occupationally disabled and 3 million job seekers without any disability classification.[8]

Table 2 shows the frequency of each of the 11 disability codes among the job seekers that had such a code. The most common reason for receiving a disability code was that the job seeker had a motor disability (code 40). Almost 40 percent of those who were classified as disabled had such a code. Mental and socio-medical disability (codes

[8] The number of job seekers refers to observations where the same job seeker may have been sampled several times if having several new registration periods.

61 and 81) were the second and third most common disability codes and together accounted for one third.

Table 2 The number and percentages of the registered job seekers who had a certain disability code

Disability code	#	%
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

3.2 Descriptive statistics

Table 3 presents descriptive statistics for the sample of registered job seekers divided by whether they had a disability code or not.[9] If we compare those with and without a disability code it is apparent that the groups differed quite a lot with respect to a number of observable characteristics. The age distribution of the job seekers without disabilities is highly skewed to the right, while more symmetric among the disabled job seekers. More than 40 percent of all job seekers without disabilities were between 18 and 29 years, which can be compared to 21 percent among the job seekers with disabilities. The differences in the age distribution are also reflected in marital status: 60 percent of the job seekers without disabilities were never married, compared to 50 percent of the job seekers with disabilities, and the share of job seekers with disabilities who were divorced was almost twice as large as among those without disabilities (i.e., 18 and 10 percent, respectively). With respect to the level of attained education it is notable that the share with a university education among the job seekers with disabilities was less than half of that among those without disabilities (13 percent compared to 29 percent).

It is also apparent that more of those who had a disability code have had a difficult labour market situation also during the years preceding the registration with the PES. A whole 17 percent had received disability pension (full- or part-time) at any time during the latest five years as compared to 1 percent among those without disabilities. Among the job seekers with disabilities, 31 percent had more than 120 sick-days and 30 percent more than 800 registered days of unemployment as compared to 4 and 14 percent, re-

[9] Descriptive statistics by disability code type can be found in Table A 1, but are not discussed in the main text for brevity.

spectively, among the others. Among the job seekers without disabilities, instead, two-thirds had no sick-days at all and 24 percent had no previous registered unemployment. Moreover, 11 percent of those who had a disability code had not been employed at any time during the five last years, while the same share among the others was 7 percent. Instead, a relatively large share of both the job seekers with and without disabilities had received mean-tested social benefits in the past, i.e., 41 and 28 percent, respectively.

Table 3 Descriptive statistics for the sample registered job seekers by disability status

Variable	Job seekers with disabilities	Job seekers without disabilities
Sex		
Female	46.6%	49.8%
Male	53.4%	50.2%
Age		
18–24 years	10.0%	22.1%
25–29 years	10.7%	19.8%
30–34 years	11.7%	15.1%
35–39 years	15.0%	10.1%
40–44 years	13.8%	12.4%
45–49 years	13.2%	7.2%
50–54 years	11.5%	5.4%
55–59 years	9.6%	4.6%
60–64 years	4.6%	3.3%
Nativity		
Native born	78.0%	75.7%
Foreign born	22.0%	24.3%
Marital status		
Never- married	50.2%	60.1%
Married	30.4%	29.1%
Divorced	18.4%	10.2%
Widowed	1.0%	0.6%
Having children ages		
0–6 years	14.7%	21.8%
7–17 years	27.5%	23.3%
Education		
Unknown	0.6%	0.5%
Compulsory school	29.0%	18.0%
Upper secondary school	57.4%	52.2%
University studies	12.9%	29.3%
DI receiver[a]	17.4%	1.4%
SB receiver[a]	40.5%	27.9%
Earnings (in 1,000 SEK)[b]		
0	11.3%	7.3%
1–20	23.4%	16.7%
21–70	23.1%	22.9%
71–150	23.4%	24.4%
151–	18.7%	28.7%
Unemployment days[b]		
0	20.4%	23.6%
1-50	13.5%	21.7%
51–100	12.9%	17.5%
101–200	22.9%	22.7%
201–	30.3%	14.5%
Insured sickness days[b]		
0	31.7%	67.3%
1–30	7.9%	12.2%
31–60	16.5%	13.1%
61–120	12.9%	3.7%
121–	31.0%	3.7%
Hospital in-patient care		
Any episode[a]	43.1%	28.5%
Discharge diagnosis[a]		
Ch. I: Infectious and parasitic diseases	3.7%	1.7%
Ch. II: Neoplasms	4.2%	2.3%

Variable	Job seekers with disabilities	Job seekers without disabilities
Ch. III: Diseases of the blood and blood-forming organs	0.9%	0.4%
Ch. IV: Endocrine, nutritional and metabolic diseases	3.3%	1.1%
Ch. V: Mental and behavioural disorders	10.4%	3.1%
Ch. VI: Diseases of the nervous system	2.7%	0.7%
Ch. VII: Diseases of the eye and adnexa	0.6%	0.2%
Ch. VIII: Diseases of the ear and mastoid process	0.6%	0.3%
Ch. IX: Diseases of the circulatory system	4.7%	1.5%
Ch. X: Diseases of the respiratory system	3.2%	1.9%
Ch. XI: Diseases of the digestive system	5.7%	3.1%
Ch. XII: Diseases of the skin and subcutaneous tissue	1.0%	0.4%
Ch. XIII: Diseases of the musculoskeletal system	5.7%	1.5%
Ch. XIV: Diseases of the genitourinary system	3.7%	2.1%
Ch. XV: Pregnancy, childbirth and the puerperium	7.7%	11.9%
Ch. XVII: Congenital anomalies	0.5%	0.2%
Ch. XIX: External causes	15.5%	7.5%

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

To receive hospital inpatient care is rather uncommon among the working age population; less than 7 percent are treated in hospital at least once during a year (The National Board of Health and Welfare, 2013). This is also the case for the job seekers who did not have a disability code. Among those who did, however, considerably more had been treated in hospital (43 percent compared to 28 percent during the preceding five years). Most common were external causes (Ch. XIX) and mental disorders (Ch. V) for which 15 and 10 percent of the job seekers with disabilities had received treatment. The same shares among the others were 8 and 3 percent, respectively.

3.3 Statistical method

To investigate which characteristics are 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 dependent variable takes the value one if a job seeker was classified as disabled, or had a certain disability code, and zero otherwise. The set of explanatory variables consists of individual characteristics and the year of registration with the PES.[10] The estimated coefficients will be presented as odds ratios (ORs) and their associated standard errors are made robust to within municipality correlations.

4 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 a certain disability code,

[10] All estimations also include municipality-specific effects.

respectively. When discussing the results below, for conciseness, we do not stress the fact that the estimate for a specific variable below is always obtained while holding the rest of the observed variables fixed, but this should be kept in mind. Table 4 presents the estimated odds ratios (ORs) for the associations of the job seekers' individual characteristics with being classified as occupationally disabled and with each of the 11 groups of disability codes.

Sex – 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).

Foreign born – Being foreign born was generally negatively associated with having been classified as occupationally disabled. Especially less likely were the foreign born job seekers 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).

Marital status – There was generally a week association between marital status and disability classification. However, being married was negatively associated with having a code of learning disability (code 71) and socio-medical disability (code 81), as those with learning and socio-medical disabilities are likely to have difficulties not only on the labour market but also on the marriage market.

Children – As with marital status there was a rather weak association between having children and most disability codes. Moreover, 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.

Table 4 The estimated odds ratios (ORs) using logistic regression for the associations of the job seekers' individual characteristics with being classified as occupationally disabled and with each of the 11 groups of 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 secondary 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***
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[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

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
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***
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 level of .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.

Education – Generally, educational level was negatively associated with being classified as occupationally disabled. Only the specific codes of hearing impairment and deafness (code 20), visual impairment (code 30), and mental disability (code 61) seem to have been, more or less, unrelated to educational level.

Previous disability insurance recipiency – If one has received disability insurance in the past that is obviously a 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 means-tested social benefits recipiency – To have a disability code of socio-medical (and mental) disability 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.

Previous earnings – Low previous earnings suggest that the job seeker has a history of difficulties in the labour market. There is also a clear inverse relationship between previous earnings and the likelihood of having received any disability code.

Previous unemployment – As also previous unemployment is an indication of a difficult labour market situation one would, perhaps, also have assumed that disability classification would be positively associated with the duration of previous unemployment. This is also the case for one of the disability codes: socio-medical disability (code 81). For the other codes, however, there is a J-shaped relationship, where both having no previous unemployment at all and having longer periods of unemployment is positively associated with disability classification; although the latter more strongly so.

Insured sickness absence – 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).

Hospital inpatient treatment – A history of hospital inpatient treatment is an obvious indicator of a health problem, which may, or may not, be disabling. Having being 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 disabili-

ties (code 51), socio-medical disability (code 81), and acquired brain injury (code 93). For the specific disability codes there were also strong associations with 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).

Registration year – Generally, the likelihood of being classified as occupationally disabled has been increasing over time. When considering the specific disability codes it is rather striking that 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. These results are in line with the introduction of certain goals for prioritized groups by the Government (see section 2.3) during these years.[11] Among others, the prioritized groups comprised those with cognitive and mental disabilities, and neuropsychiatric impairments, while physical impairments were not specifically mentioned.

5 Conclusions

The group of people with impairments that entail reduced work capacity faces considerable difficulties on the labour market. Therefore, Sweden has a long tradition of labour market policies explicitly targeting job seekers with disabilities, ranging from in-work aids to subsidized employments, aiming at strengthening their position in the labour market. However, 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 needy. To ascertain that this is the case they are constrained to those job seekers that are classified as occupationally disabled by the PES.

[11] Note that the cohorts refer to the year of registration and not necessarily the year of disability classification. Hence, some of those in cohort 2005 may have been classified as occupationally disabled in 2006 and even in 2007.

In this study we have investigated which socio-demographic/economic characteristics were associated with being classified as occupationally disabled by the PES. Obviously, this is closely related to the literature on socioeconomic determinants of disability insurance and of (self-reported) disability. Like the literature on disability insurance, we focus on a particular, albeit different, group of people with disabilities – those who have registered as job seekers with the PES. The literature regarding determinants of disability in more general terms concerns a more representative group of all people with disabilities, but is afflicted with the problems of subjective and self-reported disability measures.

Similar to the studies on disability retirement and (self-reported) disability we find that men were more likely to be classified as occupationally disabled and also that higher age was positively associated with disability classification. Previous studies have also found that socio-economic disadvantage to be positively associated with disability regardless of the measure of socioeconomic position. 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 assistance were positively associated with having a disability code. Rather naturally, all variables indicating poor health, which may or may not be disabling, 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.

To conclude, it is clear from the analysis that being classified as occupationally disabled by the PES is associated with previous health and socioeconomic disadvantages. In

that perspective it seems that it is the most needy who receive a disability code. However, to what extent these jobseekers also have impairments that entail reduced work capacity we cannot tell from the available data.

References

Bruusgaard, D., L. Smeby and B. Claussen (2010). “Education and disability pension: a stronger association than previously found”, *Scandinavian Journal of Public Health*, 38(7): 686–690.

Garsten, C. and K. 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, S., P.R. Ringdal, K. Haug and J.G. 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.

Government Bill 1999/2000:79, *From patient to citizen. A national action plan for disability policy*, [In Swedish].

Government Ordinance (2001:526), *Ordinance on Central Government Agencies’ Responsibilities for the Implementation of Disability Policy* [In Swedish].

Government Ordinance (2000:630), *Ordinance on Special Initiatives for Disabled Persons with Reduced Work Capacity* [In Swedish].

Holmqvist, M. (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.

Johansson, P. and P. Skedinger (2009), ”Misreporting in register data on disability status: evidence from the Swedish Public Employment Service”, *Empirical Economics*, 37(2): 411–434.

Kaye, H.S. (2010), ”The impact of the 2007–09 recession on workers with disabilities”, *Monthly Labor Review*, 133(10): 19–30.

Krokstad, S. and S. 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.

Kruse, D. and L. Schur (2003), ”Employment of People with Disabilities Following the ADA”, *Industrial Relations: A Journal of Economy and Society*, 42(1): 31–66.

Leinonen, T., O. Pietiläinen, M. Laaksonen, O. Rahkonen, E. Lahelma and P. 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.

Pascual, M. and D. 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.

PES (2010a), Administrative support for the work with job seekers with learning disabilities, AFII 4/2010 [In Swedish].

PES (2010b), Administrative support for the work with job seekers with specific learning difficulties , AFHS AFII 5/2010 [In Swedish].

PES (2011a), Administrative support for the work with job seekers with socio-medical complex of problems, AFHS 4/2011 [In Swedish].

PES (2011b), Revision of administrative support for the investigation and coding of impairments that entail reduced work capacity, AFHS 24/2011 [In Swedish].

PES (2011c), Administrative support for the work with job seekers with visual impairments, AFHS 26/2011 [In Swedish].

PES (2011d), Administrative support for the work with job seekers with hearing impairments, AFHS 27/2011 [In Swedish].

PES (2011e), Administrative support for the work with deaf job seekers, AFHS 28/2011 [In Swedish].

PES (2011f), Administrative support for the work with job seekers with mental disabilities, AFHS 60/2011 [In Swedish].

PES (2011g), Administrative support for the work with job seekers with acquired brain injury , AFHS 71/2011 [In Swedish].

PES (2011h), Administrative support for the work with job seekers with impairments caused by cardio, vascular, and/or lung diseases, AFHS 98/2011 [In Swedish].

PES (2011i), Motor disabilities requiring mobility devices (code 41) and other motor disabilities (code 42), AFHS 99/2011 [In Swedish].

PES (2011j), Administrative support for the work with job seekers with other somatically related disabilities (code 51), AFHS 100/2011 [In Swedish].

PES (2011k), Administrative support for the work with job seekers with asthma, allergy, and hypersensitivity (code 91), AFHS 101/2011 [In Swedish].

PES (2011l), Administrative support on reduced work capacity, AFHS 105/2011 [In Swedish].

Reinhardt, J.D., M. Wahrendorf and J. 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.

Samuelsson, Å., K. Alexanderson, A. Ropponen, P. Lichtenstein and P. 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.

SOU 2003:95, *ManPower – Report from the Commission for wage subsidies*, Fritzes, Stockholm [In Swedish].

Statistics Sweden (2009), *Labour market situation for disabled persons – 4th quarter 2008*, Information on Education and the Labour Market 2009:3, Labour Force and Work Environment Surveys Unit [In Swedish].

Støver, M., K. Pape, R. Johnsen, N. Fleten, E.R. Sund, B. Claussen and J.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.

The National Board of Health and Welfare (2003), *Inpatient diseases in Sweden 1987–2012*, Official Statistics of Sweden [In Swedish].

The National Board of Health and Welfare (2003), *Klassifikation av funktionstillstånd, funktionshinder och hälsa*, Swedish version of the International Classification of Functioning, Disability and Health (ICF).

The Swedish Labour Market Agency (1999), *Disability knowledge*, Stockholm: Swedish Labour Market Agency [In Swedish].

Zitko Melo, P. and B. Cabieses Valdes (2011), ”Socioeconomic determinants of disability in Chile”, *Disability and Health Journal*, 4(4): 271–282.

Appendix

Table A 1 Descriptive statistics for the sample of job seekers classified as occupationally disabled, by disability code

Variable	Code 11	Code 20	Code 30	Code 40	Code 51	Code 61	Code 71	Code 81	Code 91	Code 92	Code 93
Sex											
Female	24.7%	49.9%	39.5%	52.9%	56.3%	59.4%	39.8%	16.3%	55.2%	33.5%	38.1%
Male	75.3%	50.1%	60.5%	47.1%	43.7%	40.6%	60.2%	83.7%	44.8%	66.5%	61.9%
Age											
18–24 years	2.3%	13.7%	12.1%	3.7%	5.8%	8.6%	43.1%	13.1%	8.8%	37.6%	10.6%
25–29 years	2.4%	11.2%	10.3%	6.4%	8.2%	12.8%	17.7%	16.2%	12.3%	21.7%	13.5%
30–34 years	3.5%	10.5%	12.4%	10.2%	11.5%	14.5%	11.8%	13.1%	13.0%	12.8%	12.9%
35–39 years	5.1%	11.9%	10.5%	14.3%	14.8%	16.4%	9.0%	13.3%	14.9%	9.7%	12.8%
40–44 years	8.5%	13.0%	13.8%	16.7%	16.3%	16.6%	7.2%	14.1%	14.6%	8.0%	11.9%
45–49 years	14.2%	10.7%	11.6%	15.5%	13.9%	13.0%	5.2%	12.5%	12.8%	5.2%	11.5%
50–54 years	20.3%	10.7%	11.8%	14.2%	12.5%	9.7%	3.3%	9.7%	10.8%	3.0%	11.4%
55–59 years	24.5%	10.9%	11.5%	12.6%	11.3%	6.4%	2.2%	6.2%	8.6%	1.8%	11.3%
60–64 years	19.4%	7.3%	6.2%	6.4%	5.7%	2.0%	0.6%	1.8%	4.1%	0.3%	4.1%
Nativity											
Native born	73.5%	74.8%	74.0%	74.9%	77.7%	82.4%	81.3%	79.2%	78.3%	84.6%	85.9%
Foreign born	26.5%	25.2%	26.0%	25.1%	22.3%	17.6%	18.7%	20.8%	21.7%	15.4%	14.1%
Marital status											
Never- married	29.1%	47.8%	49.3%	37.4%	42.7%	55.8%	80.2%	68.4%	48.6%	78.7%	55.6%
Married	45.9%	36.2%	35.1%	41.0%	37.1%	25.1%	13.1%	10.2%	34.0%	13.8%	30.3%
Divorced	23.3%	15.0%	14.9%	20.4%	19.0%	18.1%	6.5%	20.9%	16.7%	7.2%	13.6%
Widowed	1.7%	1.0%	0.7%	1.3%	1.2%	0.9%	0.2%	0.6%	0.7%	0.3%	0.5%
Having children ages											
0–6 years	7.2%	17.8%	15.1%	16.5%	15.9%	14.0%	14.9%	8.6%	20.6%	16.8%	14.3%
7–17 years	21.4%	26.3%	23.0%	34.3%	32.3%	28.9%	17.7%	11.6%	29.8%	18.8%	20.9%
Education											
Unknown	0.3%	0.5%	0.6%	0.2%	0.1%	0.1%	11.0%	0.2%	0.2%	1.2%	0.1%
Compulsory	30.1%	18.1%	21.0%	27.0%	24.1%	20.0%	48.6%	44.2%	23.5%	40.1%	20.2%
Upper secondary	56.8%	56.5%	52.4%	62.0%	60.8%	56.4%	38.9%	50.5%	63.8%	52.2%	60.1%
University studies	12.8%	24.8%	26.0%	10.8%	15.0%	23.4%	1.5%	5.1%	12.6%	6.5%	19.5%
DI receiver[a]	17.4%	20.8%	20.9%	20.4%	18.4%	20.9%	32.0%	3.4%	7.6%	9.6%	37.2%
SB receiver[a]	27.4%	29.4%	29.9%	29.0%	31.5%	38.3%	49.8%	80.7%	34.0%	52.0%	24.4%
Earnings (in SEK 1000)[b]											
0	10.5%	11.6%	14.8%	9.3%	9.3%	11.1%	16.2%	18.6%	7.3%	9.3%	11.1%
1–20	14.1%	19.9%	22.0%	17.8%	19.4%	24.8%	42.0%	32.3%	19.9%	38.3%	21.7%
21–70	16.8%	18.8%	17.2%	23.2%	23.9%	24.7%	15.9%	23.8%	23.8%	24.9%	22.0%
71–150	24.1%	21.7%	19.7%	27.2%	26.3%	23.1%	13.4%	16.2%	27.2%	17.5%	24.0%
151–	34.5%	28.1%	26.2%	22.5%	21.0%	16.3%	12.5%	9.1%	21.8%	9.9%	21.3%

Variable	Code 11	Code 20	Code 30	Code 40	Code 51	Code 61	Code 71	Code 81	Code 91	Code 92	Code 93
Unemployment (days)[b]											
0	28.0%	25.8%	25.2%	24.3%	21.1%	21.3%	22.4%	8.5%	15.8%	11.8%	33.6%
1-200	11.8%	13.4%	12.6%	12.6%	12.3%	16.0%	13.8%	14.0%	11.0%	13.8%	15.3%
201–400	11.2%	11.8%	10.2%	12.2%	11.7%	15.0%	10.3%	14.2%	11.2%	13.8%	12.9%
401–800	19.2%	20.2%	20.6%	21.6%	21.1%	23.5%	20.7%	27.5%	23.9%	26.8%	18.2%
801–	29.9%	28.7%	31.5%	29.2%	33.7%	24.1%	32.8%	35.8%	38.1%	33.8%	20.0%
Insured sickness (days)[b]											
0	22.7%	49.6%	48.7%	18.2%	23.5%	24.2%	76.0%	53.9%	34.8%	66.6%	27.1%
1–30	9.2%	11.0%	9.2%	6.9%	8.7%	5.0%	8.3%	10.4%	14.0%	10.2%	4.4%
31–60	21.7%	15.8%	15.2%	17.6%	18.3%	13.7%	8.4%	17.9%	23.4%	12.7%	13.5%
61–120	14.9%	8.3%	8.8%	15.6%	14.1%	15.1%	3.4%	8.9%	10.4%	4.8%	13.9%
121–	31.5%	15.2%	18.0%	41.6%	35.3%	41.9%	3.8%	8.9%	17.4%	5.7%	41.0%
Hospitalization											
Any episode[a]	69.0%	34.0%	43.4%	42.2%	48.2%	40.9%	30.1%	49.2%	37.1%	32.3%	68.9%
Discharge diagnosis[a c]											
Chapter I	5.5%	1.9%	3.3%	2.9%	4.6%	2.2%	1.6%	8.4%	2.8%	2.1%	5.5%
Chapter II	6.0%	5.0%	5.6%	4.9%	7.8%	3.4%	1.8%	1.7%	4.2%	1.7%	10.7%
Chapter III	2.5%	0.4%	0.9%	0.8%	2.1%	0.5%	0.6%	0.7%	0.7%	0.5%	1.4%
Chapter IV	18.1%	1.8%	7.2%	2.8%	7.7%	1.9%	1.9%	1.7%	2.2%	1.6%	7.3%
Chapter V	6.6%	3.7%	4.7%	3.9%	5.0%	18.0%	4.5%	28.7%	3.1%	6.2%	9.6%
Chapter VI	4.6%	1.8%	3.8%	2.8%	5.3%	1.6%	1.6%	1.6%	1.4%	1.3%	20.7%
Chapter VII	0.7%	0.4%	14.7%	0.4%	0.8%	0.2%	0.2%	0.3%	0.4%	0.2%	2.8%
Chapter VIII	0.6%	5.9%	0.5%	0.5%	0.6%	0.3%	0.5%	0.3%	0.2%	0.4%	1.1%
Chapter IX	52.7%	2.7%	5.6%	4.0%	6.5%	2.2%	1.4%	2.7%	2.3%	1.3%	26.1%
Chapter X	10.0%	2.2%	2.7%	2.9%	4.3%	2.2%	2.6%	3.5%	6.5%	2.8%	6.1%
Chapter XI	7.8%	4.1%	4.8%	5.6%	11.0%	4.3%	3.4%	5.4%	5.4%	4.2%	4.8%
Chapter XII	1.2%	0.3%	1.1%	1.0%	1.7%	0.6%	0.6%	1.6%	2.0%	0.5%	1.3%
Chapter XIII	5.0%	2.2%	2.2%	10.5%	5.6%	1.6%	1.5%	2.3%	2.2%	1.6%	4.4%
Chapter XIV	4.4%	2.8%	3.3%	4.3%	6.3%	3.1%	2.0%	2.0%	3.4%	2.1%	3.8%
Chapter XV	2.2%	9.2%	6.6%	8.3%	8.9%	8.8%	9.6%	3.1%	11.8%	8.9%	7.0%
Chapter XVII	2.5%	0.9%	1.4%	0.5%	0.7%	0.3%	0.8%	0.2%	0.3%	0.4%	2.1%
Chapter XIX	14.8%	9.1%	12.5%	15.1%	13.3%	13.7%	9.5%	25.2%	9.0%	12.2%	31.0%

[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.

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