Labour market participation for young people with disabilities: The impact of gender and higher education

Abstract

To what extent does higher education promote labour market participation for disabled people in school-to-work transitions and early career trajectories? This article argues that the effect of higher education on labour market outcomes for disabled people must be studied in correlation to gender. Intersectional theory warns against the generalisability of the female and male experiences, and predicts that disability may influence sexism, and that gender may influence disableism. Norwegian full-population register data on recipients of disability benefits are used to explore the effect of higher education on three labour market outcomes for men and women with disabilities. Contrary to common intersectionality expectations, the results show that men experience more extreme employment disadvantages related to their disabilities than women. Higher education has a stronger effect on participation for disabled women than for disabled men. However, gender differences in participation are smaller for people with disabilities than for the general population.

Keywords: disability, employment, feminist disability studies, gender, higher education, intersectionality, labour market participation, part-time work, work outcome

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Introduction

Previous research has shown that people with disabilities have lower employment rates than the general population, and that women with disabilities are at a particular disadvantage in the labour market (Achterberg et al., 2009; England, 2003; Fawcett, 2000; O'Hara, 2004; Ren et al., 2008). The entry into the labour market is crucial for young people with disabilities, in that missing the transition from education to employment increases the chances of permanently remaining outside the labour market (Achterberg et al., 2009: 130; Franzén and Kassman, 2005). Work exclusion has severe and lifelong consequences (Fawcett, 2000; Franzén and Kassman, 2005). Disabled people outside the labour market have lower scores on life quality indicators than the general unemployed population. Not only does 75 percent of those unemployed with disabilities perceive their financial situation to be less than adequate, but they also feel more like second-rate citizens than the non-disabled population (Legard, 2012: 7-8).

Even though intersectional research on gender, disability and work suggests that disabled women experience discrimination more strongly than disabled men, the existing empirical research is not without ambiguity (Colella and Stone, 2005; Ren et al., 2008). There is a broad range of research on disability and work however, only a few studies include gender in their analyses (Boman et al., 2014; Kittelsaa et al., 2016; Mik-Meyer, 2015; Randle and Hardy, 2017).

The aim of this study is threefold: 1) to examine the gender differences in labour market participation among young people with disabilities; 2) to study the effect of higher education on labour market participation; and 3) to examine how higher education influences the effect of gender on labour market participation. This article uses an administrative definition of disability, based on registered recipients of disability benefits. An intersectionality approach is applied to full-population register data, and multivariate logistic regression models are estimated on three labour market outcomes: employment, full-time work, and job relevance.

When combined, the three outcomes measure not only the chances of being inside or outside the labour market, but also the extent of participation and its relevance for individual qualifications. Thus, this study covers both economic and intellectual aspects of work, and produces more robust results as opposed to limiting examinations to one single measure of work participation.

Theoretical framework and hypotheses

This article is theoretically based on feminist disability studies, thereby employing an intersectional perspective. Disability is used to describe the relation between impairments of the individual body and participation restrictions caused by the environment. Hence, the framework aims to combine the so-called *medical model*, (see Beaudry (2016)) and the approach known as the *social model* (see for example Altman (2001); Altman (2014); Hanisch (2011); Oliver (2013)).

More specifically, the analyses rely on the so-called *Nordic relational model of disability*. This theoretical way of reasoning 'approaches the study of disability with three main assumptions: (i) disability is a person-environment mismatch, (ii) disability is situational or contextual; and (iii) disability is relative' (Goodley, 2011: 17). This relational model also provides the rationale for the operational definition in this study, which combines a medical aspect (diagnosis) with a social aspect (practical or financial disadvantage).

Seeing disability as 'a person-environment mismatch', this study analyses the most well-known finding in the study of disability and employment – that disabled people have lower job prospects than people without disabilities (Achterberg and Yerkes, 2009; Berthoud, 2008) – as a mismatch in the labour market, specifically related to professional and educational contexts in addition to gender.

Seeing disability as 'situational and contextual', we utilize the concept of intersectionality

(Crenshaw, 1989) here to explain how overlapping social identities relate to employment disadvantage. This study applies a fundamental dynamic conceptualisation of intersections, as opposed to the purely additive approach. The assumption is that, rather than just being layered on top of each other, multiple social identities may *interact* with each other.

Even if disability may be viewed as relational and usefully analysed in light of intersectional theories, the implications for methodology and research design are not self-explanatory. Intersectional theories have been used in quantitative research (e.g., Covarrubias, 2011; Moodley and Graham, 2015; Veenstra, 2011), however, it is often argued that they are most fruitful in combination with qualitative methods (Bauer, 2014; Bowleg and Bauer, 2016; Hancock, 2007; McCall, 2005). One possible reason for this is that intersectionality is inherently concerned with experiences of individuals, just as the relational model of disability is concerned with 'a *person*-environment mismatch' (added emphasis).

When supported by intersectional theories in investigating how disability is 'relative', it is nevertheless important to remember the power and advantages of quantitative data. To appreciate the usefulness of quantitative data to intersectionality, it is essential to understand how the quanititative approach differs from the qualitative. In McCall's (2005) classification scheme of intersectional research, from anticategorical (individual diversity) at one end of the spectrum, to intracategorical (diversity within groups) in the middle and intercategorical (diversity between groups) at the other end, quantitative research is positioned towards the latter end. The purpose of applying quantitative methods in intersectional research is not to reproduce in-depth knowledge of individual experiences, but rather to reveal patterns of structural disadvantages that generate inequalities (Cole, 2009; McCall, 2005). The power and potential of quantitative intersectionality lies in understanding group-level effects in order to identify group-level policy interventions (Bauer, 2014; Bowleg and Bauer, 2016; Hancock, 2007). The rationale for using quantitative methods in intersectionality is to overcome the limitations of

qualitative methods, which Bowleg and Bauer (2016: 338) summarise precisely: 'a myopic focus on the individual fosters primarily individual-level solutions to problems with little or no opportunity to intervene and alter the larger more fundamental roots of structural inequality' .

When developing these theoretical and methodological perspectives into hypotheses, caution is necessary. The link between intersectional theory and the practical application of quantitative methods is still underdeveloped, and many scholars point out the difficulty in interpreting quantitative findings from an intersectional perspective (Bowleg and Bauer, 2016; Dubrow, 2008; Hancock, 2007). These difficulties are often articulated in discussions of the additive and multiplicative approaches (Dubrow, 2008), which is a cul de sac for two reasons. First, attempting to directly translate the theoretical meaning of 'additive' and 'multiplicative' to the statistical meaning of the terms (i.e., main effects and interaction effects, respectively) (see Bauer (2014: 12)) creates confusion between theoretical and methodological concepts and, consequently, uncertainty about how regression results should be interpreted. In fact, there are other ways to statistically model intersecting social identities beyond focusing on main effects and interaction effects. One option is to create dummy variables for groups and sub-groups. Another possibility, which this article demonstrates, is to run regressions on separate samples and compare variable coefficients. Therefore, pointing to the limitations of a narrow set of techniques is not very constructive. The problem is rather that previous quantitative studies have failed to communicate clearly how their choice of method and subsequent results relate to intersectional theory.

Second, by focusing merely on the technicalities of quantitative methods, and their failure to capture the experiences of intersectional identities, we risk losing an important opportunity: statistical methods are particularly useful tools 'for revealing patterns of disparity in arenas such as employment and income, physical and mental health, and social life' (Cole, 2009: 177). Therefore, the intersectional contribution of this article is to use quantitative data to unravel

structural employment disadvantages for persons belonging to intersecting social groups. Even though the impact of the gender and disability intersection in employment has been analysed qualitatively before (e.g., Mik-Meyer, 2015), there are gaps in the literature related to the overarching population-level outcomes. The size and quality of the data set used here allows for exploring more than one intersection (disability, gender *and* educational attainment) and for observing diversity in inequalities both within and between social groups in the population (see Bauer, 2014: 16). This means that the study is not purely intercategorical, but is rather situated between the intra- and intercategorical points in McCall's (2005) intersectionality scheme.

Without entering into the more complex theoretical debates of feminist theory, it is sufficient to note that the hypotheses in this article are informed by two classical insights from such theories. First, it is assumed that gender is fundamentally interrelated with other categories such as ability, class, sexual orientation, ethnicity, and age (McBride et al., 2015; Yuval-Davis, 2006). Second, it is assumed that gender is a hierarchical construct, leaving women at a disadvantage – not least in the labour market (Jones et al., 2006: 411). Various theories have attempted to explain this; for example, the theory of gendered organizations (Acker, 1990) and the theory of the ideal worker (Cooper, 2000: 395 in Randle and Hardy (2017: 449)). This leads to the first hypothesis:

H1: Disabled women experience employment disadvantages more strongly than disabled men.

On the other hand, theories of stereotypical gender perceptions predict that disabled men experience stigmas related to their disability more strongly than disabled women (Deegan, 1985; Mik-Meyer, 2015). This is due to the fact that physical impairments are perceived to be at odds with stereotypical masculine characteristics (e.g. strength, rationality, efficiency) and less contradictory to stereotypical feminine behaviour (e.g. helplessness, emotional sensitivity, weakness, shyness) (Mik-Meyer, 2015: 580-581; Stone and Colella, 1996). The masculine

identity – normally a source of employment privilege – is dislodged by the intersection with disability, causing a gendered transformation into stereotypical perceptions of femininity. Thus, it is the disabled man who is '"twice penalized", first by his impairments — his weak and imperfect body — and second or consequently by his "wrong" biological sex' (Mik-Meyer, 2015: 591). In contrast, the female identity is not distorted by disability in the same way. Therefore, the second hypothesis contradicts the first:

H2: Disabled men experience employment disadvantages more strongly than disabled women.

Higher education is an important predictor for success in the labour market for people, in general, and particularly important for people with disabilities (Bliksvær and Hanssen, 2006; Borg, 2008; Loprest and Maag, 2007; Vedeler and Mossige, 2010). Several studies have found the effect to be twice as strong for disabled people as for the general population, even though both educational and employment levels are lower for people with disabilities (Bliksvær and Hanssen, 2006). However, very little is known about how higher education influences the chances of employment for men versus women with disabilities. Recent research on Norwegian disability employment rates indicate that gender differences are decreasing and that the gender effect in the total population is slightly stronger than in the disabled population (Kittelsaa et al., 2016; Tøssebro and Wik, 2015). At the same time, more women than men with disabilities are pursuing higher education (Kittelsaa et al., 2016), which is the general pattern among non-disabled as well. The fact that education levels among women are increasing and gender differences in employment are decreasing might indicate that women enjoy a stronger education effect on work outcome. A reasonable assumption is that education causes an extra boost in employment chances for groups that are less privileged in the labour market, which leads to the following interactive hypothesis on gender and higher education:

H3: Women with disabilities are likely to experience a stronger positive education effect on work outcome than men with disabilities.

Furthermore, the family life of disabled people is likely to influence participation in paid work, but research is limited on this topic and results are contradictory (Kittelsaa et al., 2016: 50). Kjeldstad and Lyngstad (2011) found that living with a partner and having children strengthens traditional gender roles for people with disabilities, more so than among the general population. Their results indicate that men with disabilities prioritize paid work over household work, while women with disabilities tend to have less paid work in order to have more time and energy for children and homemaking. These effects hold only if just one of the couple is disabled; when both partners are disabled, the division of household work and paid labour is more equal than among the non-disabled population. Another study by Dyck and Jongbloed (2000) found that having a supportive partner at home is conducive to a woman's ability to work in spite of her disability. This article acknowledges that marriage and children are likely to affect work outcomes, but makes no assumptions about the direction of such effect.

Data and methods

The analyses rely on a full-population dataset of Norwegian register data from Statistics Norway, made available through microdata.no, which is a research infrastructure developed by Statistics Norway and Norwegian Social Science Data Services. Microdata.no includes administrative, educational, financial and welfare data for the entire Norwegian population. An integrated user interface (similar to Stata) allows for statistical analysis. Microdata.no incorporates built-in data protection to avoid compromising the anonymity of individuals in the data. A cross-sectional dataset was extracted for the year 2015, consisting of people who were 20-35 years old in November 2015. This is the most recent year with close-to-full data coverage on all variables of interest. The total number of individuals in the data set is 1. 719.712, and 20,207 of these received one or both disability benefits in November 2015. Since the aim is to observe the relationship between education and job outcomes of disabled people in school-to-work transitions and early career trajectories, the age span of interest was set at 20 to 35.

Statistical definitions of young people sometimes use a cap of 24 (OECD, youth population, 15-24) or 29 years old (Eurostat young population, 16-29). In this study, however, the cap was pushed to 35 years old, because disability may considerably extend the age at which a person completes school. The age limit of 20-35 years excludes most of those who acquired their disability after graduating and those who developed a reduced work capacity as a result of old age. Normally, persons under the age of 20 have not yet made the transition from education to working life (Dag and Kullberg, 2010: 289). At the same time, disabled persons older than 35, who have not yet entered the labour market, are likely to remain outside the labour market (Achterberg et al., 2009: 130). One implication of a focus on young age is that a significant proportion of the population are enrolled in some type of education, which may be a reason for not seeking labour market integration. This potential negative education effect was adjusted for.

Disability. A proxy variable was used to identify people with disabilities: recipients of basic or attendance benefits. Basic benefits are entitlements meant to cover necessary additional expenses incurred due to permanent injuries, illness, disabilities or congenital malformations[i]. Attendance benefits are entitlements for people requiring long-term private care and supervision due to illness, injury or congenital disability. They cover personal assistance, including training and stimulation, but do not cover assistance with household chores. For both basic and attendance benefits the need for additional expenses normally has to last 2-3 years or more. Neither type of benefit is connected to activity requirements such as work or education. Persons with mental health impairments may be eligible for both benefits, accounting for 15-18 percent of the total number disability benefit recipients in 2015/2016, according to the Norwegian public welfare agency.

(Self-)employed. A person's status in the labour market is summarized in a dummy variable, coded 1 if a person was employed or self-employed and 0 if a person was unemployed and/or actively seeking work. Economically inactive persons were considered unemployed irrespective of their daily activities; voluntary, educational or other.

Full-time work. Persons who worked 30 hours per week or more were coded 1. Those who worked less than 30 hours a week were coded 0. Unemployed persons were coded missing.

Relevant work. This variable captures the relationship between educational and occupational level. Persons coded 0 were overqualified for their jobs, while persons coded 1 had the same educational level, or less, than what is normally required for their position. The Norwegian standard classification of occupation, STYRK-08 (Statistics Norway, 2011), which has a hierarchical structure where the required level of education is given for each class of occupations, was applied. The occupation variable was coded 1-4 from primary education to higher tertiary education. The educational variable was coded correspondingly, but additionally includes the value 0 for people with no education (Statistics Norway, 2006). Subsequently, comparing educational level to occupational level produced the relevant work variable.

Gender. The effect of gender is captured with a dummy variable, for which women were coded 1 and men 0.

Higher education. A person with at least one year of higher education was coded 1. The value 0 was given to those with less than one year of higher education (Statistics Norway, 2006). The cut-off is at one year to avoid capturing the effect of prolonged studies due to difficulty finding a job.

Control variables. Age was coded in years (20-35). Marital status is provided as a dummy for married and registered partners (1) and everyone else (0). Children is a dummy variable, coded 1 for persons with at least one child (biological or adopted) under the age of 18 living in the

same household as at least one of their parents. The student variable is a dummy control for persons who were currently enrolled in education on all levels. Individuals may have been working and studying simultaneously. In addition, unobserved heterogeneity across industries was controlled for in models 2 and 3, by adding industry-fixed effects (Statistics Norway, 2007). See the appendix table A1, and note that the disability distribution across industries was very similar to the full-population distribution.

Logistic regression analysis

The effect of gender and higher education was estimated on the three binary outcome variables using logistic regression (Menard, 2002). In order to compare predictor effects for the disabled population to those of the general population, separate models were estimated. Industry-fixed effects were added to the models for full-time work and relevant work[ii]. Fixed effects were not included in the first model of employment because industries cannot explain probabilities of being employed, since unemployment is unrelated to industry.

The tables report average marginal effects (AME) of the logistic regression models because of the problems associated with interpretation of log-odds ratios (ln-OR) and odds ratios (OR). According to Mood (2010: 67-68), ln-OR and OR cannot be interpreted substantively because: 1) the effects reflect unobserved heterogeneity and 2) the unobserved heterogeneity may vary across samples. Since coefficient effects are compared across models with different populations, AME were used for interpreting and comparing the direction and magnitude of predictor variables. AME express the average effects of variables on the probability of the outcome variable being 1 (see Mood, 2010: 75).

Interpreting interaction effects

The coefficient of the interaction between higher education and gender shows the *difference* between the effect of higher education for women versus men. This means that, when the interaction term is positive, higher education has a stronger effect on women than on men.

When the interaction term is negative, the opposite is true. Whenever an interaction term is included, both its constitutive terms must be included as well, in order to avoid biased estimates (Brambor et al., 2006). The coefficients of the constitutive variables are not to be interpreted as direct, unconditional or main effects (Brambor et al. 2006; Kam and Franzese 2007: 20). The constitutive terms show the effect of each variable when the other is equal to zero. In other words, when the interaction between higher education and gender is included, the coefficient for higher education is the effect of higher education for men, whereas the coefficient for women is the effect of being female for people without higher education. When an interaction term is found to be statistically significant, there are no main effects of its constitutive variables and a model without the interaction is thus a misspecification of the relationships between the two predictor variables and the outcome variable (Brambor et al., 2006).

Results

Descriptive statistics

Table 1 shows the distribution and gender proportions of variables for recipients of disability benefits and for the total population, respectively. Variables in bold are the three dependent variables. The disabled population had a larger share of women (52%) than the total population (45%). This corresponds well to other measurements of disability, which all reflect a higher proportion of women (Molden and Tøssebro, 2012: 349). Less than half of the people with disabilities were employed (47%) as opposed to 72 percent of the total population. These numbers also correspond well to earlier research on Norwegian disability data, where the employment rates were found to be 42 percent and 74 percent, respectively (Falkum and Solberg, 2015). More women (56%) than men with disabilities were working, whereas the opposite was true for the total population (48% female). Fifty-three percent of those who worked and had a disability were working full-time, which overlaps with survey data prevalence: 58 percent working full-time (Hansen et al., 2011). In comparison, the full-time

prevalence among those who worked in the total population was 66 percent. There was no gender discrepancy in terms of full-time work among the disabled, contrary to that of the total population, where women (39 percent) worked less full-time than men (61%). In both populations, most of the people who were employed had relevant work. Women were less overqualified for their jobs than men, but the gender differences were small. This holds for both the disabled and the total population. Recipients of disability benefits were clearly less educated (25%) than the total population (39%), which is consistent with earlier estimations (Grue and Finnvold, 2014). Of those with higher education among the disabled, 72 percent were women. In the total population, 60 percent were women.

[TABLE 1 here]

The effect of gender and higher education on work outcome

The effect of predictor variables was modelled using logistic regression on three labour market outcomes: employment, full-time work and relevant work. Separate models were estimated for the disability population, comparing results to estimations for the general population. Average marginal effects (AME) and standard errors (SE) were reported; significance levels were denoted with stars. Models 2 and 3 have added industry-fixed effects, but coefficients were not reported. Results are displayed in table 2.

[TABLE 2 here]

Employment. In model 1a, the effect of being female was negative but not statistically significant[iii]. The effect of higher education on employment was positive, strong and significant. People with higher education were 36 percent more likely to participate in the labour market than those who did not have higher education. In contrast to the disabled population, the general population showed a negative and significant employment effect for women (-3,2%). Moreover, the effect of higher education amounted to only roughly a third (13.1%) of the effect

for disabled people. In other words, higher education was almost three times as important for disabled people in terms of entering the labour market.

To further evaluate the intersecting effect between gender and higher education, an interaction term was added to the model. The interaction was significant, which means that, although no overall effect of gender on employment was found, there was a statistically significant gender effect among people with higher education. The effect of higher education was 7.2 percent stronger for women than for men. The AME of women without higher education remained statistically insignificant. The coefficient for higher education showed the effect of higher education for men, which was 31.2 percent. The effect of higher education for women was 38.4 percent[iv]. To find out if these results were unique to the disabled, they were compared to those of the general population. Here, the interaction effect was statistically significant with roughly the same strength as in the disability sample (6.2%). The difference was that the effect of being female among people lacking higher education was statistically significant and negative. In other words, women who did not have higher education were less likely to be employed than men without higher education. This negative female effect was not found among the disabled. Furthermore, the effect of higher education was much smaller among the general population than for people with disabilities: 9.6 percent for men and 13.8 percent for women.

To summarize the results from model 1, disabled women with higher education were more likely to be employed than disabled men with higher education. In the general population, the effect of being a woman was *negative* among people without higher education, and positive for people with higher education. In addition, people with disabilities enjoyed three times the effect of higher education on employment than did the general population.

Full-time work. Moving on to model 2, the same predictor variables as above were examined in relation to full-time work. In addition, these models contained dummy effects to control for

variations across industries. In Model 2a, without the interaction term, women with no higher education were eight percent less likely to work full-time than men without higher education. The effect of higher education was positive and significant, but smaller (11.9 percent) than in the employment model. Results for the full population were similar except that higher education had no effect on probabilities for full-time work.

The interaction effect in model 2b was significant, however, indicating that the effect of higher education on full-time work was 8.5 percent stronger for women than for men. Among persons without higher education, women were 10.7 percent less likely to work full-time. The effect of higher education on full-time work for men was 6.1 percent, while it was more than twice as large for women: 14.6 percent. Again, women enjoyed a stronger effect of higher education than men on labour market participation. However, among people without higher education, women were doing worse than men. For the general population, the effect of higher education for men was significant and negative (-7.7%). The interaction was significant, and the effect of 12.5 percent was stronger than among the disabled. This also entails that non-disabled women, as opposed to non-disabled men, had a positive effect of higher education on full-time work (12.5 - 7.7 = 4.8%). Here, too, the effect of being a woman among people with no higher education was significant and negative (-16.5%).

The essence of model 2 is that the effect of higher education on full-time work was stronger for people with disabilities than for the total population. In addition, the positive effect of higher education was stronger for women than for men, in both populations.

Relevant work was estimated in model 3. The effect of higher education in this model must be interpreted with caution, as educational level is part of the dependent variable. The effect was negative throughout all models. The coefficients of higher education simply reflect that the more education a person had, the more likely it was that she would be overqualified. This effect

does not reflect a person's position on the career ladder and is not a good predictor of success. Moving on, gender had no effect whatsoever on job relevance for disabled people in model 3a. The total population model showed a significant, though small, overall negative effect of being female (-0.05%).

For the disabled, the interaction term was not significant, which means that there were no gender differences involved in the likelihood of being overqualified.

Discussion

This article has analysed the effect of gender and higher education on three different employment outcomes. The analyses clearly show that higher education had a stronger effect on employment and full-time work for people with disabilities than it did for the non-disabled population. These results are similar to previous research on the effect of education on employment for people with disabilities (Bliksvær and Hanssen, 2006; Borg, 2008). Still, the effect of higher education should not be over-emphasized, since degree of disability is not controlled for. It is rather likely that those characteristics that increased the chances of graduating from higher education were the same characteristics that increased the chances of labour market success (see 'creaming effect' in Aakvik, 2003). Another likely explanation is that those with higher educational levels had jobs that were less physically demanding and more compatible with declining health (Burker et al., 2004; Kidd et al., 2000).

More interesting than the overall effect of higher education is how higher education intersects with gender. The analyses found that women benefited more from higher education than men, which supports hypothesis H3, that higher education had a stronger effect on women's labour market success. This effect was the same for both the disabled and the total population.

[TABLE 3 here]

Table 3 summarizes the effects of the interaction between women and higher education on the three labour market outcomes. Overall, women with disabilities had equal or better chances in the labour market than disabled men. Hypothesis H1, that disabled women are more disadvantaged than disabled men, is not supported. This contradicts most of the earlier empirical research (Achterberg et al., 2009), but rather supports more recent indications that gender equalities among disabled people are decreasing, at least in the Nordic countries (Kittelsaa et al., 2016). The second hypothesis (H2), predicting that disabled men are more disadvantaged than disabled women, cannot be rejected, even though the results were slightly ambiguous. The empirical analyses do not conclude than disabled women were superior to disabled men, but rather indicate that disability evens out the usual inequality between men and women in the labour market.

There was one situation in which disabled women had lower chances of success than disabled men; namely, full-time work for women without higher education. Part-time work has historically been women's work (Rosenfeld and Birkelund, 1995) and previous quantitative analyses have found that the effect of being female on part-time work is stronger for people with disabilities than for the non-disabled population (Kittelsaa et al., 2016). In the findings, the effect of being a woman on part-time work was stronger for people *without* disabilities, however, the difference in size effect was small.

Although still subject to scholarly debate, part-time work is not necessarily viewed as a drawback (Mósesdóttir and Ellingsæter, 2017). Research has found that part-time work can be a 'bridge' into the labour market rather than a 'trap' for women (Nätti, 1995). In fact, 80 percent of women in Norway who work part-time do so voluntarily. However, men and women have very different reasons for choosing part-time work, reflecting structural gender inequalities, according to a study of voluntary part-time work in Norway (Egeland and Drange, 2014). Women are three times more likely than men to choose part-time work due to family care and

logistics, while men give suboptimal health as the main reason for voluntary part-time work (Egeland and Drange, 2014). The authors suggest that the strong gender segregation of Nordic labour markets may be a factor explaining gender inequalities in part-time work. Men work in the private sector, and women in the public sector, causing a gender gap in wages and a traditional division of care and "bread-winning" in the family (Borchorst et al., 2012). The empirical results in this article correspond to earlier research on part-time work and gender, even after controlling for industry-fixed effects. Nevertheless, the gender gap was slightly *smaller* for the disabled population than for the general population. Thus, the common intersectional hypothesis of disadvantage due to membership in two subordinate groups is not supported for disabled women in the case of full-time work.

Earlier research on occupational attainment finds negative gender effects for women with disabilities related to job relevance, especially for women with minimum education (Boman et al., 2014). The results in this study do not support this statement, neither for women with higher education nor for women without higher education. Men and women with disabilities had equal chances of securing a relevant job.

Overall, the empirical findings in this study challenge the common hypothesis of intersectional theory, that women with disabilities are being penalized for belonging to two minority groups. Rather, the evidence supports hypotheses of stereotypical gender perspectives that predict that disability is less of a stigma for women than for men, causing gender inequalities to even out among the disabled. Disability may cause distortion of the male identity; depriving disabled men of the privilege it otherwise is to be a man in the labour market. The results indicate that the gendered experience of the disabled man in employment and work situations have nothing in common with the gendered experiences of an able-bodied man. This contradicts earlier research on labour market participation for women with disabilities (O'Hara, 2004), but can be explained by results from research on work place discrimination. Both Nordic and international

research find that stereotypical perceptions of disabled people are more in contrast with masculine characteristics and that men, in general, experience stronger penalties related to the intersection of gender and disability than do women (Colella and Stone, 2005; Mik-Meyer, 2015; Ren et al., 2008; Stone and Colella, 1996).

Conclusion: Contributions, limitations and further research

This article explores the intersectionality of gender and disability and the effect of higher education on labour market participation for men and women with disabilities. The most important contribution to the intersectional literature is the application of intersectional theory to full-population data and the robustness this lends to the quantitative results. The empirical analyses reveal a surprising dynamic between gender and disability, which has previously only been explored qualitatively using small samples. The traditional intersectional hypothesis about double marginalisation is not supported. Quite the contrary, this article concludes that disability harms the male identity more strongly than it does the female identity, resulting in smaller gender inequalities among disabled people than among the general population.

In spite of a rich data set, the unobserved heterogeneity[v] in the disability data is a serious limitation. The dynamic between gender and disability is likely to be affected by whether impairments are visible or hidden and whether the disability is related to physical or mental illnesses. Nevertheless, the results found here represent average robust effects for the *entire* population, including the total population of disability benefit recipients. Rather than being disregarded because of a lack of nuance, the findings should provide a solid ground for further research in which employment outcomes for various types and degrees of disability are explored.

Another limitation is the cross-sectional nature of the data. This excludes possibilities to control for long-term economic inactivity, which has been found to be a strong predictor for unemployment (Franzén and Kassman, 2005). Long-term economic inactivity (more than six

months unemployed) may be a source of reverse causation in the first model – the only model including unemployed individuals. However, since results from all three models point in the same direction, there is no reason to be overly concerned with long-term inactivity being an influential omitted variable. Further longitudinal studies should take care to adjust for long-term inactivity.

The findings in this article point towards greater gender equality, which should inspire further research on gender and career trajectories of disabled people. Currently very little is known about the types of jobs and professional positions for which women and men with disabilities are recruited (England, 2003; Grue and Finnvold, 2014). There is a concern that disabled people, particularly women, are crowding in low-paid and low-status jobs (England, 2003); however, the results found here may indicate otherwise. Further research is needed to explore how the career trajectories of disabled people differ by gender.

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Endnotes

References

Aakvik A (2003) Estimating the employment effects of education for disabled workers in Norway. *Empirical Economics* 28(3): 515-533.

Achterberg P and Yerkes M (2009) One welfare state emerging? Convergence versus divergence in 16 western countries. *Journal of Comparative Social Welfare* 25(3): 189-201.

Achterberg TJ, Wind H, de Boer A, et al. (2009) Factors that promote or hinder young disabled people in work participation: A systematic review. *Journal of Occupational Rehabilitation* 19(2): 129-141.

Acker J (1990) Hierarchies, jobs, bodies: A theory of gendered organizations. *Gender & Society* 4(2): 139-158.

Altman BM (2001) Disability definitions, models, classification, schemes, and applications. In: Albrecht GL, Seelman KD and Bury M (eds) *Handbook of disability studies.* London: Sage Publications Inc.

Altman BM (2014) Definitions, concepts, and measures of disability. *Annals of epidemiology* 24(1): 2-7.

Bauer G (2014) Incorporating intersectionality theory into population health research methodology: challenges and the potential to advance health equity. *Social science medicine* 11010-17.

Beaudry J-S (2016) Beyond (models of) disability? *The Journal of Medicine and Philosophy* 41(2): 210-228.

Berthoud R (2008) Disability employment penalties in Britain. *Work, employment and society* 22(1): 129-148.

Bliksvær T and Hanssen JI (2006) Funksjonshemming, utdanning og arbeidsmarkedsdeltakelse [Disability, education and labour marked participation]. *Respekt* 2(6): 52-55.

Boman T, Kjellberg A, Danermark B, et al. (2014) Can people with disabilities gain from education? Similarities and differences between occupational attainment among persons with and without disabilities. *Work* 49(2): 193-204.

Borchorst A, Freidenvall L, Kantola J, et al. (2012) Institutionalizing Intersectionality in the Nordic Countries: Anti-Discrimination and Equality in Denmark, Finland, Norway, and Sweden. In: Krizsan A, Skjeie H and Squires J (eds) *Institutionalizing Intersectionality: The Changing Nature of European Equality Regimes.* London: Palgrave Macmillan UK, 59-88.

Borg E (2008) Funksjonshemning og arbeidsmarkedet [Disability and labour market]. *Tidsskrift for velferdsforskning* 11(2): 83-95.

Bowleg L and Bauer G (2016) Invited reflection: Quantifying intersectionality. *Psychology of Women Quarterly* 40(3): 337-341.

Brambor T, Clark WR and Golder M (2006) Understanding interaction models: Improving empirical analyses. *Political Analysis* 14(1): 63-82.

Burker EJ, Sedway J and Carone S (2004) Psychological and educational factors: better predictors of work status than FEV1 in adults with cystic fibrosis. *Pediatric pulmonology* 38(5): 413-418.

Cole ER (2009) Intersectionality and research in psychology. *American psychologist* 64(3): 170.

Colella A and Stone D (2005) Workplace discrimination toward persons with disabilities: A call for some new research directions. In: Dipboye RL and Colella A (eds) *Discrimination at Work: The Psychological and Organizational Bases.* Taylor & Francis.

Covarrubias A (2011) Quantitative Intersectionality: A Critical Race Analysis of the Chicana/o Educational Pipeline. *Journal of Latinos and Education* 10(2): 86-105.

Crenshaw K (1989) Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory, and antiracist politics. *The Univeristy of Chicago Legal Forum* 1989139-167.

Dag M and Kullberg C (2010) Can they work it out and to they get any satisfaction? Young Swedish physically disabled men's and women's work involvement and job satisfaction. *Scandinavian Journal of Disability Research* 12(4): 287-303.

Deegan MJ (1985) Multiple minority groups: A case study of physically disabled women. *Women and disability: The double handicap* 37-55.

Dubrow JK (2008) How can we account for intersectionality in quantitative analysis of survey data? Empirical illustration for Central and Eastern Europe.

Dyck I and Jongbloed L (2000) Women with multiple sclerosis and employment issues: A focus on social and institutional environments. *Canadian Journal of Occupational Therapy* 67(5): 337-346.

Egeland C and Drange I (2014) Frivillig deltid - kun et spørsmål om tid? [Voluntary part-time - just a question of time?]. *AFI-report.* Oslo: Work Research Institute, 2014.

England K (2003) Disabilities, gender and employment: social exclusion, employment equity and Canadian banking. *The Canadian Geographer/Le Géographe canadien* 47(4): 429-450.

Falkum E and Solberg AG (2015) Arbeidsgivers inkluderingsevne. Betingelser for inkludering av funksjonshemmede i arbeidslivet [Employer's inclusion ability. Conditions for including disabled in working life]. *AFI-report.* Oslo: Work Research Institute.

Fawcett G (2000) *Bringing down the barriers: The labour market and women with disabilities in Ontario,* Ontario: Canadian Council on Social Development.

Franzén EM and Kassman A (2005) Longer-term labour-market consequences of economic inactivity during young adulthood: A Swedish national cohort study. *Journal of Youth Studies* 8(4): 403-424.

Goodley D (2011) *Disability studies: An interdisciplinary introduction,* Los Angeles: Sage.

Grue LP and Finnvold JE (2014) Hjelp eller barrierer? En undersøkelse av betingelser for høyere utdanning for ungdom med nedsatt funksjonsevne [Help or barriers? An examination of conditions for higher education for youth with impairments]. *NOVA-report.* Oslo: NOVA.

Hancock A-M (2007) When multiplication doesn't equal quick addition: Examining intersectionality as a research paradigm. *Perspectives on politics* 5(1): 63-79.

Hanisch H (2011) Recognizing disability. In: Bickenbach JE, Felder F and Schmitz B (eds) *Disability and the Good Human Life.* Cambridge: Cambridge University Press, 113-138.

Hansen ILS, Andreassen TA and Meager N (2011) Employment of disabled people in Norway and the United Kingdom. Comparing two welfare regimes and why this is difficult. *Scandinavian Journal of Disability Research* 13(2): 119-133.

Jones MK, Latreille PL and Sloane PJ (2006) Disability, gender, and the British labour market. *Oxford Economic Papers* 58(3): 407-449.

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

Kittelsaa A, Kristensen GK and Wik SE (2016) Kjønn i forskning om funksjonshemming. En litteraturstudie. [Gender in disability research. A literature study]. Trondheim: NTNU Samfunnsforskning.

Kjeldstad R and Lyngstad J (2011) Funksjonshemming og kjønnslikestilling – Arbeidsdeling hjemme i par med nedsatt funksjonsevne [Disability and gender equality: Division of household work in disabled couples]. *Tidsskrift for samfunnsforskning* 52(04): 491-523.

Legard S (2012) Overgangen mellom utdanning og arbeid for unge med nedsatt funksjonsevne [The transition between education and work for young people with disability]. *AFI-report.* Oslo: Arbeidsforskningsinstituttet.

Loprest P and Maag E (2007) The relationship between early disability onset and education and employment. *Journal of Vocational Rehabilitation* 26(1): 49-62.

McBride A, Hebson G and Holgate J (2015) Intersectionality: are we taking enough notice in the field of work and employment relations? *Work, employment and society* 29(2): 331-341.

McCall L (2005) The complexity of intersectionality. *Signs* 30(3): 1771-1800.

Menard S (2002) *Applied logistic regression analysis,* Thousand Oaks: Sage.

Mik-Meyer N (2015) Gender and disability: Feminizing male employees with visible impairments in Danish work organizations. *Gender Work and Organization* 22(6): 579-595.

Molden TH and Tøssebro J (2012) Disability measurements: impact on research results. *Scandinavian Journal of Disability Research* 14(4): 340-357.

Mood C (2010) Logistic regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review* 26(1): 67-82.

Moodley J and Graham L (2015) The importance of intersectionality in disability and gender studies. *Agenda* 29(2): 24-33.

Mósesdóttir L and Ellingsæter AL (2017) Ideational struggles over women's part-time work in Norway: Destabilizing the gender contract. *Economic and Industrial Democracy* Published online January 2017.

Nätti J (1995) Part‐time work in the Nordic countries: A trap for women? *Labour* 9(2): 343-357.

O'Hara B (2004) Twice penalized: Employment discrimination against women with disabilities. *Journal of Disability Policy Studies* 15(1): 27-34.

Oliver M (2013) The social model of disability: Thirty years on. *Disability & Society* 28(7): 1024-1026.

Randle K and Hardy K (2017) Macho, mobile and resilient? How workers with impairments are doubly disabled in project-based film and television work. *Work, Employment & Society* 31(3): 447-464.

Ren LR, Paetzold RL and Colella A (2008) A meta-analysis of experimental studies on the effects of disability on human resource judgments. *Human Resource Management Review* 18(3): 191-203.

Rosenfeld RA and Birkelund GE (1995) Women's part-time work: A cross-national comparison. *European Sociological Review* 11(2): 111-134.

Statistics Norway (2006) Nye definisjoner av utdanningsnivåer [New definitions of education levels].

Statistics Norway (2007) Standard industrial classification [Standard for næringsgruppering]. Oslo-Kongsvinger: SSB.

Statistics Norway (2011) Standard classification of occupations [Standard for yrkesklassifisering]. Oslo-Kongsvinger: SSB.

Stone DL and Colella A (1996) A model of factors affecting the treatment of disabled individuals in organizations. *The Academy of Management Review* 21(2): 352-401.

Tøssebro J and Wik SE (2015) Funksjonshemmedes tilknytning til arbeidslivet: En kunnskapsoversikt [Disabled people’s connection to working life: A literature overview]. Oslo: Norwegian Research Council.

Vedeler JS and Mossige S (2010) Pathways into the labour market for Norwegians with mobility disabilities. *Scandinavian Journal of Disability Research* 12(4): 257-271.

Veenstra G (2011) Race, gender, class, and sexual orientation: intersecting axes of inequality and self-rated health in Canada. *International journal for equity in health* 10(1): 3.

Yuval-Davis N (2006) Intersectionality and feminist politics. *European journal of women's studies* 13(3): 193-209.

Tables

Table 1. Descriptive statistics in comparison to total population and gender proportions within each variable (F/M)

	Disability benefit recipients	**Total population**
Total N	20207	1718712
	F 52% M 48%	F 45% M 55%
(Self-) employed	47%	72%
	F 56% M 44%	F 48% M 52%
Full-time work	53%	66%
	F 50% M 50%	F 39% M 61%
Relevant work	86%	83%
	F 56% M 44%	F 52% M 48%
Higher education	25%	39%
	F 72% M 29%	F 60% M 40%
Married	10%	19%
	F 69% M 31%	F 58% M 42%
Children	29%	37%
	F 62% M 38%	F 58% M 42%
Students	20%	16%
	F 59% M 41%	F 54% M 45%
Age (mean)	26.8	27.9
	F 27 M 26.6	F 27.7 M 28

Table 2. Average marginal effects (AME) of logistic regression of entering employment (Model 1), full-time work (Model 2) and relevant work (Model 3) for disability benefit recipients versus total population.

Average marginal effects on employment

	Model 1a.				Model 1b. Interaction term			
	Disability benefit recipients		Total population		Disability benefit recipients		Total population	
	AME	SE	AME	SE	AME	SE	AME	SE
Women	-0.002	0.006	-0.032**	0.000	-0.015	0.008	-0.051**	0.001
Higher education	0.360**	0.008	0.131**	0.001	0.312**	0.014	0.096**	0.001
Women x high edu					0.072**	0.013	0.062**	0.002
Married	0.137**	0.013	0.012**	0.001	0.138**	0.013	0.012**	0.001
Children	0.084**	0.008	0.031**	0.001	0.084**	0.008	0.031**	0.001
Student	-0.059**	0.009	-0.147**	0.001	-0.122**	0.009	-0.146**	0.001
Age	0.001	0.001	0.006**	0.000	0.002	0.001	0.006**	0.000
N	19210		1021792		19210		1021792	
Log likelihood	-11927		-552920		-11919		-552360	
Pseudo R	0.100		0.059		0.100		0.084	

Average marginal effects on full-time work with industry-fixed effects

	Model 2a.				Model 2b. Interaction term			
	Disability benefit recipients		Total population		Disability benefit recipients		Total population	
	AME	SE	AME	SE	AME	SE	AME	SE
Women	-0.080**	0.010	-0.114**	0.001	-0.107**	0.012	-0.165**	0.001
Higher education	0.119**	0.010	0.000	0.001	0.061**	0.018	-0.077**	0.001
Women x high edu					0.085**	0.021	0.125**	0.002
Married	0.068**	0.014	0.008**	0.001	0.068**	0.014	0.006**	0.001
Children	0.053**	0.010	-0.006**	0.001	0.053**	0.010	-0.003**	0.001
Student	-0.155**	0.011	-0.171**	0.001	-0.151**	0.012	-0.178**	0.001
Age	0.011**	0.001	0.021**	0.000	0.012**	0.001	0.021**	0.000
N	9567		778709		9567		778709	
Log likelihood	-5469		-396354		-5461		-394324	
Pseudo R	0.173		0.208		0.174		0.212	

Average marginal effects on relevant work with industry-fixed effects

	Model 3a.				Model 3b. Interaction term			
	Disability benefit recipients		Total population		Disability benefit recipients		Total population	
	AME	SE	AME	SE	AME	SE	AME	SE
Women	0.005	0.007	-0.005**	0.001	-0.000	0.018	-0.017**	0.002
Higher education	-0.351**	0.009	-0.362**	0.001	-0.556**	0.013	-0.368**	0.001
Women x high edu					0.007	0.019	0.014**	0.002
Married	0.024	0.009	-0.014**	0.001	0.024	0.001	-0.014**	0.001
Children	0.015	0.007	0.015**	0.001	0.015	0.007	0.015**	0.001
Student	-0.080**	0.007	-0.084**	0.001	-0.080**	0.007	-0.084**	0.001
Age	0.005**	0.000	0.004**	0.000	0.005**	0.001	0.005**	0.000
N	8362		718773		8362		718773	
Log likelihood	-2288		-218015		-2288		-217990	
Pseudo R	0.333		0.318		0.333		0.318	

Note: Significance probabilities, *p<0.01, **p<0.001, industry effects for models 2 and 3 not reported

Table 3. The effect of the interaction between being female and higher education on labour market participation

	Disabled population		**Total population**	
	No higher education	Higher education	No higher education	Higher education
Model 1: Employment	0	+	-	+
Model 2: Full-time work	-	+	-	+
Model 3: Relevant work	0	0	-	+

[i] Basic benefits cover expenses related to assistive technology; transport; guide dog; prostheses and special bandages; extra food costs due to dietary restrictions; additional wear on clothes, bed linen and shoes.

[ii] Coefficients of industry-fixed effects are not reported because they serve to control for unobserved heterogeneity across industries – substantial interpretations of their coefficients do not contribute to explaining gender and educational effects on labour market participation, which is the focus of this article.

[iii] In the following paragraphs, the term 'significant' is used to mean 'statistically significant'

[iv] The effect of higher education for women is the effect of higher education for men, plus the interaction effect: 0.312 + 0.072 = 0.384.

[v] Theoretically, differences between basic and attendance benefit recipients could have been estimated. However, both benefits are granted on the basis of the same long-term or permanent injuries, illnesses or disabilities. Therefore, variations in education and gender effects may as well be greater within, rather than across, the two groups.

Appendix

Table A1. Industry distributions for recipients of disability benefits and total population

	Disability benefit recipients	Total population
A Agriculture, forestry and fishing	1%	0%
B Mining and quarrying	1%	2%
C Manufacturing	5%	7%
D Electricity, gas, steam and air conditioning supply	0%	0%
E Water supply, sewerage, waste management and remediation activities	0%	0%
F Construction	6%	9%
G Wholesale and retail trade; repair of motor vehicles and motorcycles	16%	16%
H Transport and storage	3%	5%
I Accommodation and food service activities	3%	5%
J Information and communication	3%	4%
K Financial and insurance activities	1%	2%
L Real estate activities	1%	1%
M Professional, scientific and technical activities	5%	5%
N Administrative and support service activities	4%	6%
O Public administration and defence; compulsory social security	4%	5%
P Education	7%	7%
Q Human health and social work activities	32% (27%*)	21% (21%*)
R Arts, entertainment and recreation	2%	2%
S Other service activities	2%	2%
T Activities of households as employers; undifferentiated goods and services producing activities for households for own use	0%	0%
U Activities of extraterritorial organisations and bodies	0%	0%
Total	100%	100

* Percentage excluding sheltered work employment. Sheltered work per definition belongs to the category 'Q Human health and social work activities' (SN2007)