

Multiple Disadvantage: Evidence on Gender and Disability from the 2006 Census

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Introduction

The term ‘multiple disadvantage’ is used in a number of different senses. Sometimes it refers to the experience of multiple different types of negative outcomes (e.g. Whelan et al., 2001). In other contexts, it refers to the presence of multiple, relatively independent risk factors (Nolan and Whelan, 2009; Berthoud, 2003; Whelan and Maître, 2007). It is in the latter sense that multiple disadvantage is used in this paper.

A common question regarding multiple disadvantage is whether membership in two groups, both of which are disadvantaged in certain respects, is in some sense worse than membership in either one. Barrett and McCarthy (2007), for instance, find that immigrant women in Ireland suffer an additional pay penalty, compared to men and native women. Other research has also shown interactions between life events and social class

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position in accounting for poverty (Vandecasteele, 2005, 2007; Whelan and Maitre, 2008; Lorentzen et al., 2009).

In the present paper, we are looking at the consequences of membership of two relatively independent groups: based on gender and having a disability. The question we ask is whether membership of both groups results in greater disadvantage and, if yes, what form this greater disadvantage takes, and whether the pattern differs across outcomes. We use data from the 2006 Census Research Microdata File to examine the patterns for four outcomes: low levels of education, being outside the labour market, unemployment and being in the unskilled or semi-skilled manual social class.

The concept of multiple disadvantage used here is different from the concept of cumulative disadvantage, which has been used to refer to processes that operate over time, with earlier disadvantage persisting or even interacting with later events to exacerbate disadvantage (e.g. Nolan and Whelan, 1999; Layte and Whelan, 2002; Vandecasteele, 2010).² However, by examining several outcome measures, we are able to examine whether risks cumulate across education, labour market participation and unemployment. In other words, are less favourable labour market outcomes accounted for by earlier differences in education, or do people with disabilities face further barriers to participation in the labour market?

Methods

The analysis is based on two sets of hierarchical logistic regression equations run on adults age 25-44 from the 2006 *Census Research Microdata File* (CRMF), access to which was kindly

² Nolan and Whelan (1999, pp. 9-10) emphasise three elements of the concept of cumulative disadvantage: (a) that a causal sequence over time is involved, (b) that earlier effects persist, and (c) that the impact of earlier factors interacts with later ones (such as, perhaps, a lower return to education for those from deprived backgrounds) (see also Layte and Whelan, 2002; Vandecasteele, 2010).

granted as part of a pilot scheme by the Central Statistics Office for the purpose of the project on which this paper is based. The first set of equations examined the main effects of gender and disability on the four outcomes. This allows us to estimate the independent (net) effects of these factors when other relevant risk factors are controlled. The other factors controlled in the models are family and marital status, religion, ethnicity, nationality, migration, five-year age group, urban/rural location and region. In the models for being outside the labour market, unemployment and social class, education is controlled.³

The second set of equations included an interaction term for being a woman and having a disability. This allows us to identify the differences in impact of disability for men and women by comparing the expected risk under two conditions: constraining the impact of disability to be the same for men and women (no interaction) and allowing the impact of disability to differ for men and women (interaction).

A number of patterns are possible, as described by Berthoud (2003) and illustrated in Figure 1. The distinction is based on the main and interaction effects of group membership. *Exponential disadvantage* would arise where membership in both groups, each of which experiences an increased risk of negative outcomes, results in a higher risk than we would expect from the sum of membership in each one. For example, women and people with a disability are less likely to participate in the labour market. If we found that having a disability had a bigger impact on women's labour market participation than on men's, this would be an example of exponential disadvantage.

³ The paper is part of a larger piece of research which uses Census data to elucidate patterns of disadvantage associated with membership in different groups, many of which are small in size. The full models are presented in the main report on this project (see Watson et al, forthcoming).

Figure 1: Illustration of Different Patterns of Multiple Disadvantage

Interaction Effects	Main Effect Present, Positive for Both Groups (++)
Present, positive (+)	Exponential (+++): Membership in each group associated with increased risk of negative outcome; membership in both groups associated with <i>higher</i> risk than the sum of membership in each.
Not present (o)	Additive (++o): Membership in each group associated with increased risk of negative outcome; membership in both groups associated with risk <i>equal</i> to the sum of membership in each.
Present, negative (-)	Non-additive (++-): Membership in each group associated with increased risk of negative outcome; membership in both groups associated with risk <i>less</i> than the sum of membership in each.

A second possibility is *additive disadvantage* (Berthoud, 2003). In this case the risk of negative outcomes is increased but is not intensified by membership of both groups. If we found that having disability reduces labour market participation by the same amount for men and women, this would be an example of additive disadvantage. In this scenario, the impact of having a disability affects men and women equally or, conversely, the impact of being a woman is the same for people with a disability as it is for people with no disability.

A third possibility, which we call non-additive disadvantage in Figure 1, is that while being a woman and having a disability are both associated with negative outcomes, the effect of disability is less for women than for men.⁴ In the context of women and disability, non-additive disadvantage might be found if, for in-

⁴ Berthoud uses the term ‘logarithmic disadvantage’ to refer to the same phenomenon.

stance, women with a disability were less limited than men with a disability, or if employers would prefer to employ men without a disability but do not differentiate among people with a disability on the basis of whether they are male or female.

The distinctions between the patterns of multiple disadvantage are important to understanding the processes involved and in terms of policy. For instance, a finding of exponential disadvantage would lead us to focus on the specific experiences of women with a disability, to use our present example, in order to understand their labour market participation. Additive disadvantage, on the other hand, would lead to positing two separate processes, one being gender-based and the other based on disability. Non-additive disadvantage, like exponential disadvantage, might lead us to focus on the specific experiences of men with a disability, in our example.

All of the examples above have assumed that women are at a higher risk of unfavourable outcomes. This is true of labour market participation, in general, but is not true of all outcomes. Men are disadvantaged in terms of life expectancy, for instance and, as we will see below, in terms of some of the outcomes studied in this paper, particularly low levels of educational achievement.

The measure of disability in the 2006 Census is based on the following question:

15. Do you have any of the following long-lasting conditions?
 - a. Blindness, deafness or a severe vision or hearing impairment (yes, no)
 - b. A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting or carrying (yes, no)
 - c. A learning or intellectual disability (yes, no)
 - d. A psychological or emotional condition (yes, no)
 - e. Other, including any chronic illness (yes, no).

In this analysis, we distinguish between individuals with a physical disability (Yes to either a or b above) and individuals with a learning or intellectual disability (Yes to c above). Answers to these two questions suggested that just under 254,000 people in Ireland had a physical disability and that there were 70,870 people with a learning or intellectual disability. The distinction between physical disability and learning/intellectual disability is important in that the age profiles of the two types of disability are quite different, with learning/intellectual disability peaking in the teens (Watson and Nolan, 2010, forthcoming). The prevalence of other types of disability increases with age. Part of the reason for this is the lower life expectancy of many people with severe intellectual or learning disability (Patja et al., 2001) and part is also due to the fact that this kind of disability is likely to be particularly salient for young people who are at school, and is more likely to be noted at this stage. In the 25-44 age group, according to this measure, physical disability affects 2.4 per cent and learning/intellectual disability affects 1.2 per cent. Because of the large number of cases, the census data affords a unique opportunity to examine the situation of these groups.

The four outcomes we examine are:

- Low education: less than full second level education. Those still at school or college are excluded from this analysis. The net figures presented for differences by gender and disability status include controls for five-year age group, family status, religion, ethnicity, migration (whether ever lived outside Ireland and time since moved to Ireland) and location (urban/rural residence and region).
- Being outside the labour market: those still at school or college are excluded from this analysis and levels of education, as well as the other characteristics above, are controlled.

- Unemployed: The risk of unemployment for those in the labour market. Those outside the labour market are excluded in this analysis and education, as well as other characteristics, is controlled.
- Unskilled or semi-skilled manual social class: This is measured at the household level and is based on the usual occupation of the reference person in the household, who may be someone other than the adult concerned. For this analysis, education, as well as other characteristics, is controlled.

Education, labour market participation and social class can be seen as sequential events. Education is usually completed before the person enters the labour market and will affect the probability of entering the labour market, of finding work and the social class of the job obtained.

We might expect different patterns across these outcomes for a number of reasons. Education is typically completed relatively early in the person's life and will be strongly affected by family background as well as by the person's own abilities in school. When it comes to labour market participation, social perceptions of the appropriate adult roles for men and women (which have broadened for women but not for men in recent decades) come into play as well as the perceptions and preferences of employers. Social class is measured at the household level, so living arrangements as well as the person's own resources (mainly via their employment) will matter. To the extent that there are differences in living arrangements between women and men and between people with a disability and people without a disability, we might expect the patterns to be affected. As we focus on relatively young adults (aged 25-44) here, the age at which young people leave home and the rate at which they form partnerships will matter a great deal.

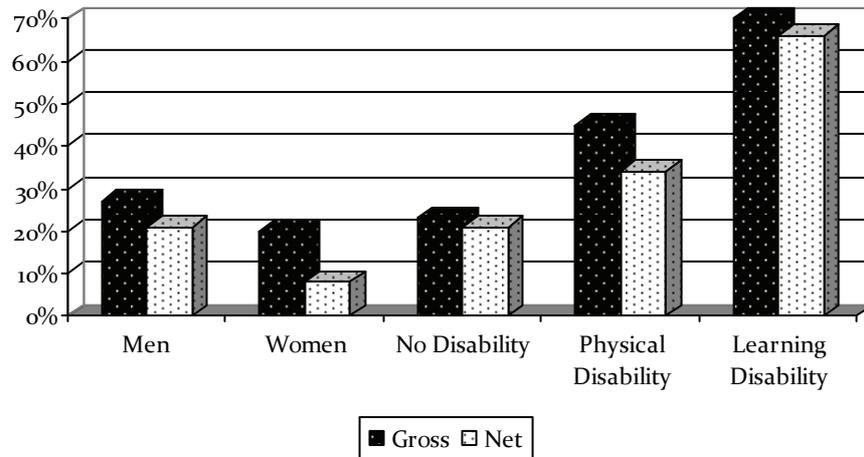
Low Levels of Education

Figure 2 shows the overall percentage of adults aged 25-44 with low levels of education by gender and disability. Those still at school or college are excluded from this analysis. Men in this age group are more likely than women to have left school before completing second level education (27 per cent compared to 20 per cent). People with a disability are much more likely to have low levels of education than non-disabled people: 45 per cent of people with a physical disability left school before completing second level education, while the figure for those with a learning/intellectual disability is 70 per cent. Note that we cannot be sure whether the disability was present when the person was still at school; it may have developed since that time.⁵ As noted above, learning/intellectual disability is more likely than other types of disability to have been present from childhood, however, and its impact on education is very clear in Figure 2.

Figure 2 also shows the net (independent) effects of gender and disability when other relevant risk factors are controlled. These net figures control for five-year age group, nationality, ethnicity, religion, migration and location. They are based on a multivariate model and are presented for single white Irish Catholic adults with no children, age 25-29, living in Dublin and who have never lived outside Ireland. The differences by gender and by disability status remain when these other characteristics are controlled.

⁵ Detailed results from the National Disability survey suggest that about half of people with a disability age 18-44 were affected by the disability before the age of 18, ranging from 21 per cent for pain disability to 86 per cent for intellectual or learning disability (CSO, 2008, Tables 14.2, 15.2, 16.2, 17.2, 18.2, 19.2, 20.2 and 21.2)

Figure 2: Gross and Net Risk of Low Education by Gender and by Disability for Adults Age 25-44



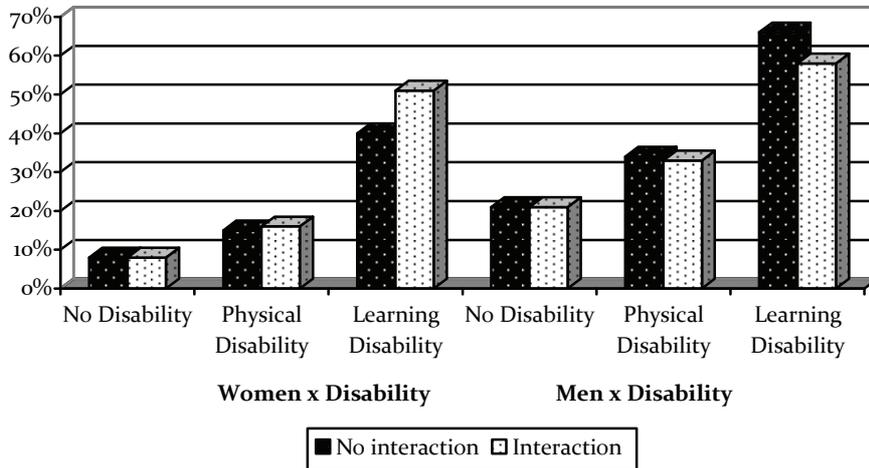
Source: Census 2006, special analysis. Net figures are those for white Irish Catholic single adults with no children, age 25-29, living in Dublin and who have never lived outside Ireland. For male/female net figures: person with no disability; for disability, net figures presented for men.

In the next figure, we examine the net impact of disability on education separately for men and women. As explained earlier, we show the expected risk of low education under two conditions: constraining the impact of disability to be the same for men and women (no interaction) and allowing the impact of disability to differ for men and women (interaction). Comparing the risks under the two conditions allows us to see whether the impact of disability on the risk of low education is different for men and women.

We can see from Figure 3 that when we take account of the gender-disability interaction, the expected percentage of men with low levels of education is very slightly lower in the case of physical disability (33 per cent vs. 34 per cent) and considerably lower in the case of learning disability (58 per cent vs. 66 per cent). On the other hand, the risk is slightly higher for women in

the case of physical disability (16 vs. 15 per cent) and considerably higher for learning/intellectual disability (51 vs. 40 per cent). Having a learning disability, then, is associated with a smaller increase in educational disadvantage in men than in women.

Figure 3: Net Risk of Low Education by Gender and Disability under Two Conditions (with and without gender/disability interaction)



Source: Census 2006, special analysis. Figures are estimated for white Irish Catholic single adults with no children, age 25-29, living in Dublin and who have never lived outside Ireland.

These results – particularly for intellectual/learning disability – are an example of what we call non-additive disadvantage: both men and people with a disability are educationally disadvantaged, but men with a disability are less disadvantaged than we would expect if disability had the same impact on men and women. Note, however, that even though the pattern of disadvantage for men with a disability in the case of education is non-additive, the most disadvantaged group is men with a learning disability, 58 per cent of whom are expected to have low levels of education compared to 51 per cent of women with a learning disability.

The finding of a substantial gender interaction in the case of learning/intellectual disability would lead us to seek an explanation in the specific circumstances of women with this type of disability. This difference may be due the fact that the measure of learning/ intellectual disability used here is associated with a higher level of difficulty among women than among men (CSO, 2008, Table 3A).⁶

Outside the Labour Market

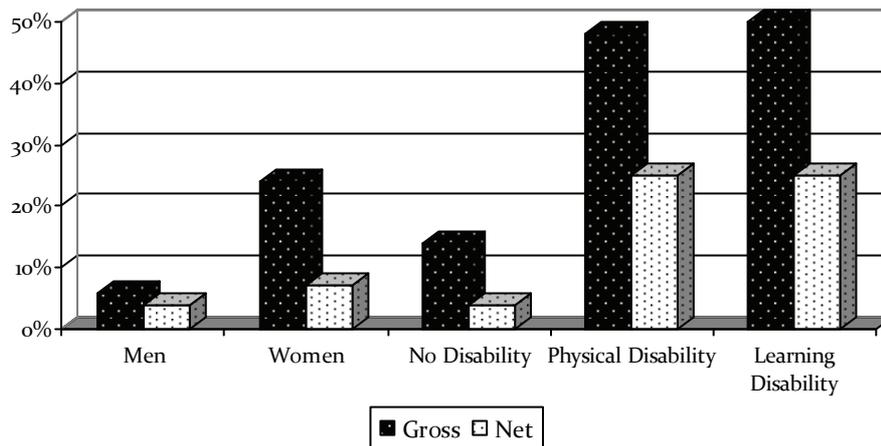
We turn now to our second outcome: being outside the labour market. Labour market participation is a key element in social inclusion (Berkel and Møller, 2002). Women's labour market participation is lower than that of men, as they remain most likely to take time off paid work to care for children (Treas and Drobnič, 2010) and other family members (Bolin, Lindgren and Lundborg, 2008). However, women who do combine work and family tend to have higher levels of life satisfaction (Kotowska et al., 2010) and improved mental health (Barnett, 2004).

Figure 4 shows that women aged 24-44 are about four times as likely as men in the same age group to be outside the labour market (24 per cent compared to 6 per cent). Note that students are excluded from these figures, so we are comparing people who are outside the labour market because they are engaged in home duties or unable to work due to illness or other reasons to those who are in the labour market and either at work or unemployed. This is the age group where women are most likely to have children and women are still the ones most likely to take time off paid work to care for children. The impact of disability is also very marked: people with either a physical or learning

⁶ There is a difference between the census measure used here and National Disability Survey (NDS) measures of learning/intellectual disability in this regard. The NDS suggests that boys and girls with learning disability experience about the same level of difficulty with everyday activities (Watson and Nolan, 2010, Figure 12).

disability are 3.4-3.5 times as likely as those with no disability to be outside the labour market. Part of this difference will be due to the lower levels of educational attainment we saw above, but there are also likely to be additional barriers to labour market participation such as difficulties in physically gaining access to employment and prejudices of employers.

Figure 4: Gross and Net Risk of Being Outside the Labour Market by Gender and by Disability for Adults Age 25-44



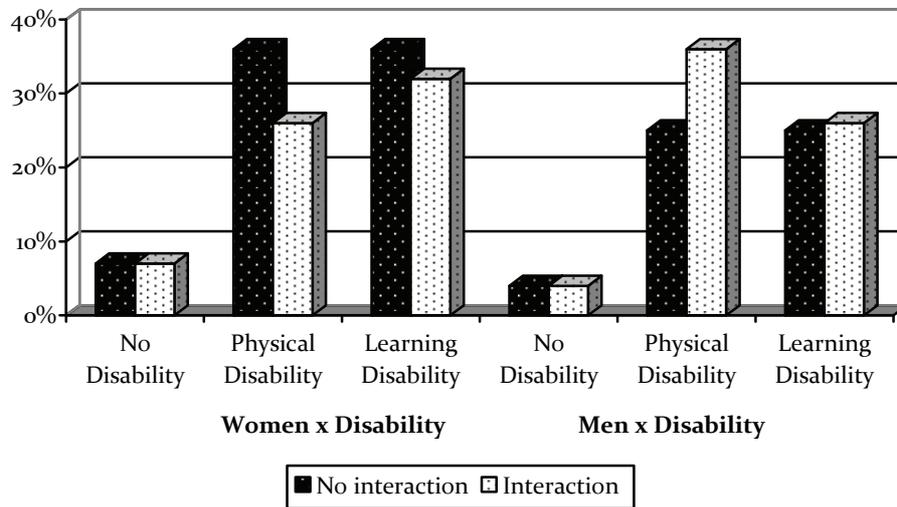
Source: Census 2006, special analysis. Net figures are those for white Irish Catholic single adults with no children, age 25-29, with lower second level education, living in Dublin and who have never lived outside Ireland. For men and women, net figures are for those with no disability; for disability status, net figures are for men.

The net figures control for education as well as five-year age group, nationality, ethnicity, religion, migration and location and are estimated for white Irish Catholic single adults with no children, with lower second level education, age 25-29, living in Dublin and who have never lived outside Ireland. The differences by gender are much smaller for this group because the labour force participation rate for single young women is much higher than that of married women. When we control for the association between disability and education, the gap in labour

market participation between people with a disability and people without a disability is also very much reduced.

Figure 5 shows the impact of disability on the labour market participation of men and women, allowing the impact of disability to differ by gender. The figure shows that physical and learning/intellectual disability are associated with a reduction in labour force participation among both women and men, but that the impact of disability – especially physical disability – smaller for women. We see that the expected percentage outside the labour market falls for women but increases for men when we include the gender-disability interaction.

Figure 5: Net Risk of Being Outside the Labour Market by Gender and Disability under Two Conditions (with and without gender/disability interaction)



Source: Census 2006, special analysis. Figures are estimated for white Irish Catholic single adults with no children, age 25-29, with lower second level education, living in Dublin and who have never lived outside Ireland.

This is, again, an example of *non-additive disadvantage*: both women and people with a disability are less likely to participate

in the labour market, but women with a disability are less disadvantaged than we would expect if disability had the same impact on women and men. This may arise because physical disabilities, in particular, cause more severe limitations in terms of men's participation in the lower-skilled manual occupations that are more common among men than women.

Another pattern that is evident when we allow the impact of disability to vary by gender is that intellectual/ learning disability has a greater impact than physical disability on the labour market participation of women while the reverse is true for men. This, again, may reflect differences in the requirements of occupations in which women and men with lower levels of education typically work and would direct our attention to the specific experiences of women with learning disabilities.

Unemployment

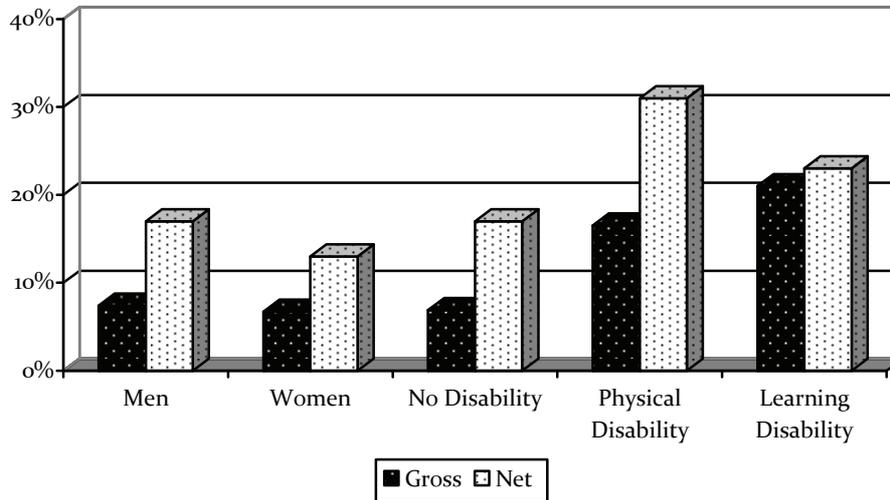
At this point we turn to the unemployment rate: the percentage of those in the labour market who are unemployed.⁷ Students and other young adults outside the labour force are excluded from this figure, so we have already put aside the gender difference in labour market participation and the impact of disability on participation.

Figure 6 shows that men in the labour market are slightly more likely than women in the labour market to be unemployed (7.4 per cent compared to 6.7 per cent) and that people with disabilities are much more likely to be unemployed: 16.5 per cent of those with a physical disability and 21.1 per cent of those with a learning disability. Some of this difference is undoubtedly due to the lower levels of education among people with disability. This can be seen when we focus on the net figures, which control for

⁷ Note that this measure of unemployment is based on the person's self-reported main economic status, rather than the more stringent ILO definition used in the *Quarterly National Household Surveys*.

education as well as ethnicity, religion, nationality, migration and location and are presented for married white, Irish catholic adults with full second-level education. The gap between people with a disability and those with no disability is somewhat smaller – particularly in the case of learning disability.

Figure 6: Gross and Net Risk of Being Unemployed by Gender and by Disability for Adults Age 25-44



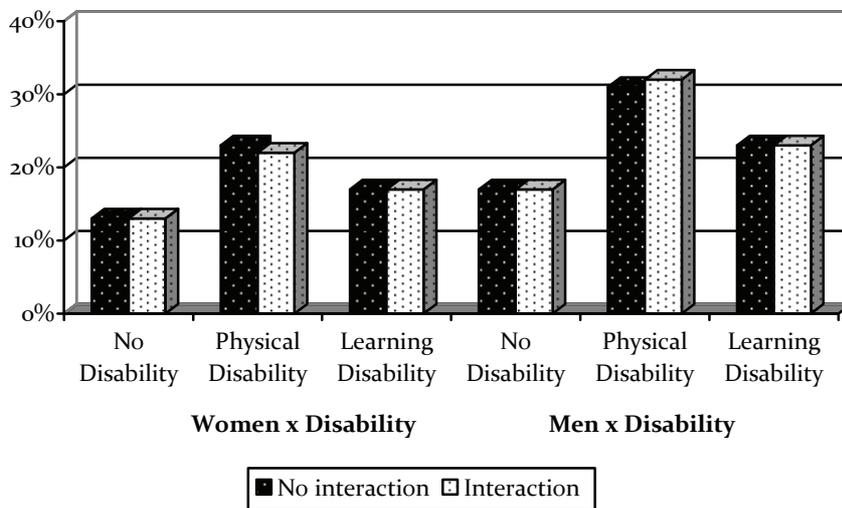
Source: Census 2006, special analysis. Net figures are those for white Irish Catholic single childless adults, age 25-29, with lower second level education, living in Dublin and who have never lived outside Ireland. For men and women, net figures are for those with no disability; for disability status, net figures are for men.

In Figure 7, we compare the net impact of having a disability on the unemployment rate for men and women before and after allowing the impact to differ by gender. We have controlled for five-year age group and level of education as well as other characteristics in order to highlight the net impact of unemployment. The difference based on disability is much less stark here than was in the case of labour market participation. This may arise if (as is very likely) people with a disability in the labour

market tend to be less limited in their activities than people with a disability in general.

Nevertheless, people with disabilities are more likely to be unemployed. For both men and women, the impact of physical disability is larger than the impact of learning disability and the impact of physical disability is very slightly larger for men than for women. When we include the gender-interaction term, the expected percentage of women with a physical disability drops from 23 per cent to 22 per cent while the expected percentage for men increases from 31 to 32 per cent.

Figure 7: Net Risk of Unemployment by Gender and Disability under Two Conditions (with and without gender/disability interaction)



Source: Census 2006, special analysis. Figures are estimated for white Irish Catholic single adults with no children, age 25-29, with lower second level education, living in Dublin and who have never lived outside Ireland.

The pattern for men and physical disability is an example of *exponential disadvantage* with respect to unemployment, albeit a relatively weak one: men and people with physical disability are

both more likely to be unemployed and men with a physical disability are even more likely to be unemployed than we would expect from the combination of the two effects (being male and having a physical disability).

The impact of learning disability is very similar for men and women: the expected percentage unemployed is the same when we include the interaction, as when we constrain the impact of having a disability to be the same for men and women. The pattern for men and learning disability, then, is an example of *additive disadvantage*: having a disability increases the risk of unemployment by about the same amount for men and women.

Lower Manual Social Class

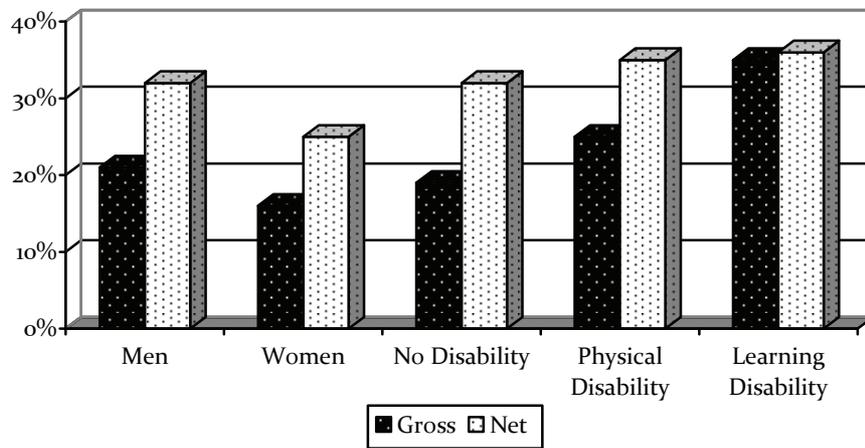
The lower manual (unskilled and semi-skilled manual) social classes have been shown elsewhere to be at greater risk of poverty and deprivation than the skilled manual social class or the non-manual social classes (e.g. Whelan et al., 2001, 2003, 2004; Watson et al., 2009; Vandecasteele, 2010). Social class is measured at the household level, based on the occupation of the reference person. This means that men and women living in the same household will be assigned to the same social class, so that any differences between men and women overall will be driven by differences in class position between men and women living in different households. Similarly, to the extent that young adults with disability are still living with their (presumably non-disabled) families, their social class position will be derived from that of the reference person in the household. Figure 8 shows the gross and net risk of being in these social classes by gender and by disability.

We can see from Figure 8 that men, overall, are more likely than women to be in the lower manual social class (21 per cent compared to 16 per cent). This is partly due to the fact that young men are at higher risk of having lower levels of education, as we saw earlier. However, the gender difference remains when

we control for education and other characteristics, as seen in the net figures in Figure 8.

Younger single adults with lower-second level education (the reference category for the net figures) are more likely than adults in the 25-44 age group as a whole to be in the lower manual social class, so that the net percentages are higher than the gross figures. There is still a gap between people with disability and those with no disability: 35 per cent of young adults with physical disability and 36 per cent of young adults with learning or intellectual disability are in the lower manual social class compared to 32 per cent of adults without a disability.

Figure 8: Gross and Net Risk of Being in the Unskilled or Semi-skilled Manual Social Class by Gender and by Disability for Adults Age 25-44

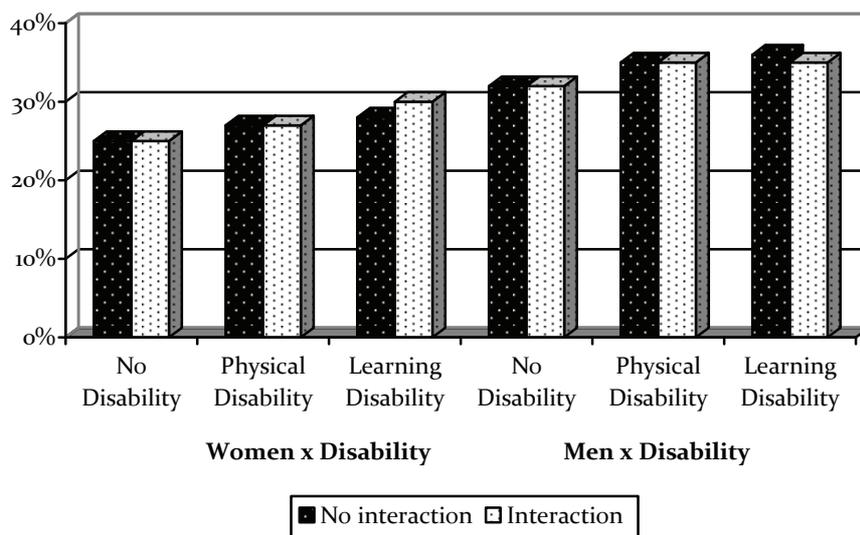


Source: Census 2006, special analysis. Net figures are those for white Irish Catholic single adults with no children, age 25-39, with lower second level education, living in Dublin and who have never lived outside Ireland. For men and women, net figures are for those with no disability; for disability status, net figures are for men.

In Figure 9, we compare the net impact of having a disability on the probability of being in the lower manual social class for men and women before and after allowing the impact to differ by

gender. In general, the group differences are small because much of the difference has been captured by levels of education, which are controlled. For both men and women, those with a physical disability are more likely to be in the lower manual social class, but the difference is small and is equal under the two conditions (with the interaction and without the interaction). This suggests that much of the disadvantage experienced by people with physical disability that we saw in Figure 8 is driven by their lower levels of education. The similarity in the impact of disability on the social class position of women and men means that this is another example of *additive disadvantage*: men and people with a disability are at higher risk of being in the lower manual social classes and the risk for men with a disability is no greater than we would expect from the sum of these two risks.

Figure 9: Net Risk of Being in Lower Manual Social Class by Gender and Disability under Two Conditions (with and without gender/disability interaction)



Source: Census 2006, special analysis. Figures are estimated for white Irish Catholic single adults with no children, age 25-29, with lower second level education, living in Dublin and who have never lived outside Ireland.

The pattern for learning disability is different for men and women. Although the difference is not large, the risk is slightly larger for women. When we allow the impact of intellectual/learning disability to differ by gender, the expected percentage of women in the unskilled or semi-skilled manual social class increases slightly (from 28 to 30 per cent) while the percentage for men falls slightly (from 36 to 35 per cent).

This can be seen as an example of *non-additive disadvantage* for men and learning disability with respect to social class: membership in each group is associated with a higher risk but membership in both groups is associated with a smaller risk than we would expect if the impact of having a learning disability were the same for men as it is for women.

Conclusion

In this paper, we drew on the typologies advanced by Berthoud to ask in what sense the risks of negative outcomes are ‘worse’ for members of two disadvantaged groups. We took groups based on gender and disability status and examined four outcomes using data from the 2006 census: low levels of education, non-participation in the labour market, unemployment and membership of the unskilled or semi-skilled manual social class. After presenting the overall differences by gender and disability status, we examined the net group differences based on joint group membership with other factors controlled (family status, religion, ethnicity, nationality, migration and location). The results for net differences in non-participation in the labour market, unemployment and social class also controlled for education.

For each of the four outcomes, we presented results for two interactions: being female (or male for outcomes where men are disadvantaged relative to women) and having a physical disability and being female (or male) and having a learning disability.

This gives a total of eight interactions and their location in relation to Berthoud's categories is shown in Figure 10.

In general, for the groups and outcomes examined, the most common pattern was that of non-additive disadvantage, or what Berthoud calls logarithmic disadvantage. In this pattern, each of two groups is at increased risk of a negative outcome relative to non-members, but membership in both groups is associated with a lower risk than we would expect from adding the two risks together. This pattern was found for five of the eight interactions examined.

Figure 10: Examples of Different Kinds of Multiple Disadvantage for Gender and Disability

Outcome	Groups	Type of Multiple Disadvantage
Low education	Male, physical disability	Non-additive
	Male, learning disability	Non-additive
Non-participation in labour market	Female, physical disability	Non-additive
	Female, learning disability	Non-additive
Unemployment	Male, physical disability	Exponential (weak)
	Male, learning disability	Additive
Unskilled/semi-skilled manual social class	Male, physical disability	Additive (weak)
	Male, learning disability	Non-additive

The concept of redundancy is useful in understanding why a non-additive pattern may arise. Redundancy can occur when the relationship between two predictors is very strong. Here, for instance, we found a very strong association between learning or

intellectual disability and low levels of education. As a result, we cannot explain much of the additional variation in labour market outcomes by adding learning/intellectual disability to a model which already includes education. The combined effect is one of redundancy rather than accumulation (Nolan and Whelan, 1999, pp. 10-11).

There were two examples of additive disadvantage, but one of these was a weak pattern where the group differences were very small. Additive disadvantage describes the pattern where members of each group are disadvantaged relative to non-members, and membership in both groups is associated with a level of disadvantage approximately equal to what we would expect from the combination of membership in each. In this sense, membership in both groups is 'worse' than membership in either one, but not enough worse to prompt us to examine the unique circumstances of joint group membership in order to seek an explanation.

There was only one weak example of exponential disadvantage: membership of each group is associated with negative outcomes and members of both groups are even more disadvantaged than we would expect from combining the effects of membership in each one. This example was found for being male and physical disability for the outcome unemployment. The impact of physical disability on unemployment risk was slightly greater for men than for women, with other characteristics controlled. This is likely to be because of the greater importance of physical strength to many of the traditionally male-dominated manual occupations, so that physical disability may be a greater barrier to men than to women in finding suitable work.

The second general finding of note is that the pattern of multiple disadvantage can vary depending on the outcome we are examining. For instance, being male and having a physical disability fits the pattern of non-additive disadvantage for low edu-

cation, weakly fits the pattern of exponential disadvantage for unemployment and additive disadvantage for lower manual social class.

A third point worth noting is that the absence of a pattern of exponential or additive disadvantage does not necessarily mean that a group is not 'worse off' in the sense of having a high risk of a negative outcome. For instance, we found a strong pattern of non-additive disadvantage in the case of men and learning disability for educational outcomes: the increased risk of low education associated with being a man with a disability was less than we would expect from the risks associated with each separately. However, it was still the case that men with a learning disability had the highest risk of being educationally disadvantaged. This is because the risk of this outcome is much higher for men than for women.

Fourthly, we were able to examine whether the increased risk of negative outcomes for people with a disability was cumulative, in the sense of finding an additional risk for labour market outcomes when education is controlled. People with a disability, particularly those with a learning disability, are at a strong disadvantage in terms of education. However, even with education controlled, people with a disability experience an additional risk of being outside the labour market, of unemployment and of being in a lower social class. Although we cannot be sure of the direction of causation with cross-sectional data, this suggests that the disadvantages associated with disability may cumulate across life-cycle stages

Finally, when a significant interaction indicates non-additive or exponential disadvantage, it directs our attention to the specific circumstances of one group. The finding of exponential disadvantage in the case of unemployment for men with a physical disability leads us to seek an explanation in some specific aspects of the physical disability of men or the impact it has on their employment prospects. Similarly, we found non-additive

disadvantage in the case of being male and learning disability for the outcome low education. In this case, it was the gender not initially at higher risk that experienced the biggest increase in risk of the negative outcome as a result of learning disability. This finding draws our attention to the specific situation of women with a learning disability in order to understand its impact on education and lead us to hypothesise that – at least based on the measure of learning/intellectual disability in the Census – women with this type of disability experience a greater level of limitation.

In general, the analyses in this paper point to the importance of paying careful attention to the processes underlying disadvantage and the ways in which these may interact. It cannot be assumed that where membership in each of two groups is associated with a negative outcome, members of both groups will be ‘doubly disadvantaged’, or indeed that a pattern found for one outcome will be found for others. We saw in the case of labour market participation, for instance, that the barriers to participation may be quite different for men and women and that characteristics of many traditionally male jobs may result in particular barriers for men with a physical disability. Exploring the patterns of multiple disadvantage is useful in drawing attention to areas where the interaction of different processes – education, labour market and lifecycle processes – may result in unexpected outcomes.

References

Barrett, A. and McCarthy, Y. (2007) ‘The Earnings of Immigrants In Ireland: Results From the 2005 EU Survey Of Income And Living Conditions’. In *Quarterly Economic Commentary, Winter*. Dublin: Economic and Social Research Institute.

Barnett, R.C. (2004) ‘Women and Multiple Roles: Myths and Reality’. *Harvard Review of Psychiatry* 12(3), 158-164.

- Berkel, R. van and Møller, I.H. (eds.) (2002) *Active social policies in the EU: Inclusion through participation?* Bristol: The Policy Press.
- Berthoud, R. (1976) *The Disadvantages of Inequality*. London: Macdonald & Jane's.
- Berthoud, R. (2003) *Multiple disadvantage in Employment: A quantitative analysis*. York: Joseph Rowntree Foundation.
- Bevelander, P. and Groeneveld, S. (2007) 'How Many Hours Do You Have to Work to Be Integrated? Full Time and Part Time Employment of Native and Ethnic Minority Women in the Netherlands' IZA Discussion Paper No. 2684. Available at SSRN: <http://ssrn.com/abstract=978783>.
- Bolin, K., Lindgren, B. and Lundborg, P. (2008). 'Your next of kin or your own career?: Caring and working among the 50+ of Europe,' *Journal of Health Economics*, Elsevier, Vol. 27(3), pp. 718-738, May.
- Central Statistics Office (2008), *National Disability Survey 2006, First Report*, Dublin: Stationery Office.
- Duncan, O.D. (1968) 'Inheritance of poverty or inheritance of race?' In: D.P. Moynihan (ed.), *On Understanding Poverty*, New York: Basic Books, pp. 85-110.
- Layte, R. and Whelan, C.T. (2002) 'Cumulative Disadvantage or Individualisation? A comparative analysis of poverty risk and incidence'. *European Societies* 4(2) 2002: 209-233.
- Kotowska, I.E., Matysiak, A., and Stryc, M. (2010). *Family Life and Work: Second European Quality of Life Survey*. Dublin: European Foundation for the Improvement of Living and Working Conditions.
- Nolan, B. and Whelan, C.T. (1999) *Loading the Dice? A Study of Cumulative Disadvantage*. Dublin: Oak Tree Press in association with the Combat Poverty Agency.
- Patja, K., Iivanainen, M., Vesala, H., Oksanen, H. and Ruoppila, I. (2001) 'Life expectancy of people with intellectual disability: A 35-year follow-up study.' *Journal of Intellectual Disability Research*, Vol. 44, Issue 5, pp. 591-599.
- Treas, J. and Drobnič, S. (eds) (2010) *Dividing the Domestic: Men, Women, and Household Work in Cross-National Perspective*. Studies in Inequality Series. Stanford, CA: Stanford University Press.
- Vandecasteele, L. (2010). 'Life Course Risks or Cumulative Disadvantage? The Structuring Effect of Social Stratification Determinants and Life

Course Events on Poverty Transitions in Europe.' *European Sociological Review*, Advance Access published 11 March.

Watson, D., Whelan C.T and Maître, B. (2009) 'Class and Poverty: Cross-sectional and dynamic analysis of income poverty and life-style deprivation' in Rose, D. and Harrison, E (eds.) *Social Class in Europe: An Introduction to the European Socio-Economic Classification*. London: Routledge.

Watson, D., Lunn P., Quinn E. and Russell, H. (forthcoming) *Multiple Inequalities in Ireland: An Analysis of Census 2006* Dublin: The Equality Authority and The Economic and Social Research Institute

Watson, D. and Nolan, B. (2010) *A Social Portrait of People with Disability in Ireland*. Dublin: The Department of Community, Equality and Gaeltacht Affairs.

Whelan, C.T., Layte, R., Maitre, B. and Nolan, B. (2001), 'Income, Deprivation and Economic Strain: An Analysis of the European Community Household Panel', *European Sociological Review*, 17, 4: 357-372.

Whelan, C.T., Layte, R. and Maître B. (2003), 'Persistent Income Poverty and Deprivation in the European Union', *Journal of Social Policy*, 3, 1:1-18.