

Wage differentials and disability: discrimination or not?

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Abstract

Using data from the European Community Household Panel (1995-2001), we estimated corrected wage equations for daily activities limited and non-daily activities limited disabled and non-disabled. The results show that in most of the European countries there exists a wage differential in favour of people with disabilities not limited for daily activities, compared to people without disabilities, especially for males, whereby the unexplained component contributes to raise this wage differential. The results confirm that in general wage differentials against people with disabilities are related with unobserved productivity differences and not only with employers' prejudices.

Keywords: Disability, wage differentials, discrimination, prejudices.

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1. Introduction

The fight against any type of discrimination toward disabled people by the effective application of equal opportunities principles at work has become one of the major challenges identified by the European Union for the near future.

Nowadays, a large number of international studies have been published analysing different aspects of disability as, for example, its negative effects on labour participation (e.g. Parsons, 1980; Kidd *et al.*, 2000; Jones, 2006) and wage levels (e.g. Baldwin and Johnson, 1994 and 1995; Kidd *et al.*, 2000), among others. With respect to wage differentials, Baldwin and Johnson (1994) points out as we decompose the observed wage difference into components the unexplained component (commonly called discrimination) must be interpreted with caution due to the characteristics that identify disabled people may also restrict their productivity. Namely, this component may reflect the existence of employer's prejudice and unobserved productivity difference. Our objective is to correct this drawback through the use a data base (European Community Household Panel, ECHP) which allows us to distinguish three different groups of individuals (Gannon, 2005): daily activities limited disabled, non-daily activities limited disabled and non-disabled¹. Since we can identify the non-daily activities limited disabled we assume that these individuals do not reduce their productivity as result of their disability (~~due to~~ they do not experience limitations in their daily activities because of adaptation or thanks to personal or technical support) and hence the entire unexplained component of the wage differential between non-daily activities limited disabled and non-disabled must be considered as discrimination and not contaminated by unobserved productivity differences linked to disability, which is a novelty in the

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¹ Gannon (2005) uses this classification of disabled people to analyse the effects of disability on labour participation for Ireland (period 1995-2000).

literature on disability and wages, and allow us to estimate a measure of wage discrimination against disabled net of productivity differences.

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2. Data and methodology

The data on disability and wage levels are taken from the ECHP for the period 1995-2001. This survey contains detailed information on individuals' labour market activities and health status. The sample consists of working-age individuals (males and females), aged 15 to 64, from 11 European countries for which data are available (Spain, Portugal, Italy, UK, Austria, Belgium, Denmark, Finland, Ireland, The Netherlands and Germany). Our measure of disability is based on the response to the following question (PH002): "Do you have any chronic, physical or mental health problem, illness or disability?". If the person answers "Yes" to this question, the follow-up question (PH003), "Are you hampered in your daily activities by this chronic or mental health problem, illness or disability?", allows us to know how severe the disabilities are². Following Gannon (2005), it is possible distinguish three groups: a) those reporting they are severely limited in their daily activities b) those who are limited to some extent; and c) those who report such a condition but which does not limit them in their daily activities³. The first two groups can be considered as "daily activities limited disabled", whereas the third as "non-daily activities limited disabled". The non-disabled individuals are identified as those who respond "No" to the first question⁴.

² For the importance of daily activities in disability definitions see, for example, Gudex and Lafortune (2000).

³ She notes that a person may respond as not limited in daily activities, but without adaptation it is possible that they should be classified as severely/to some extent limited.

⁴ Some authors have argued that self-classification may lead to overestimation (when the individuals try to justify situations of inactivity or limited work activity) or underestimation (when the disability is regarded as a stigma) of the prevalence of disability rates (Chirikos and Nestel, 1984; Kreider 1999). However, according to García-Serrano and Malo (2002), this bias is unlikely to appear on the ECHP because question PH003 does not refer to working disability (but to daily activities in general) and the questions regarding labour market and disability are too far down the questionnaire for the respondent to make a connection, which would be a necessary condition for this type of bias.

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According to the traditional labour force participation model, the individual decides enter the labour market if the employer's wage offer is equal or higher than his/her reservation wage. Following the methodology used in other works (e.g. Baldwin and Johnson, 1994 and 1995; Kidd *et al.*, 2000), we estimate separately the following corrected wage equations for the daily activities limited disabled (D_1), non-daily activities limited disabled (D_2) and non disabled (N):

$$\text{Ln}W_{ij} = X'_{ij} \beta_j + c\lambda_{ij} + v_{ij} \quad (j = D_1, D_2, N) \quad [1]$$

where $\text{Ln}W_{ij}$ is the logarithm of the hourly wage, X_{ij} is a vector of characteristics related to the productivity for the individual i of group j , β_j represents the associated returns from those characteristics, and λ is the selection term (the inverse Mills ratio) obtained from the Heckman two-stage method (1979).

To decompose the observed wage difference we use the method proposed by Reimers (1983) and previously used in earlier studies (e.g Kidd *et al.*, 2000). The total wage difference between non-disabled (N) and disabled (D) workers can be decomposed as follows:

$$\begin{aligned} \overline{\text{Ln}W_N} - \overline{\text{Ln}W_D} = & (\bar{X}_N - \bar{X}_D) [d\hat{\beta}_N + (1-d)\hat{\beta}_D] + [\bar{X}_N(1-d) + \bar{X}_D d] (\hat{\beta}_N - \hat{\beta}_D) \\ & + (\hat{c}_N \bar{\lambda}_N - \hat{c}_D \bar{\lambda}_D) \quad (D = D_1, D_2) \end{aligned} \quad [2]$$

where the left-hand side of equation [2] represents the mean observed wage difference between non-disabled and disabled. The first term on the right-hand side shows the part of wage difference that is attributable to differences in productivity, whereas that the second term represents the part of the wage difference which is unexplained. This unexplained term is generally interpreted as discrimination, but the distinction between daily activities limited and non-daily activities limited disabled allows us to control for

unobserved productivity difference and obtain a “true” measure of the wage discrimination against people with disabilities. The third term measures that part attributable to the selection term. Following Baldwin and Johnson (1994 and 1995) we set the matrix $d = 1$, namely, we suppose that the non-discriminatory norm is the observed wage structure of the non-disabled.

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3. Results

Results are shown in Table 1, disaggregated by gender. The ‘natural’ experiment is provided by panel A of this Table.

The total wage differential is usually either not statistically significant or in favour of non-daily activities limited individuals instead of non-disabled persons, especially for males. For these groups, the difference attributed to returns should exclusively reflect discrimination, because there are not differences in productivity related to disability (because they are not limited). Considering males, only in the two countries with a significant wage differential in favour of non-daily activities limited disabled, we find discrimination against them in Portugal (with -383%, mainly compensated by the selection term) and Germany (with -71%, mainly compensated by the characteristics term).

For females, we only find a difference linked to discrimination against this group of disabled people when the total wage differential is positive (and statistically significant). The only country where we find discrimination against these disabled persons for males and females is the United Kingdom. Exclusively for females, we also find discrimination in Ireland and Germany.

Comentario [MAM1]: Para el caso de las mujeres también hay discriminación contra ellas en Irlanda (161) y Alemania (152). Quizás deberíamos ponerlo.

Panel B of Table 1 shows the comparison between non-disabled people and daily activities limited disabled people. In all cases, when the total wage differential is statistically significant (except for females in Italy) non-disabled people earn higher

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wages. For males (and again, when the total differential is statistically significant), the returns term has a positive contribution to the total wage differential (with the exception of Ireland). For females, we obtain the same result, except for Italy as we mentioned before.

Therefore, we find evidence supporting that wage differentials against people with disabilities are probably linked (at least partially) to non-observed productivity differences related to disability. Anyway, we can not discharge that prejudices against disabled people will be more intense when they experience limitations in their daily activities. Usually, the intensity of prejudice was linked to the visibility of impairments related to disabilities (Baldwin and Johnson, 1995), but such eventual feedback between prejudices and disability severity has not been remarked before in economic literature and we do not have any empirical evidence to support or discharge this phenomenon.

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4. Conclusions

Using ECHP data for 11 countries during the period 1995-2001, we have tried to disentangle the effect on wages of discrimination and non-observed productivity differentials linked to disability. We have used the questions provided by the ECHP in order to define a group of people with disabilities not experiencing limitations in their daily activities that have been considered as a group with the same productivity as non-disabled people. Therefore, when comparing both groups any wage differential attributed to 'returns' (using Oaxaca methodology) will be strictly related to discrimination based on prejudices and not of unobserved productivity differences related to disability. We have found that non-daily activities limited people with disabilities earn usually higher wages than non-disabled individuals or, at least, not less. In addition, differences in returns usually increase such difference, confirming that this

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group of people with disabilities in general does not suffer wage discrimination related to disability. However, we obtain some exceptions as the UK case, where [in](#) this group of people with disabilities suffers a typical wage discrimination related to disability. Nevertheless, in general our results provide new evidence alerting about an immediate attribution of wage differentials against people with disabilities to discrimination based on employers' prejudices and enhancing the importance of non-observed productivity differences linked to disabilities. An implication of this result for labour market policy is that policymakers must carry out initiatives to increase the productivity of the disabled collective in European countries in order to improve their wages.

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Table 1
Decomposition of wage differences by disability status.

A) NON-DISABLED <i>versus</i> NON-DAILY ACTIVITIES LIMITED																						
	SPAIN		PORTUGAL		ITALY		UK		AUSTRIA		BELGIUM		DENMARK		FINLAND		IRELAND		NETHERLAND		GERMANY	
	%		%	%		%	%		%	%		%	%		%	%		%	%		%	
Males																						
Difference =	-0,020	100	-0,089	100	-0,106	100	0,019	100	-0,056	100	-0,060	100	0,007	100	-0,042	100	-0,083	100	0,015	100	-0,093	100
Characteristics =	-0,039	195	-0,070	79	-0,097	92	-0,022	-115	-0,054	96	-0,049	81	0,000	0	-0,034	81	-0,110	133	-0,014	-96	-0,112	121
Returns =	0,015	-75	0,340	-383	-0,021	20	0,249	1302	-0,069	123	-0,039	65	0,101	1362	-0,055	131	-0,013	16	0,069	466	0,066	-71
Selection =	0,004	-20	-0,359	405	0,012	-11	-0,208	-1087	0,067	-120	0,028	-46	-0,094	-1262	0,047	-112	0,040	-48	-0,040	-270	-0,047	51
Females																						
Difference =	-0,011	100	-0,123	100	-0,104	100	0,026	100	-0,040	100	0,040	100	0,001	100	0,021	100	0,087	100	-0,004	100	0,084	100
Characteristics =	-0,049	445	-0,119	97	-0,093	89	0,017	65	-0,040	100	-0,012	-30	-0,016	-1366	-0,011	-53	0,068	78	-0,002	57	-0,031	-37
Returns =	0,067	-609	-0,347	283	0,219	-211	0,107	409	-0,149	370	0,108	271	0,108	9237	-0,012	-58	0,140	161	-0,077	2181	0,127	152
Selection =	-0,029	264	0,343	-279	-0,230	221	-0,098	-374	0,149	-370	-0,056	-141	-0,091	-7771	0,044	210	-0,121	-138	0,075	-2137	-0,012	-14
B) NON-DISABLED <i>versus</i> DAILY ACTIVITIES LIMITED																						
	SPAIN		PORTUGAL		ITALY		UK		AUSTRIA		BELGIUM		DENMARK		FINLAND		IRELAND		NETHERLAND		GERMANY	
	%		%	%		%	%		%	%		%	%		%	%		%	%		%	
Males																						
Difference =	0,175	100	0,155	100	0,040	100	0,056	100	0,043	100	0,018	100	0,077	100	-0,003	100	0,083	100	0,062	100	0,043	100
Characteristics =	0,119	68	0,112	72	0,019	48	0,014	25	0,006	14	0,000	0	0,033	43	0,010	-357	0,051	61	0,017	27	0,004	9
Returns =	0,086	49	0,306	197	0,027	67	0,142	253	0,139	325	-0,046	-253	0,125	163	-0,060	2142	-0,051	-61	0,165	266	0,072	167
Selection =	-0,030	-17	-0,263	-170	-0,006	-15	-0,100	-178	-0,102	-238	0,064	353	-0,081	-105	0,047	-1685	0,083	100	-0,120	-193	-0,033	-76
Females																						
Difference =	0,121	100	0,074	100	-0,042	100	0,018	100	-0,011	100	-0,016	100	0,038	100	0,046	100	0,072	100	-0,012	100	0,037	100
Characteristics =	0,052	43	0,083	112	-0,022	52	-0,012	-66	-0,042	380	-0,028	173	0,005	13	0,026	57	0,007	10	-0,031	260	0,012	33
Returns =	0,117	97	0,164	221	0,092	-219	0,316	1731	0,010	-90	0,019	-116	0,310	826	0,092	201	0,203	284	0,051	-429	0,060	163
Selection =	-0,048	-40	-0,173	-233	-0,112	266	-0,286	-1565	0,021	-190	-0,007	43	-0,277	-739	-0,072	-158	-0,138	-193	-0,032	269	-0,035	-95

Note: Wage difference significant at $p < 0.05$ (in bold).

Source: European Community Household Panel. Period 1995-2001.