Overeducation, skills and social background: the influence of parental education on overeducation in Spain

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This article focuses on the influence of social background on overeducation in Spain, understanding family socialisation as a source of knowledge and skills gain. The dramatic education expansion experienced in Spain in combination with a high percentage of low skilled jobs has promoted overeducation occurrence to a larger extent than in other OECD countries. Using PIAAC data results suggest that overeducation affects at least over a quarter of the working population. Younger and middle aged workers are more likely to be overeducated compared to the senior ones, while women are more prone to be overeducated than men. Workers whose mother has higher education are less likely to be overeducated compared to those whose mother has basic education, while father's education is practically irrelevant to predict workers' overeducation. Thus, mother's education is the most relevant social background indicator to predict overeducation, even when controlling for firm characteristics and skills level.

Keywords: overeducation, social class, sociology of education, Spain, quantitative methods.

Introduction

The discourse in relation to the knowledge-based economy has stressed the necessity of ensuring that a relevant number of people attain and deploy high levels of skills, putting pressure on national education and training systems to contribute to this objective. However, limited efforts have been directed to address changes in the labour market structure to make sure that there are enough jobs available to employ a growing high-skilled population. While the Human Capital Theory (Becker, 1964) approach expects that educational investments are to be recovered via paid employment and no educational or skills mismatches are expected in the long run, the more recent and critical approach of the new political economy of skills (Lauder, Young, Daniels, Balarin, & Lowe, 2012; Livingstone & Guile, 2012) argues that the global skills supply increases at a faster pace than its demand (Brown, Green, & Lauder, 2011). This slower pace in the demand for high levels of skills facilitates the occurrence of skills mismatches such as overeducation (i.e. being employed in a job for which the worker's education/qualifications and skills exceed those required for the job).

The education expansion experienced for the past decades across most countries has provided citizens with more educational opportunities and outcomes which are less dependent on their social origin (Breen, 2004; Breen & Jonsson, 2007). However, regardless of the decreasing inequality in educational attainment by social background, the later transition into the labour market and into permanent employment is still influenced to a large extent by social origin (Bernardi & Ballarino, 2016).

Unemployment is one of the most obvious forms of disadvantage in the labour market, being those with lower educational attainment and/or a less advantageous social background more likely to experience it. Besides unemployment, overeducation is another form of disadvantage that has been associated to a larger extent with graduates

coming from working class families (Barone & Ortiz, 2011; Mavromaras & McGuinness, 2012; Mavromaras, McGuinness, & Fok, 2009), as family socialisation can be considered as a source of cognitive and non-cognitive skills valued in the labour market (Breen & Goldthorpe, 2001), in addition to formal education and work experience.

Overeducation studies have traditionally focused on the incidence of overeducation in young graduates, since this group experiences educational expansion to a greater extent and are more likely to be overeducated at the beginning of their careers. However, limited efforts have been directed to the study of the phenomenon across the whole working population, regardless of age and educational attainment. The aim of this article is analysing to what extent workers from a more advantageous social background are less likely to experience overeducation compared to workers with the same educational and skills levels from a less advantageous social background.

Educational expansion, overeducation occurrence and social background

Since the publication of the seminal work *The Overeducated American* (Freeman,1976), overeducation has been a controversial term. One could actually wonder if an individual can get too much education in his/her life, but the academic literature has mainly used the term to refer to the quantity and quality of workers' education in relation to their occupation or job. Even if the exact wording slightly changes from one article to another, a worker is considered to be overeducated when the education he/she brings exceeds that required for the occupation or job.

The educational expansion trend — especially at the tertiary educational level — has been experienced — and is still taking place — in several countries around the globe (Marginson, 2016). Nevertheless, educational expansion does not necessarily translate into overeducation incidence. Countries not only differ in their supply of educated individuals, but also in the demand for highly educated workers. Larger shares of higher

educated graduates entering the labour force might increase overeducation figures (Berg, 1970; Livingstone, 2004), but it has also been argued that skills supply (Acemoglu, 1998) and technical progress (Autor, Levy, & Murnane, 2003) help to sustain the demand for high skills. Alternatively, the slower increase of the demand for high levels of skills compared to its supply facilitates the occurrence of skills mismatches such as overeducation (Brown et al., 2011).

Economic theoretical perspectives attempting to explain the overeducation phenomenon[1] have enclosed the discussion within existing views of the labour market (McGuinness, 2006), serving as a way to broaden the Human Capital Theory via the debate on job characteristics to determine wages (Sloane, 2003). Although formal education is considered as the main source of knowledge and skills gain, there are other sources worth considering. Economic theories have taken into account the role of work experience and on-the-job training to explain overeducation, arguing that it is partly explained by a lack of occupation and job specific skills. Yet, no attention has been paid to skills gained in other life domains, such as in family socialisation. Skills gained during interaction with family members (e.g. parents) might provide useful and appreciated skills in the labour market and the broader society (Bourdieu, 1984). Given the value attributed to soft skills (i.e. self-presentation ability, critical thinking, social conventions/behaviours) in the expanding service sector, employers may give more importance to personality characteristics. Consequently, *"ascribed attributes, including the ones that are linked to class origins, may be regarded by employers as having economic value and, therefore, constituting merit from their point of view"*

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[1] For a detailed discussion on overeducation theories see Capsada-Munsech, 2017; Kucel, 2011; Quintini, 2011a.

(Breen & Goldthorpe, 2001). This might gain even more importance in the context of educational expansion, as educational attainment becomes a *"universalistic"* indicator of merit and employers may have more incentives to focus on *"particularistic"* characteristics to select their employees, even if these characteristics are gained via family socialisation. Hence, soft skills gained through family socialisation might be relevant to avoid overeducation, especially among certain occupational groups where these skills are more valued (Capsada-Munsech, 2015).

From a social stratification perspective, this article aims at addressing overeducation as a disadvantageous form of employment and considers family socialisation as a relevant source of skills gain that is likely to influence overeducation probability. Therefore, the main objective of this research is exploring to what extent skills gained via family socialisation might influence the likelihood to avoid overeducation, controlling for educational and cognitive skills levels.

Empirical evidence on overeducation

There is a wide range of empirical studies supporting overeducation differences across social groups and firm characteristics that are relevant for the present research. The following paragraphs summarise the principal findings concerning the main socio-demographic and firm/work-related factors considered in this study.

Empirical evidence supports that overeducation incidence is more common among young workers (Dekker, de Grip, & Heijke, 2002; Frei & Sousa-Poza, 2012; Vahey, 2000) including evidence for Spain (Acosta-Ballesteros, Osorno-del Rosal, & Rodriguez-Rodriguez, 2017; Alba-Ramírez, 1993; Alba-Ramirez & Blazquez, 2003). Limited working experience and more difficulties in clearly signalling to employers what they are able to do are part of the explanation.

Tertiary educated graduates are more likely to experience overeducation compared to individuals with vocational education and training (Mavromaras & McGuinness, 2012). Actually, initial overeducation studies focused on university graduates based on their higher levels of overeducation incidence (Freeman, 1976; Rumberger, 1981). Being the ones with the highest educational level increases their chances to experience overeducation, especially for those who are looking for a job for the first time in their lives.

In theory, married women would be more prone to be overeducated because they would have to look for a job in a locally restricted labour market based on their husbands labour allocation (Frank, 1978). Certainly, there is evidence of more overeducation incidence among married women compared to their husbands, regardless of the size of the labour market (McGoldrick & Robst, 1996). Recent research also shows gender differences in overeducation incidence when controlling for the possibility to commute, being women with children more prone to be overeducated (Büchel & van Ham, 2003). Women might also end up in female-dominated occupations that traditionally require a lower educational and skills level, although the odds are reduced for higher educated women (García-Mainar, García-Martín, & Montuenga, 2014).

Social background also predicts overeducation likelihood among higher educated graduates, as those who also have higher educated fathers and or professional fathers are less likely to be overeducated (Barone & Ortiz, 2011; Mavromaras & McGuinness, 2012; Mavromaras et al., 2009). The main explanations are cultural capital, social networks and information attached to their progenitors that facilitates educational job matches. However, limited empirical studies address workers' social background for a wider working population and it is usually introduced as a control variable (Di Stasio, Bol, & van de Werfhorst, 2015). Recent evidence for Spain suggests that part of the

wage penalty suffered by overeducated workers is due to lower skills levels compared to educationally matched ones, but these skills differentials do not fully explain the wage gap (Nieto & Ramos, 2017).

Evidence for several OECD countries including Spain (Quintini, 2011b) suggests that workers on a fixed-term contract are more likely to be overeducated than those on permanent contracts or on fixed-term of temporary work agency contracts. Overeducation is less likely as firm size increases, probably because larger firms offer a wider range of job opportunities. Finally, empirical evidence also shows that workers in private firms are less likely to be overeducated, but more likely to be undereducated than their public sector counterparts. A potential explanation is the fact that public sector job openings often include explicit qualification requirements. Similarly, some sectors offer a wider range of low-skilled jobs (e.g. construction), increasing overeducation probability in a context of educational expansion.

Data & Methods

The novelty of PIAAC for overeducation studies

The literature on overeducation has relied heavily on qualifications as a proxy to measure individuals' knowledge and skills. However, this implies making some strong assumptions: 1) relevant knowledge and skills for jobs are only acquired via formal education (Halaby, 1994), omitting skills gained in other life domains, such as on-the-job training and family socialisation; 2) no skills heterogeneity is expected across individuals (Verhaest & Omey, 2006), as individuals with same level degrees from different fields of study are considered to have the same skills level, even if one studied medicine and the other one law. Nevertheless, because of limited data availability,

credentials have been used for the past three decades of academic research as a valid measure to identify overeducated workers.

The Survey of Adults' Skills (PIAAC, also known as *PISA for adults*) partly addresses the aforementioned limitations of relying on qualifications by providing measures of skills. The novelty of the survey for overeducation studies is the inclusion of literacy and numeracy skills levels[2], based on a standard skills assessment. PIAAC data is a suitable database to analyse overeducation for the whole working age population, as it provides information for the potentially active population (aged 15-65) with a special focus on education, training and labour status. However, it should be kept in mind that this is a cross-sectional survey and, thus, it provides a picture of a given moment in time which includes several generations educated and socialised in different educational and training systems. Therefore, special attention has to be paid when interpreting results in reference to age groups, as age and generation effects might be confounded.

Sample selection

At the moment there are two available rounds of the Survey of Adults' Skills (2013, including 24 countries, among them Spain; 2016, including 8 other countries). Since this article focuses on the Spanish case, only data from the first round of the survey is analysed. Fieldwork for the first round took place from August 2011 to March 2012, when the effects of the global financial crisis were materialising in Spain. However, it is not clear if this might underestimate overeducation because of the increase on unemployment rates or, conversely, overestimate overeducation because the scarcity of

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[2] The participation in the problem-solving in technology-rich environments skills assessment was optional and Spain did not take part in it.

jobs might have pushed some workers into overeducated positions. Data on other

countries included in the first round is used in the descriptive results to contextualise the

Spanish case from a comparative perspective[3].

Since this article focuses on overeducation, solely people who were in paid employment

at the moment of the interview are considered in the analysis. Only people aged 25 and

over are retained for the analysis, to ensure completion of relevant education and

training for employment. In order to guarantee comparability, self-employed are

removed from the analysis, as they might be able to adapt the job tasks to their

educational level and skills to avoid overeducation.

Measuring overeducation

One of the main questions around the overeducation phenomenon has been how to

measure it. The methodological debate started during the 1980s and it is still ongoing

(Battu, Belfield, & Sloane, 2000; Chevalier, 2003; Groot & van den Brink, 2000;

Halaby, 1994; Hartog, 2000; Kucel, 2011; McGuinness, 2006; Quintini, 2011a;

Verhaest & Omey, 2006). In the past few years more refined measurements have been

proposed thanks to new data sources and methodologies. Recently published studies

using PIAAC data suggest that overeducation and overskilling are capturing two

different phenomenon (Flisi, Goglio, Meroni, Rodrigues, & Vera-Toscano, 2017).

However, there is still no consensus on which is the best overeducation indicator.

Measurement is usually driven by data availability and it is advised to use more than

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[3] Canada and Estonia are not included in the analysis because of lack of information on basic

variables, while Austria and Finland are not considered in the analysis including the

objective indicator because of lack of information in variables required to construct it.

one indicator to cope with the limitations of each type of measurement. In this article two overeducation measures are used: a subjective indicator — relying on Worker's Assessment (WA) of the educational level deemed necessary to get the job — and an objective indicator — based on the Job Analysis (JA) approach, which compares the educational attainment of the worker with that considered necessary in the occupational group.

On account of the inclusion of workers from different age groups and generations who have been subject to different education systems across time, the dependent variable considers three possibilities for employed workers: overeducated, educationally matched and undereducated. In the Spanish case this consideration is even more relevant, in light of the dramatic educational expansion experienced for the past few decades, and undereducation being a more common phenomenon among older generations.

The subjective indicator of overeducation is constructed combining two variables of the Background Questionnaire: the highest education level attained by the worker [B_Q01a] and the education level the worker deems necessary to get the job at the moment of the interview [D_Q12a]. The three possible outcomes of the combination of these two variables are: 1) undereducated, the educational level required to get the job is above that of the worker; 2) educationally matched, the educational level required to get the job equals that of the worker; and 3) overeducated, the educational level required to get the job is below that of the worker.

With regards to the objective indicator, the approach is similar to the subjective indicator, but instead of comparing the highest education level attained by the worker [B_Q01a] with the one deemed necessary to get the job the comparison is done with the

educational level deemed necessary according to the ISCO-2008[4] at 2 digits (International Labour Organisation, 2008). The three possible outcomes of the combination of these two variables are: 1) undereducated, the educational level required for this ISCO code is above that of the worker; 2) educationally matched, the educational level required for this ISCO code equals that of the worker; and 3) overeducated, the educational level required for this ISCO code is below that of the worker.

Independent variables

The main independent variable of interest is social background. While it would be desirable to measure it using parental occupation, unfortunately this information was not asked in the survey. In its absence, mother's and father's education in three category levels (ISCED 0-2 & 3C short; ISCED 3-4; ISCED 5-6[5]) are introduced separately as dummy variables to explore a potential differentiated effect of each progenitor on the overeducation likelihood of their offspring, based on the assumption of knowledge and skills gains within the family context. As a complement, the standard variable of the number of books at home when the interviewee was 16 (≥10; 11-25; 26-100; 101-200; 201-500; <500) is also included as a dummy variable to capture family cultural capital, also related to skills gain within family socialisation.

The individual literacy skills score (continuous variable) is introduced as a control, aiming to make sure that the comparison is among workers with the most similar skills level, in addition to the rest of control variables. Age (from 25 to 65 years, included in

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[4] International Standard Classification of Occupations 2008.

[5] International Standard Classification of Education 1997.

dummies of five years intervals), worker's educational level in three categories (ISCED 0-2 & 3C short; ISCED 3-4; ISCED 5-6) and gender (male; female) are introduced as socio-demographic control variables to identify trends in overeducation across social groups[6]. The rest of control variables refer to the demand side of the labour market and are introduced as dummy variables: type of contract (permanent; fixed-term; fixed-term with employment agency; other types of contract), firm size (≥50; <50), industry sector (agriculture, manufacturing, construction, services) and firm sector (public, non-profit, private). Table 1 displays the descriptive statistics for all variables included in the multivariate analysis, which have been selected based on the theoretical framework proposed to answer the research question and on the main determinants of overeducation deemed relevant in the academic literature (Leuven & Oosterbeek, 2011).

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[6] Immigrant background variable is not introduced in the analysis due to high non-response rate for the selected sample.

Table 1. Descriptive statistics for subjective and objective indicator

	Subjective indicator		Objective indicator	
	Frequency	Percentage Mean (SD)	Frequency	Percentage Mean (SD)
Overeducation				
Undereducated	350	15.89	92	4.22
Matched	1,028	46.66	1,469	67.39
Overeducated	825	37.45	619	28.39
Age groups				
Aged 25-29	258	11.71	250	11.47
Aged 30-34	347	15.75	341	15.64
Aged 35-39	374	16.98	367	16.83
Aged 40-44	384	17.43	384	17.61
Aged 45-49	331	15.02	326	14.95
Aged 50-54	257	11.67	258	11.83
Aged 55-59	177	8.03	178	8.17
Aged 60-65	75	3.40	76	3.49
Gender				
Male	1,156	52.47	1,155	52.98
Female	1,047	47.53	1,025	47.02
Educational level				
ISCED 0-2 & 3C short	769	34.91	736	33.76
ISCED 3-4	463	21.02	476	21.83
ISCED 5-6	971	44.08	968	44.40
Mother's education				
ISCED 0-2 & 3C short	1,909	86.65	1,890	86.70
ISCED 3-4	167	7.58	163	7.48
ISCED 5-6	127	5.76	127	5.83
Father's education				
ISCED 0-2 & 3C short	1,661	75.40	1,639	75.18
ISCED 3-4	304	13.80	300	13.76
ISCED 5-6	238	10.80	241	11.06
Number of books at home				
10 books or less	346	15.71	339	15.55
11-25 books	430	19.52	419	19.22
26-100 books	794	36.04	788	36.15
101-200 books	292	13.25	291	13.35
201-500 books	229	10.39	229	10.50
More than 500 books	112	5.08	114	5.23
Skills score				
Literacy	2,203	261.598 (46.927)	2,180	261.6888 (47.003)
Type of contract				
Permanent	1,664	75.53	1,643	75.37
Fixed-term	367	16.66	368	16.88
Fixed-term of temporary work agency	29	1.32	27	1.24
Other types of contract	143	6.49	142	6.51
Firm's size				
50 or less employees	1,467	66.59	1,454	66.70
More than 50 employees	736	33.41	726	33.30
Industry sector				
Agriculture	72	3.27	74	3.39
Manufacturing	701	31.82	662	30.37
Construction	134	6.08	138	6.33
Services	1,296	58.83	1,306	59.91
Firm sector				

Public	593	26.92	592	27.16
Non-profit	30	1.36	29	1.33
Private	1,580	71.72	1,559	71.51
N	2,203	100.00	2,180	100.00

Note: observations included in the multivariate analysis.
Source: author's elaboration, based on PIAAC 2013 (OECD).

Analytical strategy

On account of the three categories included in the dependent variables, the multivariate analysis consists of a set of multinomial regression models[7] performed for both dependent variables (i.e. subjective and objective overeducation). A total of eight models have been performed introducing independent variables separately, in order to consider the influence of each one[8]. Model 1 includes age, gender and literacy skills score; model 2 adds worker's educational level; model 3 adds father's and mother's educational level; model 4 incorporates number of books at home (cultural capital), model 5 incorporates type of worker's contract; model 6 adds firm size; model 7 industry sector; and model 8 firm sector (public/private). The main results corresponding to models 1, 2, 3, 4 and 8 are presented in regression coefficient estimates. Differences in the likelihood to be undereducated, matched or overeducated across age groups are presented in predicted probabilities to ease the comparison across groups, while interaction effects corresponding to parental education and gender are displayed in marginal effects to facilitate the interpretation of results and the comparison across categories.

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[7] All multinomial regressions have been weighted and estimated using a survey jackknife approximation [svy jackknife].

[8] Complete regression coefficient tables including all models are available upon demand.

Results & Discussion

Educational level, low skilled jobs and overeducation in comparative terms

Overeducation is a relationship between education and occupation that takes place in the labour market; in order to contextualise the phenomenon it is worth exploring the relationship between the supply and demand of work by educational level. Considering as the supply the amount of individuals with a given education level[9], we compare the educational attainment of the working age population (25-65) across several OECD countries. While Italy (17.54%), Austria (20.72%) and the Czech Republic (22.55%) present the lowest shares of higher educated workers (ISCED 5-6), Finland (51.08%), Norway (46.55%), Denmark (46.21%) the US (45.90%) and Ireland (45.07%) show the highest. In Spain 42.45% of the 25-65 population attained higher education, which is above the average of the countries considered in the survey. Even if Spain is among the countries with a high share of higher educated population, it contrasts with the fact that it is the second country with the largest percentage of people with low educational attainment (ISCED 0-2) (33.71%) after Italy (38.73%) and way above the OECD average (13.10%).

With regards to the demand side, we consider the share of people employed in high- and low-skilled jobs[10]. Spain (13.55%), Italy (13.18%), France (11.31%) and Ireland

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[9] International Standard Classification of Education (ISCED). ISCED 0-2 corresponds to lower secondary education levels or below; ISCED 3-4 to upper secondary education levels; ISCED 5-6 to tertiary education levels.

[10] Variable ISCOSKIl4 in PIAAC database. Skilled jobs include skilled professions at skill level 4 (ISCED 5a-6 required); semi-skilled white collar jobs at skill level 3 (ISCED 5b required);

(8.60%) present the largest share of workers employed in low-skilled jobs with Sweden (3.82%), Norway (3.90%), the US (5.78%) and Finland (5.86%) at the other edge. Conversely, the share of people employed in high-skilled jobs in Spain is only 34.81%, 10 perceptual points below the OECD average (44.61%).

Denmark, Norway, Sweden and the US show more than half of their workers employed in high-skilled jobs, at the same time that maintain the percentage of people employed in low-skilled jobs below the OECD average. All these countries also present above average percentages of people with higher educational attainment. Hence, these are clear examples of labour markets supplying and demanding high skills and less prone to overeducation occurrence. On the contrary, Spain presents a different picture with a potential mismatch between the supply and demand of skills. Even if the educational attainment is polarised between high and low education levels, the above average demand for low-skilled jobs promotes overeducation occurrence.

As suggested by the comparison of the supply and demand of education and skills across countries, the share of overeducation displayed by the subjective indicator is lower among countries with a greater demand of high-skilled jobs: in Finland (21.59%), the Netherlands (22.39%), Sweden (25.67%), Denmark (27.08%) and the US (29.20%) the overeducation rate in the subjective indicator is below the OECD average (30.30%), while Ireland (36.29%), Spain (38.37%) and France (43.41%) present above average overeducation shares in the subjective indicator. The objective indicator of overeducation presents similar results, although estimated percentages are lower across all countries. France (19.88%), Ireland (23.81%) and Spain (27.35%) present above

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semi-skilled blue collar jobs at skill level 2 (ISCED 2-3 required); elementary jobs include occupations at skill level 1 (ISCED 1 required).

average figures, while Norway (16.99%), Denmark (16.48%), the Netherlands (15.32%) and Sweden (11.81%) display the lowest.

Therefore, in comparative terms Spain can be considered as a good case to study overeducation and assess the influence of social background, given the widespread of the phenomenon among the working population.

The influence of social background on overeducation in Spain

In line with the academic literature, a simple bivariate analysis to characterise the dependent variables in relation to the main independent variables shows that the share of younger workers experiencing overeducation is larger than that of senior workers. For instance, 38.43% of workers aged 25-29 are overeducated, while this percentage reduces to 25.97% for those aged 55-59 when using the subjective indicator (26.04% vs 15.38%, objective). Also in line with previously reported evidence, the share of overeducated women is slightly higher than that of men: 31.70% of women vs 30.16% of men (subjective) and 22.05% of women vs 18.35% of men (objective) are overeducated. Overeducation is also more present among those who hold ISCED 5-6 qualifications (34.62%, subjective; 33.90%, objective) compared to those with ISCED 2 or less (21.57%, subjective; 17.72%, objective). Regarding parental education, those who have a higher educated mother or father also present higher percentages of overeducation: 32.11% (subjective) / 23.65% (objective) of those with a higher educated mother are overeducated, compared to 29.74% (subjective) / 18.98% (objective) of those with a mother with ISCED 2 or less. Similar results hold when using father's educational level.

As argued above, the advantage of using PIAAC data compared to previous studies is that it allows us to control for the skills levels and compare workers with similar skills and education levels. In the following paragraphs the results of the multinomial analysis

for the two dependent variables are presented, addressing the differences by age groups, gender and parental educational level, controlling for the skills level in literacy.

From a Human Capital perspective, one of the main claims is that overeducation is an educational mismatch taking place at the beginning of workers' careers due to limited work experience and/or asymmetrical information between workers and employers. However, if we have a look at the likelihood to be overeducated in Spain across age groups, the results do not support the Human Capital approach, as overeducation is also likely to be found among workers in more advanced stages of their careers. Figures 1 (subjective indicator) and 2 (objective indicator) present the predicted probabilities to be overeducated, educationally matched and undereducated by age group. In both cases the probability to be overeducated is slightly higher among younger cohorts than for the elder ones. Those aged 30 to 44 (subjective) / 40-44 (objective) are the most likely to be overeducated. Compared to these younger and middle-aged groups, only the group aged 55-59 are significantly less likely to be overeducated for both indicators of overeducation. Nevertheless, since this is a cross-sectional dataset we cannot be sure to what extent this is a generational or an age effect. As also suggested in both figures, undereducation is more likely among the eldest workers and we cannot clearly disentangle the age effect (i.e. elder workers are more prone to be undereducated) from the generational effect (i.e. older generations had more limited access to education and, thus, are more prone to be considered undereducated, even if they have the right skills and knowledge for the job).

Figure 1. Predicted probabilities to be overeducated, matched and undereducated by age group (subjective indicator), Spain.
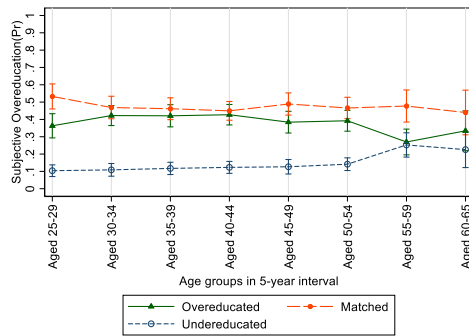
Figure 2. Predicted probabilities to be overeducated, matched and undereducated by age group (objective indicator), Spain.
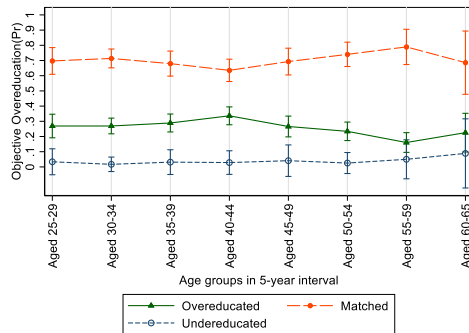
With regards to gender, results from the multinomial regression models[11] (Tables 2 and 3) suggest that women are more likely to be overeducated than men across all age groups ― being the reference category matched workers ―, although differences between men and women are only statistically significant when using the objective indicator. Potential explanations to these differences have been attributed to access to geographically restricted labour markets among married women and/or with children (Büchel & van Ham, 2003; McGoldrick & Robst, 1996). In addition to the previous, another potential explanation would be the fact that women have beneficiated from educational expansion to a larger extent than men, getting higher educational levels. Regardless of this fact, women still experience lower employment rates and wages (Arulampalam, Booth, & Bryan, 2007), and so could also apply to overeducation. With regards to social background variables, the most relevant result is that having a mother with higher education reduces the chances to fall into overeducation, compared to those with a mother with low educational attainment. Again, results are only statistically significant for the objective indicator. However, the influence of mother's education remains relevant and statistically significant even when introducing firm characteristics in the model.

Table 2. Likelihood to be undereducated and overeducated (Subjective indicator), Spain. Multinomial regression coefficients (odds), models 1-4 & 8

	M1		M2		M3		M4		M8	
RC: Matched	Under-educated	Over-educated	Under-educated	Over-educated	Under-educated	Over-educated	Under-educated	Over-educated	Under-educated	Over-educated
RC: Aged 25-29										
Aged 30-34	0.0537	0.204	0.107	0.225	0.19	0.231	0.207	0.206	0.173	0.279
	(0.25)	(0.191)	(0.26)	(0.196)	(0.262)	(0.198)	(0.264)	(0.199)	(0.268)	(0.197)
Aged 35-39	0.0664	0.169	0.175	0.242	0.265	0.208	0.301	0.172	0.263	0.291
	(0.195)	(0.216)	(0.206)	(0.226)	(0.216)	(0.231)	(0.217)	(0.229)	(0.221)	(0.232)
Aged 40-44	0.114	0.167	0.224	0.235	0.339	0.207	0.369	0.18	0.339	0.332
	(0.241)	(0.2)	(0.247)	(0.203)	(0.253)	(0.208)	(0.254)	(0.209)	(0.262)	(0.213)
Aged 45-49	0.057	-0.00457	0.139	0.0705	0.246	0.0333	0.321	-0.0196	0.283	0.142

[11] Reference category is educationally matched workers.

	(0.23)	(0.215)	(0.23)	(0.222)	(0.235)	(0.228)	(0.242)	(0.227)	(0.242)	(0.231)
Aged 50-54	0.162	0.0514	0.292	0.0929	0.377	0.062	0.451*	-0.00526	0.442*	0.211
	(0.234)	(0.193)	(0.246)	(0.205)	(0.245)	(0.202)	(0.244)	(0.206)	(0.248)	(0.211)
Aged 55-59	0.693**	-0.367	0.796***	-0.318	0.930***	-0.352	1.030***	-0.432*	0.997***	-0.188
	(0.274)	(0.233)	(0.284)	(0.246)	(0.28)	(0.247)	(0.282)	(0.253)	(0.295)	(0.264)
Aged 60-65	0.507	-0.247	0.697**	-0.124	0.847**	-0.136	0.947***	-0.187	0.965***	0.108
	(0.317)	(0.293)	(0.33)	(0.3)	(0.338)	(0.305)	(0.343)	(0.306)	(0.36)	(0.309)
RC: Men										
Women	-0.575***	0.144	-0.448***	0.13	-0.443***	0.134	-0.456***	0.138	-0.471***	0.15
	(0.132)	(0.0987)	(0.138)	(0.101)	(0.136)	(0.101)	(0.135)	(0.101)	(0.139)	(0.106)
Literacy Skills Score	-0.003***	-0.00064	0.0017	-0.00155	0.00164	-0.0012	0.000543	-0.000318	0.00101	0.000229
	(0.00146)	(0.0012)	(0.00158)	(0.0014)	(0.00155)	(0.0014)	(0.00167)	(0.0014)	(0.00177)	(0.0014)
RC: ISCED 0-2 & 3C short										
ISCED 3/4			0.615***	1.173***	0.590***	1.182***	0.519***	1.266***	0.505***	1.358***
			(0.179)	(0.152)	(0.185)	(0.153)	(0.188)	(0.157)	(0.186)	(0.155)
ISCED 5/6			-1.375***	0.298**	-1.398***	0.329**	-1.494***	0.429***	-1.494***	0.605***
			(0.209)	(0.15)	(0.225)	(0.152)	(0.228)	(0.154)	(0.228)	(0.157)
RC: Mother ISCED 0-2 & 3C short										
Mother ISCED 3/4					-0.333	-0.318	-0.39	-0.297	-0.367	-0.318
					(0.333)	(0.222)	(0.335)	(0.23)	(0.331)	(0.227)
Mother ISCED 5/6					0.809**	-0.0909	0.810**	-0.059	0.822**	-0.0783
					(0.395)	(0.249)	(0.401)	(0.255)	(0.411)	(0.263)
RC: Father ISCED 0-2 & 3C short										
Father ISCED 3/4					0.483**	0.0928	0.421*	0.135	0.364	0.165
					(0.23)	(0.171)	(0.234)	(0.175)	(0.239)	(0.175)
Father ISCED 5/6					-0.54	-0.143	-0.635	-0.0778	-0.672*	-0.0806
					(0.388)	(0.213)	(0.391)	(0.227)	(0.402)	(0.227)
RC: 10 books or less										
11-25 books							0.199	-0.314*	0.21	-0.238
							(0.243)	(0.173)	(0.238)	(0.173)
26-100 books							0.419*	-0.491***	0.388*	-0.413**
							(0.233)	(0.179)	(0.229)	(0.18)
101-200 books							0.411	-0.364	0.356	-0.266
							(0.297)	(0.233)	(0.292)	(0.234)
201-500 books							0.658*	-0.466**	0.625*	-0.388*
							(0.352)	(0.226)	(0.358)	(0.23)
More than 500 books							0.359	-0.685**	0.329	-0.605*
							(0.5)	(0.344)	(0.502)	(0.355)
Constant	0.615	-0.297	-0.799	-0.488	-0.918*	-0.544	-0.927*	-0.458	-1.406*	-0.39
F	$F_{(18, 62)}$ 3.14		$F_{(22, 58)}$ 9.77		$F_{(30, 50)}$ 6.47		$F_{(40, 40)}$ 6.08		$F_{(58, 22)}$ 5.38	
Observations	2203		2203		2203		2203		2203	

RC: Reference Category

Standard errors in parenthesis

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: model 8 includes firm and work-related characteristics not displayed in the table.
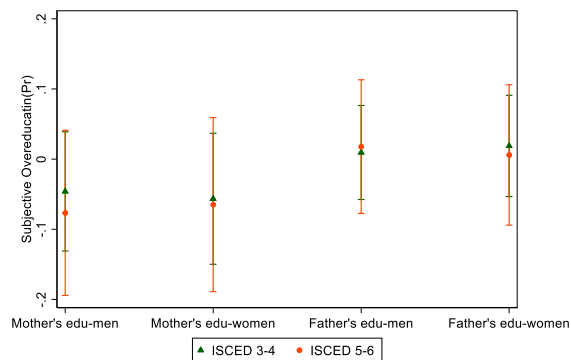
Source: author's elaboration, based on PIAAC 2013 (OECD).

Table 3. Likelihood to be undereducated and overeducated (Objective indicator), Spain. Multinomial regression coefficients (odds), models 1-4 & 8

	M1		M2		M3		M4		M8	
RC: Matched	Under-educated	Over-educated	Under-educated	Over-educated	Under-educated	Over-educated	Under-educated	Over-educated	Under-educated	Over-educated
RC: Aged 25-29										
Aged 30-34	-0.655	-0.00801	-0.722	-0.05	-0.766	-0.0769	-0.777	-0.0988	-0.742	-0.0571
	(0.535)	(0.229)	(0.532)	(0.250)	(0.532)	(0.249)	(0.531)	(0.253)	(0.548)	(0.254)
Aged 35-39	0.0411	0.145	-0.101	0.0412	-0.17	-0.0447	-0.195	-0.106	-0.133	0.00143
	(0.459)	(0.220)	(0.458)	(0.217)	(0.448)	(0.224)	(0.447)	(0.227£	(0.457£	(0.236)
Aged 40-44	0.00237	0.346	-0.133	0.27	-0.191	0.165	-0.225	0.129	-0.183	0.268
	(0.459)	(0.212)	(0.458)	(0.236)	(0.452)	(0.241)	(0.452)	(0.242)	(0.459£	(0.246)
Aged 45-49	0.3	0.0258	0.135	-0.0273	0.0546	-0.136	0.0496	-0.194	0.0906	-0.0204
	(0.503)	(0.226)	(0.498)	(0.236)	(0.484)	(0.244)	(0.480)	(0.252)	(0.486£	(0.255)
Aged 50-54	-0.272	-0.183	-0.356	-0.331	-0.422	-0.437*	-0.451	-0.537**	-0.4	-0.281
	(0.491)	(0.223)	(0.486)	(0.244)	(0.481)	(0.252)	(0.474)	(0.258)	(0.495£	(0.267)
Aged 55-59	0.373	-0.629**	0.245	-0.773**	0.172	-0.89***	0.145	-0.94***	0.205	-0.633*
	(0.552)	(0.288)	(0.564)	(0.318)	(0.554)	(0.323)	(0.572)	(0.327)	(0.578£	(0.328)
Aged 60-65	0.969*	-0.197	0.798	-0.331	0.755	-0.418	0.742	-0.429	0.849	-0.0781
	(0.572)	(0.384)	(0.587)	(0.386)	(0.590)	(0.392)	(0.609)	(0.400)	(0.618£	(0.402)
RC: Men										
Women	-0.291	0.36***	-0.197	0.183	-0.2	0.182	-0.198	0.196*	-0.108	0.298**
	(0.238)	(0.108)	(0.261)	(0.113)	(0.263)	(0.113)	(0.260)	(0.116)	(0.257£	(0.118)
Literacy Skills Score	-0.0058**	0.0021*	-0.00261	-0.01***	-0.00214	-0.01***	-0.00193	-0.01***	-0.00168	-0.004**
	(0.00287)	(0.0012)	(0.00371)	(0.0015)	(0.00374)	(0.0015)	(0.00351)	(0.0016)	(0.00358)	(0.0016)
RC: ISCED 0-2 & 3C short										
ISCED 3/4			-25.9***	-0.486**	-24.5***	-0.465**	-24.5***	-0.418**	-25.9***	-0.357*
			(5.912)	(0.198)	(6.420)	(0.197)	(8.072)	(0.194)	(1.655)	(0.208)
ISCED 5/6			-0.549	1.61***	-0.444	1.70***	-0.437	1.81***	-0.289	2.08***
			(0.359)	(0.176)	(0.372)	(0.179)	(0.397)	(0.1750)	(0.422)	(0.196)
RC: Mother ISCED 0-2 & 3C short										
Mother ISCED 3/4					-0.306	-0.0634	-0.27	0.019	-0.225	0.00102
					(0.628)	(0.220)	(0.622)	(0.225)	(0.617)	(0.230)
Mother ISCED 5/6					-1.515	-0.98***	-1.426	-0.84***	-1.417	-0.86***
					(21.74)	(0.270)	(21.69)	(0.286)	(22.69)	(0.282)
RC: Father ISCED 0-2 & 3C short										
Father ISCED 3/4					0.328	-0.181	0.346	-0.0757	0.335	-0.0391
					(0.373)	(0.151)	(0.358)	(0.154)	(0.360)	(0.160)
Father ISCED 5/6					-0.401	-0.0418	-0.246	0.158	-0.216	0.19
					(0.651)	(0.178)	(0.674)	(0.183)	(0.661)	(0.186)
RC: 10 books or less										
11-25 books							-0.0704	0.149	-0.0484	0.206
							(0.351)	(0.213)	(0.359)	(0.213)
26-100 books							-0.0795	-0.287	-0.0949	-0.247
							(0.309)	(0.193)	(0.323)	(0.196)

101-200 books							0.174	-0.410*	0.179	-0.341
							(0.377)	(0.242)	(0.402)	(0.261)
201-500 books							-0.0962	-0.461*	-0.119	-0.421*
							(0.580)	(0.244)	(0.580)	(0.247)
More than 500 books							-1.310*	-1.01***	-1.285*	-0.944**
							(0.693)	(0.374)	(0.677)	(0.370)
Constant	-1.026	-2.042***	-1.26	-0.262	-1.311	-0.265	-1.309	-0.436	-1.382	-1.002*
F	F(18, 62) 3.23		F(22, 58) 8.64		F(30, 50) 5.93		F(40, 40) 5.78		F(58,22) 76.36	
Observations	2,180		2,180		2,180		2,180		2,180	

RC: Reference Category

Standard errors in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

Note: model 8 includes firm and work-related characteristics not displayed in the table.

Source: author's elaboration, based on PIAAC 2013 (OECD).

Limited differences have been identified between men and women in the influence of parental education on the likelihood to be overeducated. Yet, clear differences are denoted between the influence of mother's and father's education. Figure 3 (subjective) and 4 (objective) suggest that, compared to those that have a mother with low educational attainment (i.e. ISCED 0-2), men and women with a mother with medium educational level (ISCED 3-4) or higher educational level (ISCED 5-6) are less likely to be overeducated (i.e. odds below zero). These results hold for both indicators, but these are only statistically significant for the objective indicator when having a higher educated mother ($P \leq 0.05^*$). Conversely, having a medium or higher educated father increases the likelihood to be overeducated for men and women, compared to those with a father with low educational attainment, despite the fact that results are only statistically significant for the objective indicator when having a higher educated father ($P \leq 0.01^{**}$). The size effect of mother's educational level is substantially larger than that of father's educational level, regardless of the gender of the worker. Hence, evidence suggests that mother's education plays a more influential role in predicting overeducation than that of the father.

Although results are not always statistically significant, the trend of mother's and father's education on overeducation likelihood remains similar across ages: having a mother with medium or higher education decreases the probability to be overeducated, being the gap between these two educational levels larger for older cohorts; whereas having a father with medium or higher educational level always increases the probability to be overeducated, although the size effect is very small.

On account of the delayed educational expansion experienced by women compared to men in Spain, these results suggest that mother's educational background has a more important role in supporting and making a difference in their children's position into the labour market and, more specifically, to prevent them from overeducation.
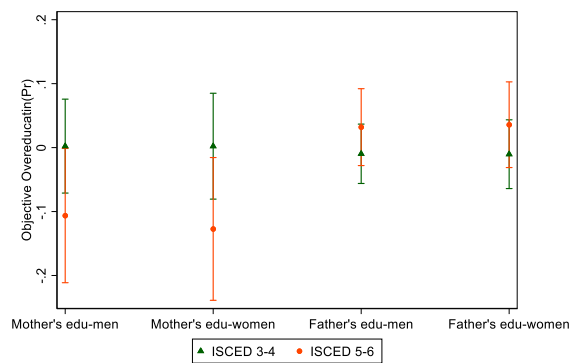
Figure 3. Marginal effects to be overeducated by parental education and gender (subjective indicator), Spain.

Note: Reference category is Mother/Father ISCED 0-2.

Source: Author's elaboration, based on PIAAC (OECD).

Figure 4. Marginal effects to be overeducated by parental education and gender (objective indicator), Spain.

Note: Reference category is Mother/Father ISCED 0-2.

Source: Author's elaboration, based on PIAAC (OECD).

Conclusion

The educational expansion combined with the lower pace in the demand for high-skilled jobs has resulted in the appearance of overeducation in several countries. Labour economics literature has partly attributed differences between overeducated and educationally matched workers to differences in occupation or job specific skills, which can be later gained with on-the-job training and work experience.

From a sociological perspective it has been suggested that in addition to formal education and work experience family socialisation is also a potential source of skills gain (Breen & Goldthorpe, 2001). In a context of educational expansion formal educational attainment becomes a more common trait and skills gained in other life spheres — such as in the family — might make the difference.

Using PIAAC data, it is possible to compare overeducated workers with similar education and skills levels, at the same time that controlling for parental education as a source of skills gain via family socialisation. Spain is an interesting case of study given the recent dramatic educational expansion experienced across social groups, in combination with a labour demand that has not fully absorbed this growing pool of skilled workers, providing as a result the emergence of overeducation (Alba-Ramirez & Blazquez, 2003).

Results for the Spanish case show that overeducation is a widespread phenomenon across the working age population. It affects at least over a quarter of employed workers across several age groups, with women being more likely to be overeducated, regardless of age. Having a higher educated mother reduces overeducation likelihood, compared to those with a lower educated mother, while father's education is practically irrelevant to predict workers' overeducation probability. Therefore, the main contribution of this article is addressing the influence of social background on overeducation for the whole working population, considering family socialisation as another potential source of skills gain that can be valued and used in the labour market.

Finally, a number of limitations are to be pointed out. First, further exploration of the role of social background is required using more refined measures (e.g. parental occupation at the age of 15). Second, the impossibility to differentiate age from generational effects in PIAAC leaves us with the question of to what extent overeducation probability is likely to decrease as age increases, or it is merely dependent on the educational composition of the cohort and the availability of skilled jobs. Third, comparisons between Spain and similar (e.g. Ireland) and different countries (e.g. Denmark, Sweden) with regards to the supply and demand of education and skills would allow to further explore the role of social background on overeducation incidence.

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