

Overeducation as status inconsistency: Effects on job satisfaction, subjective well-being and the image of social stratification

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Abstract

In this article, we aim to study the effects of the experience of overeducation, understood as a specific form of status inconsistency, in three areas: job satisfaction, subjective well-being, and the image of social stratification and the economic achievement process. For this, we use survey data from Spain and employ analytical procedures that have not previously been applied to this field (diagonal reference models). Thus, we make an empirical contribution (we test hypotheses concerning the impact of overeducation on specific types of attitudes) and a methodological contribution (we show the fruitfulness of applying to the study of overeducation a standard procedure for analysing the effects of social mobility and status inconsistency). We conclude that the experience of overeducation has some negative effects, but they are mostly confined to the sphere of work. The education/employment inconsistency reduces job and economic satisfaction, but does not affect overall subjective well-being or the image of social stratification.

Keywords

Overeducation, educational mismatch, job satisfaction, subjective well-being, social stratification, status inconsistency

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Overeducation as status inconsistency: effects on job satisfaction, subjective well-being and the image of social stratification

The purpose of this article is to study the effects of the experience of overeducation in three areas: job satisfaction, subjective well-being and the image of social stratification and the economic achievement process. Overeducation is an increasingly important phenomenon that is thought to have negative effects both at the individual and the societal levels. Our objective is to test this assumption using survey data and analytical procedures that have not previously been applied to this field. We used an objective measurement of overeducation (job analysis method) and an estimation procedure (diagonal reference models, or DRMs) that were aligned with our starting point: a sociological conception of overeducation as a form of status inconsistency. With this, we make a two-fold contribution that is both empirical (testing hypotheses concerning the impact of overeducation on specific types of attitudes) and methodological (applying models that are canonical in the analysis of the effects of social mobility and status inconsistency to the study of overeducation). This work is based on data from Spain, a country with high prevalence of overeducation.

1. Overview, background and hypotheses

Developed societies are known to share a secular trend of expanding schooling and increasing the educational level of the population. Though occupations that require high qualifications have increased simultaneously, the demand is insufficient to absorb the offer of workers with university diplomas and other top credentials. Thus, the educational level of a considerable number of workers exceeds what is required for their actual jobs. This phenomenon is especially prevalent in Spain, which has one of the highest overeducation rates in Europe. As in other countries, however, the overeducation rate depends largely on how it is measured (Barone and Ortiz 2011; Quintini 2011; Kucel 2011; CEDEFOP 2015; Flisi et al. 2017; McGuinness et al. 2017; Capsada-Munsech 2019; Choi et al. 2020)¹.

While educational expansion is universally considered positive, the high number of overeducated employees is a concern among analysts and social scientists, who have been warning for decades about adverse effects for people in that situation and for society as a whole.

In this article, we are interested in how individuals are socially and psychologically impacted by overeducation. We will study the possible influence of overeducation, understood as a form of status inconsistency, on attitudes, evaluations and social representations in various spheres. Attention will be given to evaluations and attitudes concerning objects situated on a continuum of increasing generality, from specific spheres

¹ Ramos (2014) did a thorough review of the available studies on the prevalence of overeducation in Spain and found great variations depending on the period, the information source and the method for measuring overeducation.

of personal life (work, economic situation) to overall personal quality of life (happiness and life satisfaction, or subjective well-being). Along with the psychological or personal dimension, we will look at representations of the social stratification system: namely, the position individuals attribute to themselves and their image of the principles that govern the process of socioeconomic achievement (often called the ideology of stratification). By including a wide range of dependent variables, this approach makes it possible to test the idea that overeducation has negative implications on diverse aspects of life for the individuals who experience it.

The effects of overeducation may stem from diverse mechanisms, which fall into two categories (Ueno and Krause 2018). First, overeducation can give rise to a lack of ‘person-environment fit’ (Edwards et al. 1998) which in turn can generate negative psychological states: stress, boredom, anxiety, loss of a sense of self-efficacy, and general dissatisfaction (Maynard et al. 2006). Second, doing jobs that require less education than one has acquired can translate into cognitive dissonance, relative deprivation or feelings of injustice when accompanied by social comparison processes. These comparison processes can have as their object: (a) a reference group composed of people with the same educational level who are working at that level (giving rise to a feeling of comparative disadvantage) (Johnson and Johnson 2000), (b) job expectations formed during the socialization process in educational institutions (giving rise to a contradiction between aspirations and achievements) (Vaisey 2006; Ferrante 2017), or (c) the investment made to acquire that education (giving rise to a feeling of inequality due to the imbalance between the investment and the reward obtained) (Wegener 1991). These mechanisms have been described in specific literature on overeducation and in more general studies on status inconsistency. They have solid roots in classical theories of sociology and psychology, which will not be addressed here. In fact, overeducation can be understood as a specific type of status inconsistency between the status dimensions associated with investment (level of education attained) and reward (job or occupation). As Geschwender (1967) suggested long ago, the inconsistency between high investment and low reward is especially likely to provoke negative reactions, including those mentioned

Through these mechanisms, overeducation can lead to reduced job satisfaction, deterioration of subjective well-being and the formation of a negative image of the stratification system and the economic achievement process, thereby placing meritocratic stratification ideology in question.

Numerous studies measuring overall or specific dimensions of job satisfaction have tested and confirmed the hypothesis that it is negatively affected by overeducation (Berg 1971; Burris [Beverly] 1983; Tsang et al. 1991; Jenkins 1992; Battu et al. 2000; Johnson and Johnson 2000; Maynard et al. 2006; Fleming and Kler 2008; Verhaest and Omey 2008; Mateos and Salinas 2018). In some cases, however, effects were limited to a specific group of workers, instances of extreme overeducation or situations in which ‘formal’ overeducation was accompanied by underutilization of skills on the job (Burris [Val]

1983; King and Hautaluoma 1987; Vaisey 2006; Green and Zhu 2010; Mavromaras et al. 2013; Steffy 2017; Ueno and Krause 2018). There are even some studies that did not find the predicted effects (Allen and Van der Velden 2001; Yin 2017). In Spain, negative effects have been found among workers as a whole (Fabra and Camisón 2008; García and Montuenga 2010; Badillo and Vila 2013), among people with university degrees (Erdogan et al. 2018) and among young employees (Peiró et al. 2010); but there are also some studies that report no significant effects (García and Ibáñez 2006; Gobernado 2009).

Following this consolidated line of research, our first hypothesis is:

H1. Overeducation (i.e., having an educational level that exceeds what is required for current job) is negatively related to job satisfaction.

While the existence of a negative relationship between overeducation and job satisfaction is well-established in the literature, we think it is interesting to test it afresh for three reasons. First, because we will apply a method that has not been previously applied in this field; finding favourable evidence by a different method would confirm the robustness of the relationship. Secondly, because some studies – even those referring to Spain – have reported null effects, as we have just seen. Finally, because our analysis strategy goes from the immediate and specific to the remote and general, and job satisfaction is the first link in this chain. The high rate of overeducation in Spain makes this country a particularly appropriate context for testing our hypothesis.

Beyond its effects on labour, overeducation can be expected to have negative effects in other spheres. One area that has scarcely been studied is that of satisfaction with the individual's economic situation or that of the home (Gobernado 2009 holds that there is no relationship). Hypothesis 2 attempts to fill this gap:

H2. Overeducation is associated with a reduction in satisfaction with the economic situation in the home.

Overeducation could also diminish subjective well-being in a broader sense, whether directly (for example, because of stress or frustration) or indirectly (through its impact on job satisfaction) (Erdogan et al. 2012). The research done in Spain and elsewhere to test this possible negative effect has yielded mixed results. Some studies have found negative effects on life satisfaction, feelings of happiness and other related indicators (Bracke et al. 2013; Artés et al. 2014; Piper 2015; Salinas-Jiménez et al. 2016; Frank and Hou 2017, Erdogan et al. 2018), while others reported no effects (King and Hautaluoma 1987; Burke 1997; Friedland and Price 2003; Gobernado 2009; Zhu and Chen 2016).

Hence, our third hypothesis centres on the relationship between overeducation and subjective well-being:

H3. Overeducation is associated with a reduction in subjective well-being, measured in terms of either satisfaction with one's personal life or feelings of happiness.

There are fewer studies on how overeducation influences representations of social stratification, with a focus on the social position (subjective social class) that overeducated individuals attribute to themselves or on their image of how socioeconomic achievement functions. In a classic work, Burriss hypothesized (and demonstrated) that overeducated people attribute a higher subjective class to themselves than that which corresponds to their educational level and the level required for their work². Burriss interpreted this by applying the notion of 'status panic' from Mills (1951)³. However, overeducated individuals might also be expected to locate themselves in a lower subjective position, because feelings of relative deprivation and injustice lead them to overestimate the disadvantage they experience.

Given the scant research on this point and the uncertainty about the possible consequences of overeducation, we test two contrasting hypotheses:

H4a. Overeducation is associated with a *reduction* in the socioeconomic position that workers attribute to themselves (subjective social class).

H4b. Overeducation is associated with an *increase* in the socioeconomic position workers attribute to themselves (subjective social class).

Finally, feelings of relative deprivation and injustice could also cause overeducated persons to consider that the process of economic achievement is not based on merit but depends primarily on factors such as social origin or luck. In contrast, two studies from the United States found that this hypothesis was only confirmed for highly overeducated employees (Burriss [Val] 1983) or for men (Vaisey 2006). To address this, our last hypothesis is:

H5. Overeducation is associated with a reduction in the weight attributed to merit-based factors (education, effort and professional worth) in the process of economic achievement.

The task of synthesizing findings from the literature on the effects of overeducation is complicated by the lack of consensus among researchers regarding fundamental questions of how to measure overeducation and the procedure for estimating its impact.

² According to Gobernado (2009), overeducation in Spain increases subjective social class.

³ According to the classic analysis by Mills (1951), the progressive erosion of their occupational prestige generated in white-collar workers a reaction of social anxiety and a feeling of threat, to which they typically responded by seeking to reaffirm their status, thus emphasizing elements and distinctions peripheral to their work. Burriss (1983) suggested that a similar phenomenon occurs in overeducated workers: they 'elevate' their subjective class identification by attending to aspects of their social situation not related to work.

There are three approaches to the concept and measurement of overeducation, which are generally known as objective, statistical, and subjective (McGuinness et al. 2018; Capsada-Munsech 2019). According to the objective approach, or job analysis method, a worker is overeducated when his/her educational level is higher than the level that is considered to be normatively required to perform his/her job. The statistical method compares the educational level of the individual with the average for that occupation. Finally, the subjective approach directly or indirectly measures the discrepancy between the educational level that workers consider necessary to adequately do their job and their actual educational level. Each method has advantages and disadvantages; the results of some comparative analyses indicate that one method may be more suited than another to a given objective, and they may even be capturing different constructs (Verhaest and Omeij 2006a, 2006b; Ramos 2014; Flisi et al. 2017; Capsada-Munsech 2019; Choi et al. 2020). The studies cited use the full range of approaches, which affects the comparability of the results.

Independently of how overeducation is measured, the criteria also vary for quantifying its effects on other variables. This has sparked intense debate concerning the best modelling strategy for isolating the net impact of overeducation (Kalleberg and Sorensen 1973) or, more generally, for analysing the effects of status inconsistency (see joint discussions in Hendrickx et al. 1993 and Smith 1996).

The predominant strategy in current studies on overeducation (Overeducation, Required Education, Undereducation or ORU models, either in their original form or in a dummy variable version) consists of estimating a regression model in which attained education is decomposed into two parts, education required for the job and surplus or deficit education (Duncan and Hoffman 1981; Sicherman 1991). This modelling strategy implicitly assumes that the portion of acquired education which coincides with education required for the job has no direct or independent effect; the dependent variable is only affected by the degree to which achieved education exceeds (or falls short of) the education required for the job (*cfr.* Kalleberg and Sorensen, 1973). This makes perfect sense in the context in which these models were mainly developed (studies for determining salaries), where salaries are presumed to increase with education to the degree that education, when applied to carrying out job responsibilities, increases productivity. Using this analysis strategy makes it possible to compare the return on education required by the job with the return on additional education and to compare overeducated workers with reference employees in similar jobs, or workers with the same educational level. It constitutes an appropriate strategy for identifying the consequences of suboptimal use of human capital, which is a fundamental objective of economic and psychological research in the field of human resources. However, precisely because the specific effect of acquired education is always assumed to be null (it can be reduced to the effects of required education and of the difference in required/acquired education), these models do not capture the impact of overeducation understood as status inconsistency, which involves estimating three

distinct effects and separating out the effect of the mismatch between acquired and required education with respect to the effects of one kind of education and another.

Some of the classic sociological research on the consequences of overeducation (Burriss [Val] 1983; Jenkins 1992) sought to separate these three effects through a process inherited from prior research on status inconsistency and mobility (Duncan 1964, 1966; Treiman 1966). It consists of (a) estimating an additive model that only includes the effects of education acquired by the individual and education required for performing his/her occupation, (b) calculating the values of the dependent variable that are predicted by the model for each combination of acquired/required education, and (c) comparing the predicted values with observed values. A statistically significant difference or residual indicates that the mismatch between acquired and required education has a specific effect, which is added to the main effects of the two variables. However, this analysis strategy has fallen into disuse, partly due to the fact that contribution of sociology to this field has been scarce in recent decades (Burriss 2005), but also because of the criticism these procedures received in the field where they first emerged, that of research on the effects of status inconsistency. To understand this, a brief overview of the methodological arguments in this area is helpful.

The first wave of research on the effects of status inconsistency was limited to identifying individuals who were 'inconsistent' (subjects who held discrepant positions in two or more status dimensions) and comparing them with 'consistent' subjects, but did not control for the effects of the position occupied in each of these dimensions (Lanski 1954, 1956). To avoid this deficiency, more elaborate analyses sought to incorporate both the effect of each status dimension and the effect of the inconsistency between them, avoiding the problem of perfect collinearity that would arise if the measure of discrepancy among status variables consisted only of the difference between them (Duncan 1964, 1966; Blalock 1966, 1967a, 1967b; Treiman 1966; Kalleberg and Sorensen 1973). However, problems arose with the proposed models, which were generally interactive in nature. When a model estimate includes both status variables and their interaction, the principal effects can 'absorb' part of the inconsistency effects, giving rise to 'false negatives' (Hope 1975; Wilson 1979; Sobel 1981; Whitt 1983). Also, there might be other mechanisms besides inconsistency that generate an interactive relationship between status variables, so that a significant effect might be attributed to inconsistency when it actually has another origin. Conversely, it might be concluded that inconsistency is irrelevant when it actually does have an effect, because it is neutralized by an interactive effect of the opposite sign resulting from another causal process, such as a 'substitution effect' (to the degree that an individual occupies higher positions in a status dimension, he or she attributes less relevance to lower positions occupied in other dimensions and is less influenced by them) (Blalock 1966, 1967a, 1967b; Whitt 1983; Zhang 2008).⁴

⁴ This is a specific case of the general problem that arises when estimating the effect of a variable that itself constitutes a causal force but can only be operationalized as an interaction between two other variables (Blalock, 1968).

In contrast, isolating the effect of inconsistency is the primordial objective of a series of analytical models that were developed some time ago but have not been used in studies on overeducation, perhaps due to the withdrawal of sociology from this area of study, as has been mentioned (Burris 2005). These models avoid the identification problems that accompany having to simultaneously take into account the effects of various status dimensions and the incongruences among them. Instead of incorporating the ‘main effects’ of the status variables, they include a combined measure of all of them (Hope 1975) or only use situations of consistency among dimensions as the reference. Sobel (1981, 1985) developed the latter option into what are known as Diagonal Reference Models (DRMs), which have become standard procedure in research on the effects of status inconsistency and social mobility. In the work presented here, these models were used for the first time to analyse the impact of overeducation.

2. Data, variables and procedures

The data used in this study refers to Spain and is taken from three surveys: the Survey on Quality of Life at Work, 2007 – 2010 (*Encuesta de Calidad de Vida en el Trabajo*, hereafter ECVT) by the Ministry of Labour and Social Economy; surveys for 2010 – 2017 on Public Opinion and Fiscal Policy (*Opinión Pública y Política Fiscal*, hereafter EOPPF) from the Centro de Investigaciones Sociológicas (CIS); and the post-electoral surveys done by the CIS after the general elections of 2015 and 2016 (hereafter ES)⁵.

The ECVT is a periodic survey that provides information on numerous characteristics of employment, work conditions and life conditions for people in Spain. It was conducted annually from 1999 to 2010. Each year, a representative sample of about 8,000 individuals in the working population was interviewed. We constructed an integrated database for surveys from 2007 to 2010, which made it possible to work with a greater sample size while also providing comparable information for a relatively short period. In this way, we avoided uncontrolled sources of variation that would contaminate our results if we were to use data covering a longer period.

The EOPPF are yearly studies done by the CIS, based on interviews of representative samples of around 2,500 units from the adult population in Spain. Besides gathering information on the opinions of Spaniards concerning taxes, public services and fiscal compliance, they also regularly measure economic and social attitudes. Here also, we have aggregated the data from 2010 to 2017, which is a longer period than that of the ECVT. After some preliminary assessment we deemed it suitable for joint analysis, as the relationship between the variables of interest is only minimally exposed to circumstantial variation.

⁵ Information on sample design and the questionnaires of these surveys are available in the Internet: www.cis.es/cis/opencms/ES/2_bancodatos/ and www.mitramiss.gob.es/estadisticas/ecvt/welcome.htm.

Finally, we used the CIS post-electoral studies for the general elections of 2015 and 2016. The fieldwork was done over a period of scarcely six months (January-March 2016 for the 2015 elections and July 2016 for the 2016 elections). In both cases, around 6,200 people were interviewed, representative of the adult population aged 18 and over in Spain.

These datasets have several common advantages. First, they were produced by reference public organisms for social research in Spain, using high-quality procedures. Second, the surveys used representative samples of the entire working population (ECVT) or general population (EOPPF and ES), which gives our analyses greater scope than those based on partial samples that are limited to a specific organization, industry or educational level. Third, the datasets contain detailed and comparable information on education and occupation, using official classifications. Finally, because they are repeated surveys with identical sample designs, their data can be pooled, allowing us to work with larger samples. The three datasets together contain information on all the dependent variables of interest, making it possible to test all our hypotheses. Of course, it would have been preferable to use a single survey containing all the relevant information or surveys covering exactly the same time period. Unfortunately, Spain has not produced data that combines all these features.

From the three datasets, we selected only non-self-employed workers from specific birth cohorts for the sample. In the ECVT survey, we worked with information from employees born between 1961 and 1975, to attain greater homogeneity and eliminate sources of variation that might distort the results. This ensured that all our subjects studied under the same educational system, that was developed under the 1970 General Law on Education (*Ley General de Educación, LGE*), while minimizing the probability of having informants whose age would indicate they might still be finishing their studies. We did something similar with the CIS surveys, but due to the survey dates and the smaller size of the initial sample, we expanded the birth cohort to include those born between 1961 and 1985. Consequently, we have informants who might have studied under two educational systems, corresponding to those established by the 1970 General Law on Education and the 1990 General Ordination Law of the Educational System (*Ley de Ordenación General del Sistema Educativo, LOGSE*)⁶. Table 1 presents the basic information about the three samples that were used, including approximate size, which varied slightly from one analysis to another.

TABLE 1 HERE

The ECVT data served two purposes. Since it contained information about how the interviewees evaluated the degree to which their academic training served for their actual job, it was used to test whether overeducation negatively affected the perceived match

⁶ The Spanish education system has experienced several changes during the last decades. For a brief account, see Martínez-Usarcalde (2007); a more comprehensive analysis, in Pérez-Díaz and Rodríguez (2003).

between a person's educational level and the job they were doing.⁷ This enabled us to corroborate the validity of our overeducation measurements and to test the models we subsequently used for other variables. Besides this validation function, ECVT data were also used to determine whether overeducation affected worker satisfaction with their jobs, their economic situation and their personal situation.

In this survey, the interviewees were asked first about their overall job satisfaction and their satisfaction with various dimensions of their work. Though there is no reason to expect that overeducation would influence all aspects of satisfaction with employment and work conditions, it should affect overall work satisfaction and 'intrinsic' aspects of the job, such as satisfaction with the activities it entails and level of self-fulfilment derived from work. Accordingly, we used the information provided by the ECVT regarding global satisfaction and these two dimensions.⁸ Testing the assumption that overeducation generates dissatisfaction is pertinent both for its inherent interest and because work dissatisfaction can be one of the ways in which overeducation negatively impacts other spheres.

The ECVT also informed about interviewees' satisfaction with their economic situation and their personal life.⁹ We used these variables to test the hypothesis that the mismatch between education acquired by the individual and education required for the job has effects that transcend the work sphere to affect subjective well-being in other areas, which would increase the significance of overeducation.

Post-electoral studies from the CIS contained a question about feelings of personal happiness, which served to test the robustness of the results obtained from the ECVT regarding the influence of overeducation on personal life satisfaction.¹⁰ Doing separate analyses that use the two classic indicators of subjective well-being (Andrews and Robinson 1991) as dependent variables permits us to draw more solid conclusions about the impact of overeducation on it. We also made use of these surveys to investigate the possible relationship between overeducation and subjective social class, using a question in which those surveyed were asked to locate themselves on a continuum, with 'lower class' at one end and 'upper class' at the other.¹¹

⁷ This variable corresponds to the question, 'How much has your formal education served for the work you actually do?' The interviewee answers using a scale of 0 to 10.

⁸ The information on these variables derives from the question: 'Indicate your degree of satisfaction with your current job' and the items labelled 'Activities' and 'Personal development (fulfilment)' from a battery of questions that asks the respondents to 'Indicate your level of satisfaction with the following aspects of your current job'. In all cases, a scale of 0 to 10 was used for the responses.

⁹ The items 'economic situation at home' and 'your personal life' were part of a battery of questions that asked interviewees to 'Please indicate your degree of satisfaction with each of the following situations', again using a scale of 0 to 10.

¹⁰ 'Generally speaking, do you consider yourself to be a happy person? Indicate your response on a scale of 0 to 10, where 0 is "completely unhappy" and 10 is "completely happy"'.¹¹

¹¹ 'On a social scale in which 1 represents the lowest social class and 10 the highest, where do you place yourself?'

Finally, the CIS surveys on Public Opinion and Fiscal Policy included a question that allowed us to study the effect of overeducation on the image people have of how the process of economic achievement works. Specifically, this involves perceptions of the degree to which it is based on merit or depends on social origin and luck.¹²

Table A1 in the Appendix contains all the information about how the dependent variables were measured, the exact wording of the corresponding survey questions, the survey in which they are found and the response scale used.

As we have indicated, there are three different ways to measure overeducation: objective, statistical and subjective. In this study, we used the objective approach, which consists of attributing to each occupation (or job if possible) the level of education considered normative for doing that job and comparing it with the educational level of each subject. This is partly due to a simple question of data availability: we know of no surveys in Spain that contain large representative samples of the entire wage-earning population, use subjective measures of overeducation and include information on all the dependent variables of interest to us. Alongside reasons of opportunity, there are also substantive reasons favouring an objective measurement of overeducation. First, we believe that an objective measurement fits especially well with a sociological understanding of overeducation as an incongruence between two status hierarchies that constitutes an important aspect of social stratification (Capsada-Munsech 2017). Second, studies on Spain that have compared the results of applying a measurement based on job analysis and a statistical measurement of overeducation to the same source have found a high degree of congruence between the two (Ramos 2014). Third, though the main alternative – subjective measurements of overeducation – can be especially useful in other contexts, it is not well-suited to our purposes. This is due to variations among individuals in the criteria used to evaluate the fit between their education and their job, possible effects from social desirability, and especially the possibility of the measurement of perceived overeducation itself capturing some form of work or life dissatisfaction, something that would generate problems of endogeneity in our analyses (Barone and Ortiz 2011; Capsada-Munsech 2019). Of course, the objective approach is not exempt from limitations, such as its insensitivity to the heterogeneity of educational requirements within occupations or how they change over time.¹³ However, we see no reasons to think that these sources of heterogeneity would necessarily bias (either raise or lower) our estimates of overeducation levels.

¹² The question: ‘Some think that the economic position of people depends almost exclusively on their effort, education and professional worth (0 on a scale of 0 to 10). Others think that what really matters is family origin, who you know or simply luck (these would be at 10 on the scale). Which do you think has greater influence on the economic position people attain in Spain?’

¹³ Barone and Ortiz (2011) proposed an original measurement procedure that seeks to overcome both these limitations of the objective approach and those of the conventional subjective approach. However, applying them requires surveys in which the interviewees give detailed information about the degree to which diverse types of skills are needed for doing their job. Our data does not contain such information.

Logically, the key to the objective approach is how to impute the educational level required for each job or occupation. It would be ideal to have a sort of ‘dictionary of occupational titles’ that specified the competences and abilities required for each job, measured on a standard scale, with a table of correspondences between that scale and formal educational levels (Eckaus 1964). However, such instruments are only available in a few countries, and Spain is not among them. The alternative procedure usually chosen to provide the best possible approximation of objective mismatch between occupation and educational level involves direct assignation of the educational level required for each occupation. This method relies on informed judgement based on descriptions provided by a standard classification of occupations. Here, we used the occupation-required education correspondences developed by María Ramos (2016) to classify occupations into four levels, according to the education they require: basic secondary education or vocational training or less; baccalaureate studies or advanced vocational training; university diploma (short-cycle, 2-3 years); and university degree (long-cycle, 4-6 years)¹⁴.

By crossing this variable with the educational level of the individual, which we had previously re-codified using the same categories, three distinct situations of fit emerged between an individual’s acquired educational level and education required for a given job or occupation: consistency or match between the two, undereducation (acquired education lower than that required for the post) and overeducation. We also used two definitions of overeducation. One will be referred to as ‘aggregate overeducation’ and denotes all individuals whose educational level exceeds what is required for the post they occupy. The other separates overeducation into two segments: ‘high overeducation’, which occurs when the level of acquired education is two or three ‘levels’ above what is required for the job, and ‘low overeducation’, when the difference is only one ‘level’. Table 2 shows the situations resulting from all combinations of acquired and required education and Table A2 in the Appendix shows the ‘aggregate overeducation rate’ for our data by source and year.¹⁵

TABLE 2 HERE

Our objective was to test whether overeducation, measured in the ways we have just described, influences the dependent variables identified earlier. For this, we estimated multivariate models controlling for gender, age, employment situation (temporary or

¹⁴ In the surveys used, occupations are identified using the three digit version of national job classifications that was valid at the time (CNO-94 [national adaptation of ISCO-88] for the ECVT and CNO-11 [adaptation of ISCO-08] for the EOPPF and post-electoral surveys).

¹⁵ A cursory look at Table A2 reveals an average ‘aggregate overeducation’ rate of 19%, with light temporal fluctuations, no defined trend and practically no differences attributable to the source used. The rate is similar to that reported by Ramos (2014) in the Adult Education Survey, but substantially lower than what was obtained from the Labour Force Surveys. Notably, no systematic trend of change was observed in overeducation rates before, during or after the Great Recession. The table also reveals that the percentage of overeducation is slightly higher for women (3% in the combined data, though again with some fluctuations). This also coincides with the estimates of Ramos (2014), who reported very small gender differences that disappeared when other variables were considered.

permanent contract) and employment sector (public or private). It seems reasonable to expect that all these variables are related to the probability of being overeducated as well as to our dependent variables.

It is important to emphasize that our objective is to determine if the mismatch between an individual's acquired education and the education required for a job has a significant net effect that is analytically distinguishable from the effects of either education variable. This implies decomposing or separating these three potential sources of variation in the dependent variable, rather than simply comparing overeducated and non-overeducated employees or the return on required and additional education. For this decomposition, we resorted to the Diagonal Reference Models (DRMs) developed by Sobel (1981, 1985). Since we understand overeducation as a form of status inconsistency, it seems logical to use the decomposition procedure that has become standard in research on the effects of status inconsistency.

Applied to our study, the simplest DRM (which does not include the effects of mismatch or any covariable) is expressed by the following equation:

$$Y_{ijk} = \mu_{ij} + \varepsilon_{ijk} = w \cdot \mu_{ii} + (1-w) \cdot \mu_{jj} + \varepsilon_{ijk} \quad (\text{Equation 1})$$

where Y_{ijk} is the value of the dependent variable for the individual k , pertaining to the cell ij of the table resulting from crossing the two status variables (here, acquired and required education). Y_{ijk} has two components, one systematic (the mean of the cell ij , μ_{ij}) and one random (individual error, ε_{ijk}); μ_{ij} is the weighted sum of μ_{ii} and μ_{jj} , which are the estimated means of Y in the cells ii and jj , located along the diagonal of this table and defined, respectively, by the crossing of the categories i , of acquired and required education and the crossing of the categories j of these two variables. Thus, the mean of the dependent variable in an 'inconsistent' cell is the compromise between the estimated means of two 'consistent' cells, while w and $(1-w)$ are the estimated weights that reflect the importance of acquired and required education in the calculation of μ_{ij} . If w is greater than $(1-w)$, the individuals in inconsistent situations will more closely resemble the consistent individuals of their same educational level, while if w is less than $(1-w)$, they will more closely resemble the consistent individuals whose job requirements match their educational level.

As we have indicated, to predict the behaviour of individuals in inconsistent situations, this model only considers the influence of acquired education (represented by individuals of their same educational level who do jobs consistent with that level) and required education (represented by individuals who do the same type of jobs and have an educational level consistent with those jobs), but does not include an effect of inconsistency as such. To test the existence of that effect, the first model can be compared to an alternative model expressed as

$$Y_{ijk} = w \mu_{ii} + (1-w) \mu_{jj} + \sum \beta D_{ijk} + \varepsilon_{ijk} \quad (\text{Equation 2})$$

where D is a set of dichotomous variables that measure the mismatch between acquired/required education and β designates the coefficients that capture the effects of each of these variables. These coefficients are interpreted in the same way as regression coefficients habitually are.¹⁶ To predict the mean value of the dependent variable for the cell ij , the estimated effect of each mismatch variable for that individual is added to the weighted sum of the means of the diagonal cells ii and jj .

If the model that includes terms for capturing the effect of inconsistency between acquired and required education has a better fit than the basic model, we can conclude that inconsistency as such has an independent impact beyond that of the two education variables. To our understanding, this is the only case in which we can accurately speak of overeducation effects.

Covariables can be added to both the basic model and the one that includes terms for capturing education/employment mismatch, in order to control for the effects of other explanatory factors:

$$Y_{ijk} = w \mu_{ii} + (1-w) \mu_{jj} + \sum \gamma C_{ijk} + \varepsilon_{ijk} \quad (\text{Equation 3})$$

$$Y_{ijk} = w \mu_{ii} + (1-w) \mu_{jj} + \sum \gamma C_{ijk} + \sum \beta D_{ijk} + \varepsilon_{ijk} \quad (\text{Equation 4})$$

where C is a covariable vector and γ designates the coefficients that capture their effects. After verifying that adding covariables always improved the fit compared to models that did not include them, estimates were calculated using models with covariables (gender, age, employment situation and employment sector).

One possible outcome of a DRM estimate is that w or $(1-w)$ (the weights of the variables of acquired or required education) is not significantly different from zero, which would indicate that one of the status variables (i.e., education variables) has no effect on the dependent variable. When this occurs, the analysis can be simplified by estimating a conventional linear or logistic regression model (Kulis 1987; Sieben 2017). We did this when appropriate.¹⁷

Our basic model, based on Equation 3, includes covariables but no overeducation effect. To this, we compared six models derived from Equation 4, to evaluate the effects of

¹⁶ The equations presented assume that the dependent variable is measured at the interval level.

¹⁷ In such cases, the equation of the basic model with covariables would be $Y_i = \alpha + \beta E_i + \sum \beta C_i + \varepsilon_i$. The equation for the model which also incorporates effects of the education/employment mismatch would be $Y_i = \alpha + \beta E_i + \sum \beta C_i + \sum \beta D_i + \varepsilon_i$. In all of them, E is the education variable that, depending on the weights derived from the DRM, has significant effects on the dependent variable (acquired education in some cases, required education in others). In these models, the reference category for the education variables is 'basic secondary education or vocational training or less'.

education/employment mismatch.¹⁸ The first three models introduced various overeducation measures, as described previously (aggregate, disaggregated into high and low, and only high); the next three reproduced the prior ones but added a term to identify undereducated individuals¹⁹. Table A3 in the Appendix presents the structure of each model in detail.

We used these models to test the hypotheses which we derived from the literature on the effects of overeducation, as described in the first section. In all cases, the effect is expected to be greater when overeducation is high, as opposed to low. The hypothesis is considered to be supported if the addition of variables for ‘inconsistency between acquired and required education’ improves the model fit and statistically significant coefficients of the expected sign are obtained for these variables.

Before testing our substantive hypotheses, we tested the validity of our overeducation measurements and our modelling strategy by evaluating the hypothesis that overeducation reduces the perceived usefulness of formal education for the work being done. Only if this hypothesis is supported would it make sense to expect overeducation to affect our variables of interest.

3. Results

3.1. Perceived usefulness of formal education

The first dependent variable we examined was how the interviewees ranked the degree to which their schooling had served them for the work they were doing. As expected, the results presented in Tables 3 and 4 confirmed that the objective mismatch between education and employment translates into lower perceived usefulness of formal education.

Table 3 shows the goodness-of-fit statistics for all the Diagonal Reference Model estimates for this dependent variable. It presents the residual deviance and the p-value of the deviance reduction, compared to the basic model. We discarded models that did not indicate a statistically significant reduction. The table also provides AIC and BIC statistics, which measure the balance between goodness of fit and the parsimony of the model. We used AIC as the main selection criterion because BIC strongly penalizes the introduction of additional parameters (Kuha 2004). This seems undesirable in the context of an analysis that is more ‘factor-oriented’ than ‘model-oriented’, to borrow from

¹⁸ Estimation of the models with reference to the diagonal was done with the Dref command in the gnm 1.1.0 package for R (Turner and Firth, 2018).

¹⁹ The dummy variable that identifies undereducated workers is included in the model to ensure that the reference for comparison of overeducated workers is only composed of adequately matched workers. Since our interest and hypotheses concern overeducated workers, we will not comment on coefficients for undereducation.

Hacquist and Stenbeck (1998). AIC makes it possible to discard models that improve the fit very little, while accepting others that are penalized by BIC due to their lack of parsimony but may disclose overeducation effects that could be substantive.

TABLES 3 AND 4

Table 3 reveals significant improvements in fit, compared to the basic model, in all the models that look at effects of education/employment inconsistency. From these, we chose Models 3 and 6, because they had the lowest AIC and BIC values. Table 4 presents the coefficients of these two models. Both include disaggregated overeducation (high and low), while Model 6 also contains a term for undereducation.

In table 4 we find the estimated means for the dependent variable for each of the situations of consistency between education and employment (the cells along the diagonal, resulting from the intersection of both variables). Thus, for example, Model 3 indicates that people with university degrees who are in jobs that require the same educational level give the usefulness of their education for their work an average score of 7.550. However, in the same model, the average for this variable is 4.218 among those with the lowest educational level (basic secondary or vocational training or less) who were working in jobs with matching educational requirements.

The estimated means for situations of inconsistency (cells not on the diagonal) result from the sum of the estimated means of the cells on the diagonal, weighted as indicated by the model, and of the parameter that identifies a specific type of inconsistency (high overeducation, low overeducation, undereducation). For example, Model 3 indicates that the estimated mean for those with university degrees employed in 'basic' jobs would be: $(0.569 \cdot 7.550 + 0.431 \cdot 4.218) - 1.623 = 4.491$.

It is important to note that the difference between the estimated means in these three cases is not exclusively due to the inconsistency between education and occupation, but also reflects the effects of each of these variables taken independently. In the first case, the difference between people with university degrees employed in 'basic' occupations versus 'consistent' occupations is -3.059 ($4.491 - 7.550 = -3.059$). This can be broken down into two parts: -1.436 ($0.431 \cdot 4.218 - 0.431 \cdot 7.550$), attributable to the type of job (categorized according to the required educational level) and -1.623 , attributable to the experience of overeducation itself. The difference between the other two groups is 0.273 ($4.491 - 4.218 = 0.273$), resulting from two components: 1.896 ($0.569 \cdot 7.550 - 0.569 \cdot 4.218$) due to acquired educational level and -1.623 due to the education/occupation mismatch.²⁰

Four conclusions can be drawn from the table. First, the estimated means for diagonal cells reveal a tendency to attribute greater utility to education as education increases.

²⁰ To simplify, in these examples, the cell averages are calculated on the assumption that the covariables have a value of 0. For each individual, the corresponding coefficients of the covariables would have to be added.

Second, the weight of acquired and required education are practically the same (neither can be considered different from 0.5), indicating that these variables have equal influence on the usefulness individuals attributed to their acquired education. Third, all the covariables except age had significant effects (positive for employment in the public sector and female, negative for temporary contract). Finally, overeducation significantly reduced the perceived usefulness of education, especially when overeducation was 'high' (Model 3). This did not change when situations of undereducation were included (Model 6).

These results, which were expected given the nature of the dependent variable, seem to confirm the adequacy of our modelling strategy, the validity of our overeducation measurements and the pertinence of the control variables. We can therefore move on to examining the effects of overeducation on other variables.

3.2. Job satisfaction, economic satisfaction and subjective well-being

A first block of variables is composed of measurements of satisfaction, which range from the most specific (job satisfaction) to satisfaction with one's economic situation, to the most general (subjective well-being, understood as satisfaction with life and personal happiness).

Table 5 presents the goodness-of-fit statistics for the linear regression models that used our three measures of job satisfaction (general satisfaction with one's job, with the tasks involved and with the degree of fulfilment the work provides) as dependent variables. As in the other cases, we began by fitting diagonal reference models. The estimated weight of acquired education was null for all of them, indicating that this variable had no significant influence on job and personal satisfaction. From there, we recurred to linear regression models that only considered the education required for a given occupation.

TABLE 5 HERE

On examination, the table reveals a pattern that is common to the three measures of job satisfaction: all the models that included overeducation significantly improved the fit of the basic model. Models 5 and 6, which account for both overeducation (aggregate and two-level) and undereducation, were the best models in terms of AIC.

Table 6 shows the coefficients of these models. When university studies are required for an occupation, job satisfaction is higher, regardless of the indicator used. Being employed in the public sector increases satisfaction and having a temporary contract decreases it. Age had no effect and gender slightly affected two of the indicators. The main finding is that overeducation significantly reduced job satisfaction (especially in the sense of fulfilment derived from work) and more acutely when overeducation was high (at least two levels difference between acquired and required education). For example, Model 5 indicates that overall job satisfaction of workers in occupations with basic educational

requirements is an average of 0.277 points lower than for those working in occupations requiring a university degree. Job satisfaction decreases another 0.178 points for overeducated workers doing occupations requiring ‘basic’ education. An intuitive way of interpreting the size of this coefficient is to compare it with the difference derived from being in one or another of the two extreme categories of required education. In this case, the comparison indicates that overeducation has an important effect, which is somewhat greater if Model 6 is considered rather than Model 5. Accordingly, university graduates (long cycle) doing jobs with the lowest educational requirements have 0.547 points less for job satisfaction than those doing jobs with the highest educational requirements, representing the combined result of 0.279 points less from the effect of education required for their job (something they share with all workers in the same type of occupations, regardless of acquired education level) and 0.268 points less from the specific effect of overeducation. When the independent variable is ‘satisfaction with job activities’ or ‘satisfaction with self-fulfilment from work’, the effect of overeducation is greater still and even surpasses that of education required for the position.

TABLE 6 HERE

It seemed relevant to ask if overeducation would affect subjective well-being beyond the labour sphere. For answers, we turned to information about personal life satisfaction and feelings of happiness from interviewees available in two datasets (ECVT and post-electoral surveys). The models that included overeducation showed no goodness-of-fit improvement over the basic model with regard to personal satisfaction (Table 5) or feelings of happiness (Table 7), which led us to discard the idea that overeducation has some relevant effect on these variables.²¹

TABLE 7 HERE

Finally, we evaluated the impact of overeducation on satisfaction with the economic situation at home: a variable that was outside the work sphere but more specific than personal life satisfaction or happiness. Table 7 shows that all models that included overeducation had a better fit than the basic model. According to AIC, the preferred model is Model 3, which includes disaggregated overeducation (high and low). The coefficients for this model (Table 8) reproduce previously detected tendencies: greater satisfaction linked to higher educational level (in this case, acquired education had greater influence than required education²²), a positive effect for public-sector employment and

²¹ To avoid an unnecessarily lengthy exposition, we only present the coefficients of the models selected for each dependent variable, and omit them when the basic model is the best model. The complete results are available upon request.

²² The fact that the impact of education acquired by the individual is greater than that of education required for a job seems to be consistent with the results in the literature on overeducation and salaries. This literature shows that, for overeducated people, having a higher educational level than other workers doing the same type of work is beneficial, even though their salary is substantially lower than it would be if they were working in jobs corresponding to their educational level (Leuven and Oosterbeek, 2011).

a negative effect for temporary contracts. We also found a negative effect associated with being female and – more importantly for us – a negative impact for overeducation, which was more intense at higher levels. More specifically, being highly overeducated decreases satisfaction with the economic situation 0.357 points, while low overeducation depresses it 0.14 points. Again, to evaluate the size of the estimate, it is advisable to compare it with the difference in economic satisfaction for those doing jobs located in the extreme categories of required education, keeping in mind that this difference should be weighted by the estimated weight of the level of education required for the job (1-w). In this case, it was $(1-0.740) \cdot (7.531-6.107)$, or 0.370. As with job satisfaction, we found that the specific effect of high overeducation was comparable to that of education required for the job.

TABLE 8 HERE

3.3. Image of socio-economic stratification: subjective social class and the process of economic achievement

The final block of dependent variables measured two aspects of the employee's image of socioeconomic stratification. One was subjective social class, or the perception that individual employees have of the social position that they themselves occupy, measured on a scale of 1 to 10. The other was the image workers have about how the process of economic achievement works in Spain. More specifically, we measured perceptions about the degree to which this depends on factors related to personal merit (effort, education, occupational worth) or external factors (family origin, contacts, luck), measured again on a scale of 0 to 10.

Table 9 presents the goodness-of-fit statistics of the models for these two variables. For both, we found the same result: none of the models that included a measurement of overeducation significantly improved the fit with respect to the basic model. This means that the subjective social position and the image of the factors involved in economic achievement depended on acquired education and on the education required for a job, but we did not find indications that they were affected by a mismatch between the two education variables. In both cases, the basic model attributed weights to acquired and required education that were not statistically different from each other, indicating that they had the same degree of influence on these dependent variables. The direction of the relationship was as expected: the greater the acquired or required education, the greater the self-ascribed economic position and the importance given to merit-based factors in explaining economic achievement. However, it is appropriate to emphasize that the inconsistency between a person's acquired education and the education required for his or her actual job neither improved nor worsened the position people assigned themselves in the socioeconomic hierarchy, nor did it affect the image workers had of the factors that determine it.

TABLE 9 HERE

4. Discussion and conclusions

We studied the impact of overeducation, understood as a form of status inconsistency, on job satisfaction, subjective well-being and the image of social stratification. In this work, we did not set out to simply compare workers who are overeducated with those who are not, but to determine the degree to which the differences that occasionally exist between them are due to the experience of education/employment mismatch. In other words, we tested the proposition that overeducation exercises an independent influence *over and above* that of the educational level acquired by the individual and the educational level required for that person's actual job. For that, we applied Diagonal Reference Models, which are especially suited to this objective.

The first step of our analysis was to verify that the usefulness workers attributed to their formal education depended not only on their educational level and the educational level required for their jobs, but also on the consistency or inconsistency between the two. Overeducated workers assigned less usefulness to their education than what would be expected, based on the behaviour of workers with same educational level and those who worked in similar jobs but whose educational level was consistent with their job requirements.

This result generated confidence in the validity of our measurements of overeducation and the utility of the procedure we used to estimate their effects. From there, we tested our substantive hypotheses.

The first (H1) predicted a negative relationship between overeducation and work satisfaction, which was supported by the data. Being overeducated significantly reduced overall work satisfaction. We also found a negative impact on two indicators of what is understood in the specialized literature as the 'intrinsic' dimension of job satisfaction (Peiró et al. 2010): satisfaction with the work being done and feelings of personal fulfilment from one's work. In all cases, satisfaction decreased as the level of overeducation increased.

These results align with those of other researchers (see references in section 1). They could be due to the concurrence of two types of mechanisms that are described in the specialized literature. One is the experience of person-environment (more specifically, person-job) incongruence, which can create dissatisfaction in a more immediate sense or through negative psychological states such as boredom, stress or anxiety. The other involves social comparison with the reference group of workers with the same educational level, with aspirations and expectations developed during socialization processes in educational institutions, or with the resources invested in acquiring education. These forms of comparison can generate feelings of deprivation, injustice and cognitive

dissonance, which may result in job dissatisfaction. We will return to the potential relative importance of these two types of mechanisms.

Overeducation could also affect satisfaction and subjective well-being beyond the labour sphere. To examine this possibility, we formulated two hypotheses: one on the relation between overeducation and satisfaction with the economic situation at home (H2) and another on the relation between overeducation and subjective well-being (measured as satisfaction with personal life and feelings of happiness) (H3). Our results were consistent with H2: the experience of overeducation diminished satisfaction with the economic situation at home, especially if the mismatch between education and employment was high. However, this study finds no support for H3. Our results corroborated those of King and Hautaluoma (1987), Burke (1997), Friedland and Price (2003), Gobernado (2009), and Zhu and Chen (2016), indicating that overeducation is not negatively associated with life satisfaction or happiness.

Finally, we tested hypotheses about the possible impact of overeducation on two aspects of perceptions of social stratification: the self-assigned position of each individual in the socioeconomic hierarchy (H4a and H4b) and what some authors refer to as the ‘stratification ideology’ (Burris [Val] 1983). This refers to the representation of the process of economic achievement as being either merit-based or subject to factors such as luck, contacts or family origin (H5). Here also, our results contradicted the hypotheses and ran contrary to the conclusions of the few researchers to have addressed this question (Burris [Val] 1983; Vaisey 2006, Gobernado 2009). These two variables were found to depend as much on acquired education as on the education required for one’s job, but overeducation itself had no specific influence.

The results lead us to conclude that the negative consequences of overeducation are limited in scope. They affect the labour and economic sphere, but not subjective well-being in a broader sense or the image of socioeconomic stratification. These negative results might seem surprising, given the diverse mechanisms described in the literature that might lead one to expect the impact of overeducation to transcend the labour sphere. How can they be explained? We can only offer some tentative lines of response, organized into three blocks.

First, the absence of effects may be partly due to methodological reasons. We used an objective measure of overeducation that has complete semantic autonomy with respect to the dependent variables and we estimated the effects of overeducation using a method that establishes a very strict threshold to confirm its existence. Also, for the dependent variables we used single-item measures. While such explanations of the absence of effects cannot be discarded, neither do they seem decisive to us, for several reasons. To begin, we found a relationship between overeducation and other variables, including the perceived usefulness of one’s education (which, because of its immediate relationship with overeducation, serves as a validation instrument for our measurement and estimation method) and job satisfaction (the variable for which the existence of relationship is most

firmly established in the literature). Confirming the presence of a relationship for cases in which there are more solid reasons to expect that it exists increases our confidence in the analytical procedures that we have applied. Next, we have corroborated the absence of a relationship between overeducation and subjective well-being using distinct indicators (life satisfaction, happiness) in diverse sources (ECVT, ES) and at different points in time. Finally, we consider that a measurement for overeducation and an estimation method that imposes a conservative standard for establishing the existence of effects, by minimizing the risk of endogeneity and maximizing the purity of the effects of overeducation, constitutes an advantage rather than a disadvantage.

Second, our negative findings could be related to specific features of the Spanish context. The high prevalence of overeducation in Spain, combined with dramatic educational expansion in recent decades, could limit or block the production of negative effects due to social comparison processes. This might occur if the reference group for comparison is composed of people in the same situation or if large numbers of overeducated people leads to a dampening of aspirations. Thus, paradoxically, generalized overeducation could nullify its effects in some spheres. Also, the persistently high levels of unemployment and job precariousness in Spain could mean that being overeducated does not negatively impact general subjective well-being or subjective social position, because overeducated employees compare their situation to the possibility of being unemployed or precariously employed. There may even be workers who would choose permanent work below their qualifications over temporary work that matches their qualifications (Ortiz 2010; Maurin 2009). Testing these conjectures would require a comparative analysis on the impact of overeducation in countries with diverse overeducation rates.

Third, beyond methodological questions or contextual factors, there may be more general reasons that help explain the absence of a relationship between overeducation and subjective well-being or stratification ideology.

The absence of effects on subjective well-being may simply reflect the fact that subjective well-being depends on many stronger, more immediate determinants (Diener et al. 1999; Schimmack 2006; Dolan et al. 2008; Bericat 2018), which may dilute or compensate for any negative influence of overeducation. Similarly, the literature on person-environment fit suggests that people who experience situations of inconsistency may cope using strategies that neutralize their potential effects, such as cognitive distortion, projection, denial or minimizing the importance of the sphere that produces the incongruence (Edwards et al. 1998). One plausible reaction to the inconsistency may involve the formation of adaptive preferences (Elster 1983), which in this case would manifest themselves in the attribution of greater vital relevance to aspects of life and status symbols that are not related to work, such as family, friendships, consumption or leisure (Burriss [Val] 1983). This response would give rise to 'substitution effects' (Zhang 2008; Lundberg et al. 2009) that would nullify the potential negative impact of overeducation.

Similarly, our finding that overeducation did not influence the image of social stratification may be due to these same mechanisms and coping strategies. However, there may also be other considerations. First, and contrary to the assumptions embedded in our hypotheses, the experience of overeducation might not generate perceptions of inequality and feelings of relative deprivation that are intense enough to shape an individual's overall image of how the distributive process works and their place in it. This could happen if the reference group to which the overeducated compare their own situation is not composed of people with the same educational level. Second, the absence of the influence of overeducation on subjective social class could mask the presence of two opposite effects (contemplated in our two opposing hypotheses in relation to this variable) that cancel each other out. Third, the lack of relationship between overeducation and representation of the economic achievement process could be due to overeducated people blaming themselves for not having been capable of obtaining work corresponding to their educational level, rather than attributing it to external factors and questioning the meritocratic nature of the stratification system. This possibility was already contemplated by Burris (1983), who suggested self-blaming and the 'privatization of discontent' as an explanation for the limited scope of the effects of overeducation.

Altogether, our findings on the negative effects of overeducation on job and economic satisfaction, along with those that lead us to assume there are no effects on other variables, could give rise to a more nuanced perspective regarding the causal mechanisms we had initially contemplated. The lack of relationship between overeducation and personal well-being or image of stratification could be indicating that the mechanisms related to social comparison (relative deprivation, frustration, cognitive dissonance) are less important and are limited to instrumental aspects (economic satisfaction). In contrast, mechanisms related to the lack of 'person-environment fit' (or more specifically, 'person-job fit') seem to be more relevant. In overeducated persons, this lack of fit may induce negative psychological states highly focussed on the work process, leading to lower job satisfaction. Why these negative states associated with overeducation do not have a significant impact on general well-being remains an open question, closely linked to the controversial question of the existence – and subsequent meaning and scope – of spillover effects between job and life satisfaction (Rain et al. 1991; Rode and Near 2005; Bowling et al. 2010).

Finally, expecting overeducation – understood as an objective discrepancy between the position of the subjects in two status hierarchies – to have a far-reaching, negative impact on subjective well-being and the ideology of stratification could perhaps imply assuming too partial a concept of the meaning and expectations associated with education in society today: one that links it excessively to economic production and work achievement (Smith 1986). There are many, especially in certain fields of study, who might have a less instrumental relationship with education and who would attend primarily to its intrinsic or symbolic value or to associated experiences. For such people, education would be more a form of consumption than an investment. Accordingly, the mismatch between education and employment would not necessarily have far-reaching negative effects.

Regardless of which conjectures are more correct, the basic conclusion of our work is that the experience of overeducation, understood as a form of status inconsistency, has negative effects, which are confined to the clearly defined sphere of work. The education/employment inconsistency reduces job and economic satisfaction, but does not affect overall subjective well-being or the image of social stratification.

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Table 1. Data

| | Survey of Quality of Life at Work | Surveys of Public Opinion and Fiscal Policy | Post-electoral surveys |
|-----------|---------------------------------------|---|--|
| Period | 2007-2010 | 2010-2017 | 2015-2016 |
| Subsample | Employees, born between 1961 and 1975 | Employees, born between 1961 and 1985 | Employees, born between 1961 and 1985 |
| Ages | 32-49 years old | 25-56 years old | 30-55 years old |
| N | <i>Circa</i> 11,000 | <i>Circa</i> 4,700 | <i>Circa</i> 3,000 |
| Source | Ministry of Labour and Social Affairs | Centre for Sociological Research (CIS) | Centre for Sociological Research (CIS) |

Table 2. Definition of education/employment mismatch variables

| Educational attainment of employee | Educational requirements of occupation | | | |
|--|--|---|---|---|
| | Basic secondary education or vocational training or less | Baccalaureate studies or advanced vocational training | University diploma (short-cycle, 2-3 years) | University degree (long-cycle, 4-6 years) or higher |
| Basic secondary education or vocational training or less | Consistency | Undereducation | Undereducation | Undereducation |
| Baccalaureate studies or advanced vocational training | Low overeducation | Consistency | Undereducation | Undereducation |
| University diploma (short-cycle, 2-3 years) | High overeducation | Low overeducation | Consistency | Undereducation |
| University degree (long-cycle, 4-6 years) or higher | High overeducation | High overeducation | Low overeducation | Consistency |

Table 3. Overeducation and the perceived usefulness of formal education for the work being done. Goodness of fit statistics for DRM models

| Model | G | Prob. | AIC | BIC |
|----------|----------------|--------------|---------------|---------------|
| 1 | 107,439 | | 58,488 | 58,561 |
| 2 | 106,904 | 0.000 | 58,432 | 58,513 |
| 3 | 106,648 | 0.000 | 58,406 | 58,495 |
| 4 | 107,103 | 0.000 | 58,453 | 58,534 |
| 5 | 106,753 | 0.000 | 58,418 | 58,506 |
| 6 | 106,614 | 0.000 | 58,405 | 58,500 |
| 7 | 106,868 | 0.000 | 58,430 | 58,518 |

Table 4. Overeducation and the perceived usefulness of formal education for the work being done. Estimated parameters and standard errors from selected DRM

| | | Model 3 | Model 6 |
|-------------------------------------|--|----------------------------|----------------------------|
| Weight (attained Educational level) | w | 0.569 <i>0.040</i> | 0.447 <i>0.068</i> |
| Estimated means | Basic secondary education or vocational training or less | 4.218 <i>0.284</i> | 4.240 <i>0.284</i> |
| | Baccalaureate studies or advanced vocational training | 5.607 <i>0.285</i> | 5.609 <i>0.285</i> |
| | University diploma (short-cycle, 2-3 years) | 7.303 <i>0.299</i> | 7.399 <i>0.300</i> |
| | University degree (long-cycle, 4-6 years) or higher | 7.550 <i>0.291</i> | 7.535 <i>0.291</i> |
| Overeducation | High | -1.623 *** <i>0.173</i> | -1.338 *** <i>0.213</i> |
| | Low | -0.819 *** <i>0.115</i> | -0.694 *** <i>0.128</i> |
| Undereducation | | | -0.240 * <i>0.117</i> |
| Covariates | Age | 0.007 <i>0.007</i> | 0.007 <i>0.007</i> |
| | Public sector | 0.628 *** <i>0.070</i> | 0.635 *** <i>0.070</i> |
| | Temporary work | -0.548 *** <i>0.070</i> | -0.549 *** <i>0.070</i> |
| | Female | 0.108 + <i>0.058</i> | 0.109 + <i>0.058</i> |

Notes. Entries in the table are estimated parameters and their standard errors (in italics)

*** p < 0.001 ** p < 0.01 * p < 0.05 + p < 0.1

Table 5. Overeducation, job satisfaction and life satisfaction. Goodness of fit statistics for linear regression models

| | Model | F ¹ | Prob. | AIC | BIC |
|--|----------|----------------|--------------|---------------|---------------|
| Overall job satisfaction | 1 | 32.228 | 0.000 | 12,406 | 12,465 |
| | 2 | 23.773 | 0.000 | 12,385 | 12,451 |
| | 3 | 13.301 | 0.000 | 12,384 | 12,457 |
| | 4 | 15.379 | 0.000 | 12,407 | 12,459 |
| | 5 | 14.731 | 0.000 | 12,381 | 12,454 |
| | 6 | 10.676 | 0.000 | 12,380 | 12,461 |
| | 7 | 12.168 | 0.000 | 12,386 | 12,459 |
| Satisfaction with work activity | 1 | 25.995 | 0.000 | 13,238 | 13,296 |
| | 2 | 39.018 | 0.000 | 13,201 | 13,267 |
| | 3 | 21.989 | 0.000 | 13,198 | 13,271 |
| | 4 | 25.843 | 0.000 | 13,214 | 13,280 |
| | 5 | 25.663 | 0.000 | 13,190 | 13,264 |
| | 6 | 18.593 | 0.000 | 13,188 | 13,269 |
| | 7 | 22.019 | 0.000 | 13,198 | 13,271 |
| Satisfaction with level of self-fulfilment derived from work | 1 | 22.548 | 0.000 | 16,630 | 16,689 |
| | 2 | 72.418 | 0.000 | 16,560 | 16,626 |
| | 3 | 42.021 | 0.000 | 16,550 | 16,623 |
| | 4 | 52.435 | 0.000 | 16,579 | 16,646 |
| | 5 | 45.642 | 0.000 | 16,543 | 16,616 |
| | 6 | 33.987 | 0.000 | 16,534 | 16,615 |
| | 7 | 40.436 | 0.000 | 16,553 | 16,627 |
| Satisfaction with personal life | 1 | 30.205 | 0.000 | 13,718 | 13,777 |
| | 2 | 0.020 | 0.887 | 13,720 | 13,786 |
| | 3 | 1.266 | 0.282 | 13,720 | 13,793 |
| | 4 | 1.673 | 0.196 | 13,719 | 13,785 |
| | 5 | 0.085 | 0.919 | 13,722 | 13,796 |
| | 6 | 0.881 | 0.450 | 13,722 | 13,803 |
| | 7 | 0.844 | 0.430 | 13,721 | 13,794 |

¹ For model 1, p-value for F test. For models 2 to 7, p-value for F test for change in R²

Table 6. Overeducation and job satisfaction. Estimated parameters and standard errors from linear regression models

| | | Overall job satisfaction | | Satisfaction with work activity | | Satisfaction with level of self-fulfilment derived from work | |
|--|---|----------------------------|----------------------------|---------------------------------|----------------------------|--|----------------------------|
| | | Model 5 | Model 6 | Model 5 | Model 6 | Model 5 | Model 6 |
| Constant | | 7.063 *** <i>0.153</i> | 7.064 *** <i>0.153</i> | 7.496 *** <i>0.159</i> | 7.497 *** <i>0.159</i> | 7.241 *** <i>0.183</i> | 7.243 *** <i>0.183</i> |
| Educational requirements of occupation | Baccalaureate studies or advanced vocational training | 0.004 <i>0.043</i> | 0.011 <i>0.043</i> | 0.047 <i>0.044</i> | 0.056 <i>0.045</i> | -0.036 <i>0.051</i> | -0.019 <i>0.051</i> |
| | University diploma (short-cycle, 2-3 years) | 0.134 * <i>0.062</i> | 0.129 * <i>0.062</i> | 0.252 *** <i>0.065</i> | 0.245 *** <i>0.065</i> | 0.212 ** <i>0.075</i> | 0.200 ** <i>0.075</i> |
| | University degree (long-cycle, 4-6 years) or higher | 0.277 *** <i>0.057</i> | 0.279 *** <i>0.057</i> | 0.401 *** <i>0.059</i> | 0.404 *** <i>0.059</i> | 0.359 *** <i>0.068</i> | 0.365 *** <i>0.068</i> |
| Overeducation | Aggregated | -0.178 *** <i>0.044</i> | | -0.231 *** <i>0.045</i> | | -0.371 *** <i>0.052</i> | |
| | High | | -0.268 *** <i>0.071</i> | | -0.354 *** <i>0.074</i> | | -0.589 *** <i>0.085</i> |
| | Low | | -0.139 ** <i>0.050</i> | | -0.178 ** <i>0.052</i> | | -0.275 *** <i>0.060</i> |
| Undereducation | | 0.101 * <i>0.043</i> | 0.099 * <i>0.043</i> | 0.154 *** <i>0.044</i> | 0.151 ** <i>0.044</i> | 0.221 *** <i>0.051</i> | 0.215 *** <i>0.051</i> |
| Covariates | Age | 0.003 <i>0.004</i> | 0.003 <i>0.004</i> | 0.000 <i>0.004</i> | 0.000 <i>0.004</i> | 0.001 <i>0.004</i> | 0.001 <i>0.004</i> |
| | Public sector | 0.210 *** <i>0.040</i> | 0.212 *** <i>0.040</i> | 0.108 ** <i>0.041</i> | 0.110 ** <i>0.041</i> | 0.138 ** <i>0.047</i> | 0.142 ** <i>0.047</i> |
| | Temporary work | -0.365 *** <i>0.039</i> | -0.365 *** <i>0.039</i> | -0.216 *** <i>0.041</i> | -0.216 *** <i>0.041</i> | -0.267 *** <i>0.047</i> | -0.268 *** <i>0.047</i> |
| | Female | 0.093 ** <i>0.033</i> | 0.094 ** <i>0.033</i> | 0.076 * <i>0.034</i> | 0.076 * <i>0.034</i> | 0.026 <i>0.039</i> | 0.026 <i>0.039</i> |

Notes. Entries in the table are estimated parameters and their standard errors (in italics)

*** p < 0.001 ** p < 0.01 * p < 0.05 + p < 0.1

Table 7. Overeducation, happiness and satisfaction with economic situation. Goodness of fit statistics for DRM models

| | Model | G | Prob. | AIC | BIC |
|--------------------------------------|----------|---------------|--------------|---------------|---------------|
| Personal happiness scale | 1 | 12,872 | | 17,366 | 17,430 |
| | 2 | 12,872 | 0.977 | 17,368 | 17,439 |
| | 3 | 12,868 | 0.561 | 17,369 | 17,446 |
| | 4 | 12,869 | 0.329 | 17,367 | 17,438 |
| | 5 | 12,866 | 0.406 | 17,368 | 17,445 |
| | 6 | 12,863 | 0.398 | 17,369 | 17,453 |
| | 7 | 12,863 | 0.243 | 17,367 | 17,444 |
| Satisfaction with economic situation | 1 | 43,415 | | 48,066 | 48,139 |
| | 2 | 43,395 | 0.022 | 48,062 | 48,143 |
| | 3 | 43,376 | 0.006 | 48,061 | 48,150 |
| | 4 | 43,389 | 0.009 | 48,062 | 48,143 |
| | 5 | 43,391 | 0.043 | 48,063 | 48,152 |
| | 6 | 43,376 | 0.017 | 48,063 | 48,159 |
| | 7 | 43,385 | 0.020 | 48,062 | 48,150 |

Table 8. Overeducation and satisfaction with economic situation. Estimated parameters and standard errors from DRM models

| | | Model 3 |
|-------------------------------------|--|----------------------------|
| Weight (attained educational level) | w | 0.740 <i>0.063</i> |
| Estimated means | Basic secondary education or vocational training or less | 6.107 <i>0.181</i> |
| | Baccalaureate studies or advanced vocational training | 6.706 <i>0.181</i> |
| | University diploma (short-cycle, 2-3 years) | 7.304 <i>0.189</i> |
| | University degree (long-cycle, 4-6 years) or higher | 7.531 <i>0.185</i> |
| | Overeducation | High |
| | Low | -0.140 + <i>0.074</i> |
| Covariates | Age | -0.001 <i>0.004</i> |
| | Public sector | 0.302 *** <i>0.045</i> |
| | Temporary work | -0.582 *** <i>0.045</i> |
| | Female | -0.315 *** <i>0.037</i> |

Notes. Entries in the table are estimated parameters and their standard errors (in italics)

*** p < 0.001 ** p < 0.01 * p < 0.05 + p < 0.1

Table 9. Overeducation and image of stratification. Goodness of fit statistics for DRM models

| | Model | G | Prob. | AIC | BIC |
|---------------------------|--|--------------|---------------|--------------|---------------|
| Subjective class location | 1 | 3,518 | | 8,564 | 8,623 |
| | 2 | 3,516 | 0.313 | 8,564 | 8,630 |
| | 3 | 3,516 | 0.477 | 8,566 | 8,637 |
| | 4 | 3,517 | 0.480 | 8,565 | 8,630 |
| | 5 | 3,513 | 0.416 | 8,566 | 8,637 |
| | 6 | 3,513 | 0.297 | 8,566 | 8,643 |
| | 7 | 3,513 | 0.159 | 8,564 | 8,635 |
| | Image about how the economic achievement process works | 1 | 31,069 | | 22,287 |
| 2 | | 31,064 | 0.371 | 22,288 | 22,359 |
| 3 | | 31,063 | 0.608 | 22,290 | 22,367 |
| 4 | | 31,068 | 0.639 | 22,289 | 22,360 |
| 5 | | 31,062 | 0.585 | 22,290 | 22,367 |
| 6 | | 31,062 | 0.782 | 22,292 | 22,376 |
| 7 | | 31,063 | 0.623 | 22,290 | 22,367 |

APPENDIX

Table A1. Measurement of dependent variables

| Constructs | Variables | Survey question | Survey |
|--|--|--|--------|
| Perceived usefulness of formal education | Perceived usefulness of formal education | How much has your formal education served for the work you actually do? (0-10) | ECVT |
| Job satisfaction | Overall job satisfaction | Indicate your degree of satisfaction with your current job (0-10) | ECVT |
| | Satisfaction with work activity | Indicate your level of satisfaction with the following aspects of your current job: Activities (0-10) | ECVT |
| | Satisfaction with self-fulfilment derived from work | Indicate your level of satisfaction with the following aspects of your current job: Personal development (fulfilment) (0-10) | ECVT |
| Satisfaction with economic situation | Satisfaction with economic situation | Please indicate your degree of satisfaction with each of the following situations: economic situation at home (0-10) | ECVT |
| Subjective well-being | Life satisfaction | Please indicate your degree of satisfaction with each of the following situations: your personal life (0-10) | ECVT |
| | Personal happiness | Generally speaking, do you consider yourself to be a happy person (0-10) | ES |
| Image of social stratification | Subjective class location | On a social scale in which 1 represents the lowest social class and 10 the highest, where do you place yourself? | ES |
| | Image about how the economic achievement process works | Some think that the economic position of people depends almost exclusively on their effort, education and professional worth (0 on a scale of 0 to 10). Others think that what really matters is family origin, who you know or simply luck (these would be at 10 on the scale). Which do you think has greater influence on the economic position people attain in Spain? | OPPF |

Table A2. Overeducation rate in Spain by survey, year and gender

| Survey | Year | Male | Female | Total |
|--------|------|-------|--------|-------|
| ECVT | 2007 | 17.2% | 20.8% | 18.8% |
| | 2008 | 17.2% | 23.0% | 19.9% |
| | 2009 | 15.0% | 18.1% | 16.4% |
| | 2010 | 18.7% | 21.7% | 20.1% |
| EOPPF | 2010 | 16.9% | 20.7% | 18.8% |
| | 2011 | 21.5% | 23.5% | 22.4% |
| | 2012 | 17.9% | 19.6% | 18.8% |
| | 2013 | 18.4% | 19.4% | 18.9% |
| | 2014 | 17.8% | 21.7% | 19.6% |
| | 2015 | 14.5% | 18.3% | 16.3% |
| | 2016 | 20.9% | 19.2% | 20.1% |
| | 2017 | 21.7% | 21.6% | 21.7% |
| ES | 2015 | 15.9% | 19.0% | 16.9% |
| | 2016 | 16.6% | 20.3% | 18.4% |

Table A3. Specification of estimated models

| | | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|--|------------|------------|------------|------------|------------|------------|------------|
| Weights | W (attained education) | | | | | | | |
| | 1-w (required education) | | | | | | | |
| Education level (attained or required for work) | Basic secondary education or vocational training or less | | | | | | | |
| | Baccalaureate studies or advanced vocational training | | | | | | | |
| | University diploma (short-cycle, 2-3 years) | | | | | | | |
| | University degree (long-cycle, 4-6 years) or higher | | | | | | | |
| Overeducation | Aggregated | | | | | | | |
| | High | | | | | | | |
| | Low | | | | | | | |
| Undereducation | | | | | | | | |
| Covariates | Age | | | | | | | |
| | Public sector | | | | | | | |
| | Temporary work | | | | | | | |
| | Female | | | | | | | |