



Relation between overqualification and job satisfaction during the 2008 Spanish crisis ☆

Relación entre sobrecualificación y satisfacción laboral durante la crisis española de 2008

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Abstract

Presently, there is a spiral of growth at the level of studies of the population looking for work, a fact that causes an imbalance in the job market since the increase in the educational needs of the employees grows at a slower rate. Our objective is to know the satisfaction of the overqualified workers in the Spanish job market, which is affected by an economic crisis. The data come from the Ministry of Employment and Social Security. An association between the overqualification and low degrees of satisfaction (in a 0 to 10 scale, associated with scores of 1, 2 and 3) is derived from the correlation analysis. The originality of this work lies in the combination of different methodologies in the study of the concepts of overqualification and satisfaction in the framework of the Spanish economy. We concluded that the degree of satisfaction of the overqualified workers is less than that of workers whose job is commensurate with their training. Therefore, this fact (overqualification → dissatisfaction) that was our initial

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starting point, continues to be valid although the economic landscape is unstable. However, it ought to be highlighted that the job satisfaction figures increase in a general manner during the years of economic crisis, and particularly for overqualified workers.

JEL Classification: J23, J24, J28, C13, C25.

Keywords: Overqualification; Satisfaction; Economic crisis; Training.

Resumen

En la actualidad se produce una espiral de crecimiento del nivel de estudios de la población que busca trabajo, hecho que genera un desajuste con el mercado laboral, puesto que el incremento de las necesidades educativas de los empleadores crece más despacio. Queremos conocer la satisfacción de los trabajadores sobrecualificados en el mercado laboral español, afectado por una crisis económica. Los datos proceden del Ministerio de Empleo y Seguridad Social. Del análisis de correspondencias se deriva asociación entre la sobrecualificación y grados de satisfacción bajos (en una escala de 0 a 10, se asocia con las puntuaciones 1, 2 y 3). La originalidad está en la combinación de distintas metodologías en el estudio de los conceptos sobrecualificación y satisfacción en el marco de la economía española. Concluimos que el grado de satisfacción de los trabajadores sobrecualificados es menor que en aquellos trabajadores cuyo puesto de trabajo es acorde con su formación. Por tanto, este hecho (sobrecualificación → insatisfacción) que era inicialmente nuestro punto de partida, sigue siendo válido, aunque el panorama económico sea inestable. Sin embargo, hay que resaltar que las cifras de satisfacción laboral aumentan en los años de crisis económica de manera general, y en particular en los trabajadores sobrecualificados.

Códigos JEL: J23, J24, J28, C13, C25.

Palabras Clave: Sobrecualificación; Satisfacción; Crisis económica; Formación.

Introduction

The aim of this work is to study the satisfaction of overqualified workers in a context of economic crisis, trying to find the degree of satisfaction of these workers and the influence that the economic crisis has on this phenomenon. Although the analysis is carried out with data from the Spanish job market, several of the conclusions may apply on a broader scale, provided that they are under the same economic cycle, given that the current economic crisis is present at the international level and affects Latin American and European countries with a greater or lesser degree of virulence. The difference could be perhaps in the greater or lesser success of the different countries when managing the different policies aimed to deal with adverse economic situations.

The Spanish job market continues to be targeted by national and international public entities, as well as by analysts and experts of different political, economic, and communication means. The current reform of the job market raises public concern and sensibility due to doubts as to when a substantial improvement in the employment figures will be seen, given that although the macroeconomic figures are better than in previous years, the problem of unemployment continues to be a priority.

The improvement of the educational levels is a determinant factor for making the decision to participate in the job market and the likelihood of finding employment. However, there could

be an inadequacy between the training and the job, resulting in the waste of the available human capital. Situations of overqualification are very common. According to the Valencia Institute of Economic Research, IVIE (2008), in the last decade or so, the percentage of people with university studies holding unskilled jobs has increased fivefold.

We can affirm that when the phenomenon of overqualification occurs, there is a negative profitability of the knowledge acquired by the worker. In this sense, for Méndez, Tébar and Abad (2011) job stability and the resulting possibility of developing training trajectories and make the acquired knowledge profitable at the medium term, etc., is not necessarily derived from the greater qualification of the workers.

The data from the Quality of life at work survey (Ministry of Employment and Social Security) for 2010, reflects that of the total people employed, 18.4% have a job that is below their level of training. In light of this, the increase of human capital is not adequately exploited and, consequently, the increase in the educational levels translates into a problem of overqualification. It would be convenient for the human capital to be employed⁴ in those tasks and sectors where their productive capacity is fully exploited. Cequea and Núñez (2011) believe the human factors that influence productivity are job satisfaction, learning and training, among others. In IVIE (2011) it is stated, on the one hand, that workers with higher education are the most overqualified, although they decreased by 7% due to the crisis; and on the other hand, that overqualification affects a third of the most educated workers in Spain, as compared to 20% in the EU. Anglo-Saxon literature refers to the achieved educational mismatch of an individual and the training required for their employment with the term “overeducation”. However, some authors of the economic literature resort to the term overqualification (Salas, 2005). In this work we will use the terms overqualification and overeducation interchangeably.

In a situation like this, in which the unemployment rate in Spain is still high (18.75% in the first quarter of 2017, Labour Force Survey, National Statistics Institute, INE, 2017), our interest is to analyze the degree of satisfaction of the overqualified workers. Although the phenomenon of overqualification is and has been widely studied since previous decades, this work has the characteristic of including different analyses in the Spanish job market, at a time of instability in the economic sphere. The objective of this work is the study of the satisfaction of the overqualified workers in this context of crisis. The work presented here used data from 2010, a year which corresponds to the crisis prevailing in Spain. The aim is to link the terms overqualification, satisfaction and crisis, in the field of the Spanish job market. We believe that the studies on mismatches in training and job satisfaction are of interest from the business, social and economic points of view. Therefore, we shall use the microdata from the Quality of life at work survey of 2010, which are the most recent data in 2017.

The methodology used in this work is diverse: with an independence contrast we tried to find whether the variables Degree of satisfaction with the current job and position (according to whether or not it is in accordance with the level of training) are independent, subsequently calculating association coefficients; through an analysis of correspondence we will graphically observe the associations between the categories of both variables; we calculated a ordinal logistic regression, with the dependent variable being the degree of job satisfaction and the independent variable being the job position. Finally, we will review the mean figures of job

⁴ A part of society finds it hard to enter and/or remain in the job market. This limitation of being “employable”, understood as the “ability to obtain or keep a job” is greater in groups of people with greater economic disadvantages (Formichella and London, 2013).

satisfaction before the crisis (2007) and during it (2009 and 2010) to assess whether the crisis has affected this indicator (at the general level and in function of the job position).

This work is structured as follows. In the first sections we present a theoretical review on the subject. In next sections we will explain in brief the survey on which this study is based, describing the used variables and developing the empirical analysis corresponding to 2010. We present our conclusions in the final section.

Theoretical framework

The phenomenon of overqualification

The phenomenon of overeducation was studied in different developed countries based on the contributions of Freeman (1976) and Duncan and Hoffman (1981). The works of Hartog (2000), Groot and Maassen Van Den Brink (2000) and Clark, Joubert and Maurel (2014), among others, can be found in the literature. Beginning with the work of Alba-Ramírez (1993), several authors have analyzed the importance of overqualification in Spain; Madrigal (2003) defines educational mismatch as a discrepancy between the educational level achieved by the worker and the level necessary for the performance of their job. This definition groups workers into three categories: adequately educated (when the educational level of the worker corresponds with the level required by their job), undereducated (when the educational level of the worker is below the required level) and overeducated (when the educational level is higher). For Gobernado (2005) there is overeducation when the educational level exceeds the needs of the job; thus, it is synonymous with underemployment.

García-Montalvo and Peiró (2009) state that in addition to the required level of training, there are other aspects such as experience and abilities, among others, that are intrinsic to the job requirements. In this context, the mismatch between training and employment can reflect “compensations” of formal education due to weakness in other qualities required by the job. Therefore, overqualification would be temporary while the other job characteristics are adjusted.

The overqualification process can be transitory or permanent, IVIE (2009a). In first instance, workers are hired by curriculum vitae, since it is more difficult to assess their skills if they have not previously worked in the company. Most wage increases are related to the direct observation by the employer (manager) of the skills of the worker once they are part of the company workforce (internal promotion). This promotion will be based more on the productivity of the worker than on their training, thus internal mobility will reduce the mismatch between the educational levels and employment. In these cases, there is a temporary overqualification; the observed overqualification is remedied over time, “compensated” by other skills or adjusted by attitude changes. Nevertheless, there is also permanent overqualification.

Dolado, Felgueroso and Jimeno (2000) show that in recent years workers with lower educational levels move from their traditional jobs towards unskilled jobs, whereas a large number of graduates occupy jobs that require only a low level of education. In line with Thurow (1975), employers hire workers with educational levels higher than the occupied job in order to decrease the training processes associated with the worker achieving the necessary qualifications for the job. Forgeot and Gautié (1997) believe that by hiring overeducated people, the employer expects them to have a greater productivity, and consequently reduce unit costs.

The concept of job satisfaction

The beginnings of the concept of job satisfaction can be traced back to Hoppock, who in 1935 developed the first studies regarding the subject. Zhu (2013) reviews over a decade on background and research findings on job satisfaction. There is another theoretical review by Aziri (2011). The idea of satisfaction emerges from the comparison between the real job and the expectations of the worker. A worker who believes that they are at a disadvantage with regard to their coworkers is dissatisfied, just as if the previous job offered better conditions. The greater the job satisfaction, the greater the commitment of the worker to the performance of their tasks.

In the research carried out by the IVIE (2007) on a collective of young workers, it is established that the workers who consider that the promises made by the company have been fulfilled to a greater extent are: those who have a greater centrality of work, those who have had a lower number of employees, those who have a job commensurate with their qualifications, and those who also have higher levels of involvement at work.

Job satisfaction is related to the degree of conformity of the human resource with the working environment (George and Jones, 1999; Thierry and Koopman-Iwema, 1984), a variable that is closer to feelings than to productivity, and which refers to the affective response of the human resource to the job (Locke, 1976). Job satisfaction has been and is studied from various perspectives, which relate job satisfaction with the job, tasks, superiors, the modification of the psychological contract between the company and the human resource (Rousseau and Mclean-Parks, 1993; Thompson and Bunderson, 2003), and its dynamic evolution adapted to the working life of the workers. In the work by Chiang and Ojeda (2013), the dimensions of satisfaction with the job in general, satisfaction with the relationship with the boss and satisfaction with recognition are significantly related to productivity; a good management of these variables can contribute favorably to an increase in competitiveness.

The characterization of job satisfaction must include different variables, whether these are of the organizational⁵, functional, or individual type. Based on this list of variables, the contributions of the different authors can be grouped into three models associated with the concept of satisfaction, that is, models focused on the individual and on the situation, and determined by the interaction of both circumstances (Arvey, Carter and Buerkly, 1991; Pina-Cunha et al., 2007). Therefore, we can consider job satisfaction as a multidimensional construct, since various factors or variables influence the explanation of this concept. At the international level, some important references regarding job satisfaction are those by Böckerman and Ilmakunnas (2006), Clark (1997), Hamermesh (2001) and Kahneman and Krueger (2006).

In terms of satisfaction with the current job (a variable to be explained in the empirical model), to measure job satisfaction not only would the expectations and contributions have to be related to the demands of the organization and groups, but also to past experiences (Pérez 1997).

⁵ In Sánchez-Sellero et al. (2014), the influence of the organizational characteristics on job satisfaction in Spain is analyzed. Based on a study of different years, Sánchez-Sellero and Sánchez-Sellero (2016) conclude that the variables that influence job satisfaction do not depend on the economic cycle, although the hierarchies between them are different.

Satisfaction-overqualification

For Tsang (1987), the decreases in job satisfaction reduce production in the company and, consequently, overeducation will reduce worker productivity. As a result, employees would not benefit from hiring overeducated workers (with less job satisfaction), but rather those that are adequately educated and more satisfied with their job. The effect that an educational mismatch has on company productivity was also analyzed by Kampelmann and Rycx (2012). Pérez (2005) affirms that overeducation can affect worker productivity, their mobility, job satisfaction, the wage differentials, and at the macro level, it can help explain youth unemployment. Peiró, Agut and Grau (2010) relate overqualification to job satisfaction in the case of young Spanish workers; this same relation is studied for the case of women by Fleming and Kler (2014). Works such as that by Sánchez-Sánchez and McGuinness (2011) analyze the influence of overqualification on income and job satisfaction.

For Simo et al. (2010), organizations should concentrate their efforts on increasing employee satisfaction in their professional careers, focusing on the factors that determine satisfaction (progress, achieved goals, wages, improvement of professional skills, among others). Offering positions of greater responsibility, delegating tasks, recognizing work well done (Peluchette, 1993), improving jobs, proposing training directed by the increase and continuous improvement of professional competence and skills, as well as the development of staff efficiency (Abele and Spurk, 2009), are just some activities that companies can carry out to increase the professional success of their employees. Desirable behaviors in organizations are significantly superior in people who have committed themselves emotionally (Meyer et al., 2000). In this regard, Westover and Taylor (2010) state that in an increasingly competitive global market, organizations are wondering how to make the most of their employees. The various solutions include strengthening and disseminating the fundamental values of the organization, and the belief that an increase in job satisfaction produces gains in worker productivity, and helps create a high-performance commitment.

In summary, overqualified workers are a waste of investment in education. Not only that, but this situation can also negatively affect worker performance, since it can generate discontent and dissatisfaction among them when their initial expectations are not met.

Economic cycle and overqualification

The latest economic crisis has eroded the corporatist framework for the creation of work, socioeconomic and well-being policies in Spain (González and Luque, 2014). According to Huerta (2010), the years since the onset of the global financial crisis and the subsequent economic recession have provided an opportunity to the Austrian School to popularize its economic cycle theory and its dynamic analysis approach to social reality. This economic landscape⁶ is not conducive to improving the overqualification figures.

Overqualification can be influenced by aspects such as: 1) the possible change in the productive system of the Spanish economy following the crisis; and 2) the Bologna process, which aims to bring the requirements of the companies and the training of the graduates closer together. With regard to the first point, not only does the university system in Spain continue to

⁶ Huerta (2010) refers to a financial crisis and economic recession unparalleled in the world since the Great Depression of 1929.

generate a large number of graduates, but also the productive model based on the construction and tourism favors a high mismatch between training and employment. The economic crisis that began in 2008 may have meant the beginning of a change in the productive composition of the economy, which could have important consequences in both the job insertion process and in overqualification (IVIE, 2009b). With regard to the second point, the implementation of Bologna laid the foundations for the European Higher Education Area (EHEA), which marked a radical change in the way higher education was approached. This change in teaching methodologies entails, among other competences, the use of basic information and communication technology (ICT) tools necessary for the exercise of professional activities, which is why university training is closer to business needs.

Verhaest and Van der Velden (2013) focus their study on overeducation (of young graduates) in several countries, obtaining that the differences in overeducation are explained by the quality and approach (general versus specific) of the educational system/program, the economic cycle and the relative oversupply of a highly qualified workforce.

IVIE (2009b) notes that the economic cycle affects all markets, including the job market. In this regard, one might ask whether there is a relationship between the economic cycle and the evolution of overqualification. Furthermore, given the persistence of overqualification, the timing of entry into the job market and the cyclical situation of the economy at that time (expansion or recession) would also be important. Thus, the level of overqualification would be higher in recessive phases and lower in expansive or growth phases. Entering the job market at a cyclical time of crisis can lead to overqualification in subsequent jobs. According to Croce and Ghignoni (2012), when a recession hits the economy, overeducation can be expected to increase. In addition, these authors shed light on the possible effects of the recession that hits industrialized countries and on the policy measures needed to promote economic recovery.

The cyclical situation of the economy may influence the decision to leave the educational system and enter the job market, or vice versa. The effects of the recession are particularly significant on youth unemployment. The economic crisis causes a reduction in the opportunity cost of continuing education, given that with few possibilities of work the option to continue studying becomes more expensive. Sanromá and Ramos (2004) state that since unemployment is higher among women, a higher unemployment rate could lead women to accept jobs where the educational requirements are lower than those they have. In this way, employment opportunities and overeducation can be clearly interrelated. According to IVIE (2013), the crisis has reinforced the role of education as a protective factor against unemployment given that the unemployment rate decreases with the level of education, i.e., higher education leads to a lower unemployment rate.

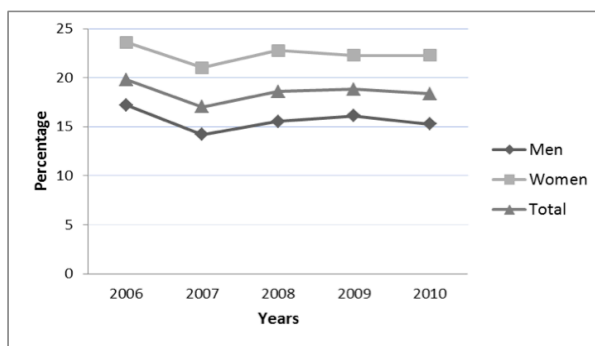
Figure 1 shows the evolution of overqualification in Spain for the 2006-2010 period according to gender. We can observe that overqualification is higher for women than it is for men for all years. In the year prior to the onset of the crisis (2007) there was a drop of around 2-3% in overall overqualification if compared to 2006, figures that will rise again the following year with the onset of the crisis. Of the following years, 2009 shows the highest figures of overqualification, except for women. We cannot advance in this study in later years because the Quality of life at work survey ends in 2010.

Data

For the empirical contrast of the theoretical principles analyzed in this work, we shall use the latest microdata from the Quality of life at work survey (ECVT for its acronym in Spanish), provided by the Ministry of Employment and Social security for 2010, in order to explain the degree of satisfaction with the current job based on the job position.

The geographical scope of this survey is the entire Spanish territory, except for Ceuta and Melilla, and the population scope is delimited by the employed population aged 16 years old and over living in family dwellings. It uses a list of dwellings and their inhabitants as a framework, obtained from the Continuous Register as of February 2010.

Figure 1. Overqualification in the 2006-2010 period according to gender, by percentage



Source: Own elaboration from the Quality of Working Life Survey (Spanish Ministry of Employment and Social Security, 2010).

The ECVT questionnaire is comprised of different blocks, in response to the existence of multiple research objectives. These blocks are:

1. Sociodemographic data: age, gender and level of education are collected.
2. Employment status
 - 2.1. Occupation: includes variables that describe the job.
3. Quality of life at work
 - 3.1. Job satisfaction
 - 3.2. Work organization
 - 3.3. Work environment
 - 3.4. Work relations
 - 3.5. Working hours
 - 3.6. Occupational safety
 - 3.7. Academic and professional training
 - 3.8. Work compensation
 - 3.9. Reconciliation of work and family life
 - 3.10. Attitudes and opinions
 - 3.11. Collective negotiation
 - 3.12. Associationism
 - 3.13. Job and geographical mobility

The ECVT sample was drawn from a stratified tri-stage sampling. The crossing of the autonomous community and the size section of the municipality were considered as strata, according to the following classification:

1. Province capitals.
2. Municipalities with more than 100,000 inhabitants and important municipalities in relation to the province (province capitals are excluded).
3. Municipalities with more than 50,000 and less than 100,001 inhabitants (province capitals and important municipalities in relation to the province included in the previous stratum are excluded).
4. Municipalities with more than 10,000 and less than 50,001 inhabitants (province capitals are excluded).
5. Municipalities with less than 10,001 inhabitants.

The selection of the sample of first-stage units (census sections) was carried out by applying a systematic sampling within each stratum with probabilities of selection proportional to the size of each section, measured in the number of dwellings with at least one registered person aged 65 years or less. Within each section, the selection of second-stage units was carried out by simple random sampling (a sample of dwellings with equal probability for each of the dwellings in the section). Finally, an employed person was randomly chosen from each dwelling selected in the second stage.

Analysis and explanatory model

The survey is comprised of 8,061 people. The entire study presented in this section is going to be a bivariate analysis, because our interest lies in linking two variables—satisfaction and overqualification—within a concrete framework, this being the 2008 crisis. The methodology used is justified by the type of variables involved and by the very purpose of the study. We will also verify some results that confirm the suitability of the methods applied.

Question 20 of the ECVT questionnaire reads as follows: “Indicate your degree of satisfaction at your current job (use a 0 to 10 scale, where 0: no satisfaction - 10: very high satisfaction)”. Question 22 reads: “Indicate your degree of satisfaction with the following aspects related to your current job (use a 0 to 10 scale, where 0: no satisfaction - 10: very high satisfaction; NA: not applicable): 1. Work organization in your company or organization; 2. Possibility of promotions in your company or organization; 3. Assessment of your hierarchical superiors of the work you perform. Question 26 asks that you “Indicate your degree of satisfaction with the following aspects related to your current job (same scale as before)”: 1. Activity performed; 2. Personal development (realization); 3. Level of autonomy/independence; 4. Level of participation in the decisions made concerning the tasks performed; 5. Level of motivation.

Our dependent variable is the degree of satisfaction with the current job, taking values from 0 to 10, where 0 reflects no satisfaction and 10 very high satisfaction. The independent variable is the job position, in accordance with their training or not, which consists of four categories: correct, lower than the level of training, above the level of training, and needs a different training than the one they have. Table 1 shows the contingency table of the two variables.

Table 1

Contingency table Degree of satisfaction with current job * Job position, percentages

		Job position according to the training				Total
		Correct	Lower than the level of training	Above the level of training	Needs different training	
Degree of satisfaction with current job	0,00	0,3%	1,0%	2,6%	1,7%	0,5%
	1,00	0,4%	0,8%		1,7%	0,5%
	2,00	1,0%	1,8%	0,9%	1,7%	1,2%
	3,00	1,1%	2,6%	1,7%	3,4%	1,4%
	4,00	1,6%	4,6%	3,4%	6,2%	2,2%
	5,00	7,7%	11,7%	4,3%	14,0%	8,5%
	6,00	9,5%	18,2%	12,8%	15,7%	11,2%
	7,00	20,4%	23,0%	17,9%	20,2%	20,8%
	8,00	30,8%	23,4%	29,9%	20,8%	29,3%
	9,00	14,1%	7,9%	17,9%	7,9%	12,9%
	10,00	13,2%	5,1%	8,5%	6,7%	11,6%
Total		100,0%	100,0%	100,0%	100,0%	100,0%

Source: Own elaboration based on the Quality of life at work survey (Ministry of Employment and Social Security, 2010).

First of all, we want to verify if both variables are independent or not. The following contrast is done:

H_0 : degree of satisfaction and job position are independent

H_1 : degree of satisfaction and job position are not independent

Chi-squared tests are carried out, obtaining a Pearson chi-squared statistic with a value of 377.477 ($p=0.000$) and a plausibility ratio of 359.869 ($p=0.000$) that call to reject the null hypothesis, therefore, both variables are not independent. Since they are not independent, the measures of association (Table 2) are calculated. These are appropriate in the case of contingency tables when the categorical variables are nominal; in this case, they indicate poor association since the coefficients are close to zero.

Table 2

Measures of association

		Value	Approximate Sig.
Coefficients	Phi	0,216	0,000
	Cramer's V	0,125	0,000
	Contingency coefficient	0,212	0,000
N of valid cases		8061	

Source: Own elaboration based on the Quality of life at work survey (Ministry of Employment and Social Security, 2010).

In the following correspondence analysis, we verify once more that the variables are not independent (see $p=0.000$ in Table 3). The total inertia represents the total explanation of the axes (explaining a total of 0.051). Although the inertia value may seem small, (0.049, 0.002 and 0.000), together the three axes account for 100% of the variance. We observe that only the

first dimension contributes 95.2% to said inertia and that the first two contribute 99%, thus we can affirm that the dependencies observed in the contingency table are adequately collected by the first two dimensions.

Table 3
 Contributions of each dimension to the total inertia

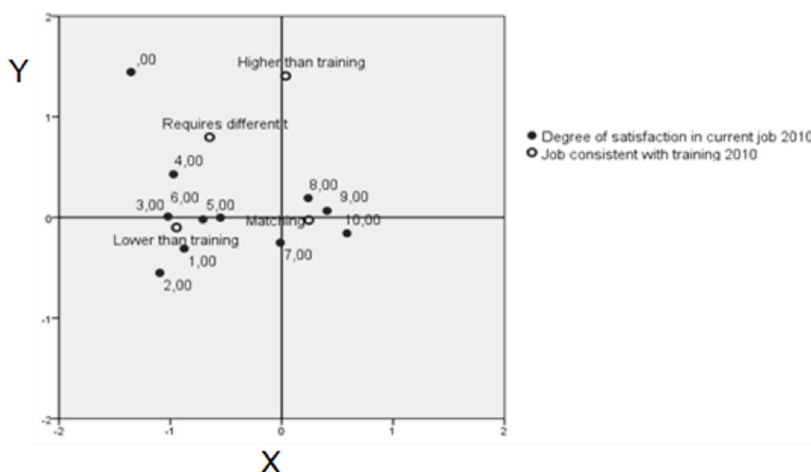
Dimension	Own value	Inertia	Chi-squared	Sig.	Ratio of inertia		Confidence for Own value	
					Explained	Accumulated	Stand. Dev.	Correlation
								2
1	0,221	0,049			0,952	0,952	0,000	-0,007
2	0,045	0,002			0,040	0,992	0,000	
3	0,020	0,000			0,008	1,000		
Total		0,051	941496,166	0,00 ^a	1,000	1,000		

a. 30 degrees of freedom

Source: Own elaboration based on the Quality of life at work survey (Ministry of Employment and Social Security, 2010).

Figure 2 shows the relationships between the categories of the variables Degree of satisfaction and Job position. The symmetric standardization method is applied, according to which, for each dimension, the row scores are the weighted mean of the column scores divided by the coinciding own value, and vice versa for the column scores. This method is suitable for examining the differences or similarities between the categories of both variables. This same technique was used in an overqualification study by Sánchez-Sellero et al. (2003).

Figure 2. Graphic representation of the row and column points. Symmetrical standardization.



Source: Own elaboration based on the Quality of life at work survey (Ministry of Employment and Social Security, 2010).

In view of the situation of the categories on the plane, it can be observed that overqualification (lower job position than training) is associated with satisfaction scores of 1, 2 and 3, whereas when the job position is appropriate to the training of the worker (correct), the satisfaction scores are of 7, 8, 9 and 10. These results confirmed what was previously stated in the theoretical analysis, as indicated in Tsang (1987).

Below, we apply a statistical method of estimation that incorporates the ordinal nature of the dependent variable, as in other works such as Yay and Akinci (2009) or Eboli and Mazulla (2009). This is the ordinal logistic regression, which can be considered an extension of the binary logistic regression. The logistic regression analysis has the advantage of not requiring assumptions such as the multivariate normality and homoscedasticity (equality of variances), which can be difficult to verify. This model is more powerful than the discriminant analysis when these assumptions are not met. The aim is to analyze the influence of the job position, whether or not it agrees with the training, on the degree of satisfaction with the current job.

In the ECVT, each worker assesses their degree of satisfaction with the job on a scale of 0 to 10, where 0 is “no satisfaction” and 10 is “very high satisfaction”. From the responses obtained, we have defined an ordinal variable that can take values of 1, 2 and 3, depending on whether the degree of satisfaction is low (responses from 0 to 3), medium (responses from 4 to 7) and high (responses from 8 to 10). This new variable is the dependent variable in the subsequent empirical study. The redefinition of the variable that we have carried out is frequent in studies on job satisfaction, such as those by Álvarez and Miles (2006), Lévy-Garboua and Montmarquette (1997) in Canada, and the percentages for the United States obtained by Moguérou (2002). We could verify that the figures obtained for the different countries are similar to those obtained with the ECVT. More recently, the application of this same ordinal logistic regression model based on the variable degree of satisfaction transformed can be observed in Sánchez-Sellero et al. (2017).

Table 4 shows the summary of the data, with the new variable (transformed); although the sample size is of 8,061 people, when weighted by the elevation factor, it represents a population of 18,409,625 people.

Table 4
Summary of case processing

		N	Marginal percentage
Degree of satisfaction transformed	1,00	676832	3,7%
	2,00	7856765	42,7%
	3,00	9876028	53,6%
Job consistent with training	Matching	14315780	77,8%
	Lower than training	3380994	18,4%
	Higher than training	249707	1,4%
	Requires different training	463145	2,5%
Total		18409625	18409625

Source: Own elaboration based on the Quality of life at work survey (Ministry of Employment and Social Security, 2010).

Table 5 corresponds to the global fit test of the model. The chi-squared statistic ($p < 0.05$) indicates that the final model notes a significant improvement over the intersection-only model, thus the hypothesis that the model without the inclusion of the explicative variable is suitable is rejected. The pseudo R² have the following values: Cox and Snell 0.034; Nagelkerke 0.042; McFadden 0.021. Although these results are of a smaller scale, it is reasonable that, for example, only 4.2% (Nagelkerke) of the degree of satisfaction in the job is explained by the variable job position, since they influence many more variables that were not included in this model.

Table 5

Information on the global fit of the model

Model	-2 log of plausibility	Chi-squared	gl	Sig.
Intersection-only	645007,204			
Final	4246,695	640760,510	3	0,000

Link function: Logit.

Source: own elaboration from the Quality of Working Life Survey (Spanish Ministry of Employment and Social Security, 2010).

Table 6 shows the estimations of the parameters. The number of parameters is the number of categories of the variable minus one. All of the parameters are significant and, in addition, overqualified workers (lower job position than level of training) have a lower degree of job satisfaction than workers in which the job position needs different training (reference category, which corresponds to a zero coefficient). The Wald statistic is the square of the relationship between the parameter and its standard error. This same procedure, which consists in carrying out an ordinal regression based on the variable degree of satisfaction transformed, can be observed in Sánchez-Sellero et al. (2017).

Table 6

Parameter estimations (Ordinal logistic regression)

	Estimation	Stand. error	Wald	gl	Sig.	95% Confidence interval	
						Lower limit	Upper limit
Degree of satisfaction transformed = 1.00	-2,976	0,003	927125,248	1	0,000	-2,982	-2,969
Degree of satisfaction transformed = 2.00	0,218	0,003	5734,100	1	0,000	0,212	0,224
Correct	0,548	0,003	35034,522	1	0,000	0,542	0,554
Lower than level of training	-0,396	0,003	16626,676	1	0,000	-0,402	-0,390
Above level of training	0,652	0,005	17151,383	1	0,000	0,643	0,662
Needs different training	0 ^a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Source: Own elaboration based on the Quality of life at work survey (Ministry of Employment and Social Security, 2010).

In Table 7 we calculated the estimated probabilities for each of the cases, that is, if the job position is correct, if it is lower than the level of training, if it is above the level of training, and if it needs different training. As can be observed, if the job position is lower than the level of training (overqualification), the estimated probability for the medium degree of

satisfaction is of 57.85%. If we compare this figure with the percentages of Table 1, when the degree of satisfaction is equal to 4, 5, 6 and 7 (non-transformed variable) it provides a value of 57.5%; therefore, the model reproduces the data summarized in the contingency table very well. According to Table 7, if the workers are overqualified, the degree of job satisfaction is estimated to be 7.05%, 57.85% and 35.10%, depending on whether satisfaction is classified as low, medium or high, respectively. However, if the workers occupy a job commensurate with their training, the estimated probabilities are of 2.87%, 38.96% and 58.17%, respectively. It can also be observed that if the job position is correct, the highest estimated probability (58.17%) corresponds to the high degree of satisfaction, whereby, the direct consequence is the following: overqualified workers have a lower degree of satisfaction than those whose job position is adequate to their training. We have reached this conclusion in both the ordinal regression and the graphical study of the correspondence analysis.

Table 7. Estimated probabilities (ordinal logistic regression)

Job consistent with training		Estimated probability for the category of response: 1.00 (Low degree of satisfaction)	Estimated probability for the category of response: 2.00 (Medium degree of satisfaction)	Estimated probability for the category of response: 3.00 (High degree of satisfaction)
Matching	Mean	0.0287	0.3896	0.5817
	Population size	14,315,780	14,315,780	14,315,780
	Stand. error	0	0	0
Lower than training	Mean	0.0705	0.5785	0.3510
	Population size	3,380,994	3,380,994	3,380,994
	Stand. error	0	0	0
Higher than training	Mean	0.0259	0.3672	0.6069
	Population size	249,707	249,707	249,707
	Stand. error	0	0	0
Requires different training	Mean	0.0485	0.5058	0.4457
	Population size	463,145	463,145	463,145
	Stand. error	0	0	0

Source: Own elaboration based on the Quality of life at work survey (Ministry of Employment and Social Security, 2010).

Finally, we conclude this work with a study of job satisfaction figures for the year before the crisis began (2007) and during the crisis—the two years following its onset (2009 and 2010). We can observe in Table 8 how the mean job satisfaction figures increase in a generalized manner during the years of the crisis and, in addition (Table 9), this increase occurs for all the groups studied, and particularly, for overqualified workers. According to Sánchez-Sellero et al. (2017), in the evolution between 2007-2010 of the mean level of job satisfaction there are general slight increases; this result, which was not what we had initially predicted, can be explained by the high unemployment rate, employed workers consider themselves fortunate to have a job and their level of demand decreases.

Table 8

Mean degrees of job satisfaction before and during the 2008 Spanish economic crisis. Sample and population sizes in different years.

Years	Sample Size	Population Size	Degree of satisfaction with current job (Mean)
2007	7782	20310525	7,2060
2009	7981	18839975	7,3287
2010	8061	18409625	7,3578

Source: own elaboration from the Quality of Working Life Survey (Spanish Ministry of Employment and Social Security, 2010).

Table 9

Mean degrees of job satisfaction before and during the 2008 Spanish economic crisis, according to the job position.

Years		Job Position			
		Correct	Lower than the level of training	Above the level of training	Needs different training
2007	Degree of satisfaction	7,4186	6,3106	7,0405	6,9283
2009	with the current job	7,5435	6,4687	7,5178	6,9803
2010		7,5547	6,5954	7,3852	6,8224
Mean					

Source: Own elaboration based on the Quality of life at work survey (Ministry of Employment and Social Security, 2007, 2009 and 2010).

Conclusions

Overqualification or overeducation is nothing more than a mismatch that occurs when workers have a higher level of education than what is required by their job. As we have seen in the theoretical rationale, overqualification leads to lower wages, may be associated with job dissatisfaction, may reduce worker productivity, etc.

The cyclical economic situation may influence the decision to leave the educational system and enter the job market, or vice versa. The level of overqualification would be higher in recessive phases and lower in growth phases. Entering the job market during a period of crisis can generate permanence in overqualification. The empirical analysis developed is carried out during a period of crisis in the Spanish job market.

The independence contrast based on the variables Degree of satisfaction and Job position shows that both variables are not independent. This justifies, on the one hand, the use of measures of association, and on the other, the application of a correspondence analysis. In view of the situation of the categories on the plane, it is observed that overqualification is associated with low degrees of satisfaction (1, 2 and 3), whereas if the job position is suitable for the training of the worker, the degree of satisfaction is high (7, 8, 9 and 10). With the variable Recoded degree of satisfaction (1 - low degree of satisfaction, 2 - medium degree of satisfaction and 3 - high degree of satisfaction) we applied an ordinal logistic regression, obtaining very good results since the estimated probabilities reproduce very well the initial percentages of the

contingency table. For example, the estimated probability of obtaining a medium degree of satisfaction for an overqualified worker is of 57.85%, with the percentage obtained being in the initial contingency table of 57.5%. We consider the results of the empirical analysis to be very satisfactory, since they confirmed the theoretical assumptions of section 2.

At present, there is a growth spiral in the level of studies of the job-seeking population, which causes a mismatch with the job market, given that the increase in the educational needs of the employers grows at a slower rate. Companies offer few jobs, and these have lower training requirements than those held by the job-seekers.

The overqualification of the 21st century (particularly, 2008 onwards) is more present than in previous decades, not only because of the current economic crisis, but also because the younger generations have increased their level of education and, therefore, there is an abundance of highly educated workers. This fact is already decisive for a large number of youth who are trying to enter the job market to do so in jobs that have a lower training requirement. Nevertheless, in the current crisis, young people with university studies have the lowest unemployment rates, because since there are few jobs, these are occupied with the most qualified people. In the absence of employment opportunities, young people decide to continue studying. All of this leads to many university graduates performing tasks that do not require training, and ultimately make the concept of overqualification fully relevant. Furthermore, we have theoretically and empirically proven that overqualified workers are less satisfied than those whose job is suitable for their training. As a result, less satisfied workers are generally equivalent to less productive workers.

In this work, 8,061 workers were studied and the relationship between job satisfaction and the overqualification of employees, employers, and the self-employed taken as a whole was analyzed. The employment decisions and the working conditions of these groups differ greatly, so that the relationship between overqualification and satisfaction could be particularized for each of them in other subsequent jobs. Something similar can be expected between public and private sector employees.

When the crisis strikes our economy, and cuts in public services are on the agenda, two events occur simultaneously: on the one hand, the decrease in education budgets and, on the other, waste of educational investment (overqualification). In light of the overqualification phenomenon, there must be room in the job market for policies that favor an adequate reallocation of labor.

In this article we have tried to link three terms: overqualification, satisfaction and crisis. We conclude that the degree of satisfaction of overqualified workers is lower than in workers whose jobs are commensurate with their training. Therefore, this fact (overqualification → dissatisfaction) which was initially our starting point, remains valid when the economic landscape is unstable. What is interesting is that in years of crisis (2009 and 2010) the mean job satisfaction figures increased slightly in a general manner, particularly for overqualified workers; in light of the high unemployment rates, many workers accept the jobs presented to them regardless of whether they are of good or poor quality (job insecurity) or whether they are in line with their training (overqualification). Having a job can cushion the fall in the degree of satisfaction.

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