

Influence of educational factors on the education-job match in men and women

Influencia de factores de tipo educativo en el ajuste formación-empleo en hombres y mujeres

Rodríguez-Esteban, A. , & Vidal, J. 

University of Leon (Spain)

Abstract

In Spain, the number of job mismatch graduates is higher than in other surrounding countries. The reasons for this phenomenon differ, to a certain extent, according to the gender of the worker. This research analyses the educational factors that best predict education-job match in men and women. The two most frequent education-job match types have been analyzed: vertical match and horizontal match. Data have been obtained from the 2014 University Graduates Labor Insertion Survey prepared by the National Statistics Institute. We have worked with a sample of 19272 individuals. In addition to contingency tests, the predictive value of the educational variables was explored using binary logistic regression analysis. We find, as a main result, that variables such as the area of study, the possession of another university degree, the level of languages or the knowledge of new technologies have a greater influence on the education-job match in the case of women. The results can be explained on the basis of different theories which indicate that the reasons that lead an individual to choose a job not related to his training differ according to the gender of the worker. Family obligations continue to be elements that condition, to a large extent, women's employment decisions. Labor market seems to value the skills acquired by men and women differently.

Keywords: Employed women; underemployment; High School Graduates; education-job match; employability; labor insertion.

Resumen

En España, el número de universitarios que tiene un empleo no ajustado a su formación es mayor que en otros países del entorno. Las razones de este fenómeno difieren, en cierta medida, según el género del trabajador. La presente investigación analiza los factores de tipo educativo que mejor predicen el ajuste formación-empleo en hombres y mujeres. Se han analizado las dos modalidades de ajuste más frecuentes: el ajuste vertical y el ajuste horizontal. Los datos han sido obtenidos de la Encuesta de Inserción Laboral de los Titulados Universitarios 2014 elaborada por el Instituto Nacional de Estadística. Hemos trabajado con una muestra de 19272 individuos. Además de pruebas de contingencia, se ha empleado la técnica de la regresión logística binaria para determinar el valor predictivo de las variables elegidas sobre el ajuste. Encontramos, como resultado principal, que variables como el área de estudio, la posesión de otra titulación universitaria, el nivel de idiomas o el manejo de nuevas tecnologías ejercen una mayor influencia en el ajuste formación-empleo en el caso de las mujeres. Los resultados pueden explicarse sobre la base de las distintas teorías que señalan que las razones que llevan a un individuo a elegir un trabajo no ajustado a su formación difieren según el género del trabajador. Las obligaciones familiares siguen siendo elementos que condicionan, en gran medida, las decisiones laborales de las mujeres. El mercado de trabajo parece valorar las competencias adquiridas de forma diferente en hombres y mujeres

Palabras clave: Mujeres empleadas; Subempleo; Titulados universitarios; Desajuste educativo; Empleabilidad; Inserción laboral.

Received/Recibido 2020 February 18

Approved /Aprobado 2020 March 22

Published/Publicado 2020 April 02

The education system has been concerned with analysing the mismatch between training and employment because it represents a low return on knowledge and an inefficient allocation of resources (Flisi, Goglio, Meroni, Rodrigues, & Vera-Toscano, 2014; García-Blanco & Cárdenas-Sempértegui, 2018;

Iriondo & Pérez-Amaral, 2016). In 2014, 29% of the adult European population was performing work for which a lower level of training was required (Cedefop, 2015). Studies such as that by Salinas-Jiménez, Rahona-López, and Murillo-Huertas (2013) and Montt (2017) show that the data for this mismatch in

Spain are higher than the international context average. The results are similar when analysing mismatch caused by the underutilisation of competencies or relationship with the study area. In this regard, 27.6% of graduates in Spain stated that their last job was a little or not at all related to their studies and 27.5% said that their level of knowledge and skill was higher than that required for their job (Michavila, Martínez, Martín-González, García-Peñalvo, & Cruz-Benito, 2016). In these areas, the data in Spain also exceeds the averages of the European Union and the OECD (Dolado, Jansen, Felgueroso, Fuentes, & Wölfl, 2013). The increase in the educational level of the population has not been accompanied by an increase in the capacity of the productive system to absorb a larger number of qualified workers (Herrera, 2017). The quite generalist modality of the university training system in our country (Acosta-Ballesteros, Osorno-del Rosal, & Rodríguez-Rodríguez, 2018), which contributes to providing graduates with a high volume of generic competencies, also provides favourable conditions for the transfer of graduates between different occupations.

Regarding the situations of men and women in the labour market, and despite the positive evolution of recent years, important differences continue to occur. The objective indicators refer to a higher rate of female unemployment and a persistent wage gap (Social Observatory of "la Caixa", 2019). In addition, the Spanish labour market, with a high degree of occupational segregation, makes it more difficult for women to move up the employment ladder (Cebrián & Moreno, 2018). However, the subjective aspects should not be forgotten. The traditional gendered division of labour is still a reality. In many cases family responsibilities, more often assumed by women, condition labour-type decisions (Castellano & Rocca, 2018; Dibeh, Fakh, & Marrouch, 2019; European Institute for Gender Equality, 2017).

Despite the association of gender stereotypes with certain occupations being considered one of the subjective factors leading a worker to accept a mismatched job (European

Parliament, 2015), the research describing the relationship between graduate gender and job mismatch is not very extensive. In general, gender has only been included in analysis models as one predictor variable. No studies have been found that analyse this phenomenon separately for both genders.

This research analyses the influence that certain factors related to university education have on the employability of men and women, considering one of the key indicators that define it—the education-job match. In the following section we describe the main theoretical and empirical contributions that have been made to this phenomenon.

Types of and reasons for mismatch

A mismatch occurs when the requirements of a particular job do not match the characteristics of the worker performing it (Badillo-Amador, López-Nicolás, & Vila, 2012), however, ways of addressing this phenomenon have been varied (Flisi et al., 2014; Rodríguez, 2014).

In general, two different types of education-job match have been considered (Teichler, 2007). The first of these is vertical match, which refers to the adequacy of the level of study for the occupational status. This match modality, which leads to the phenomenon called overqualification, has been widely studied, especially in its effect on variables such as wage (Mateos-Romero, Murillo-Huertas, & Salinas-Jiménez, 2017; Nordin, Persson, & Rooth, 2010) and job satisfaction (Hur, Maurer, & Hawley, 2019; Shevchuk, Strebkov, & Davis, 2015). Secondly, is horizontal match, which refers to the adequacy of the individual's field of study for the professional field in which they are employed (Mahuteau, Mavromaras, Sloane, & Wei, 2015; Robst, 2007a). The consequences of this type of mismatch are more important for job satisfaction (Bédoué & Giret, 2011; Somers, Cabus, Groot, & Maassen, 2016).

As for the reasons that can lead an individual to accept a mismatched job, we assume the point of view of Robst (2007b), who distinguishes two major types. On the one hand are reasons related to demand: one worker accepts a situation of mismatch in the absence

of a matched vacancy in the labour market and, in many cases, as an alternative to unemployment. These reasons are considered to be involuntary (Mahuteau et al., 2015; Verhaest, Sellami, & van der Velden, 2017). On the other hand, there are offer related reasons, which are voluntary. In this group are professional career reasons, such as the search for higher remuneration or job promotion opportunities, and those related to the work-family situation (schedule, location of job) (Béduwé & Giret, 2011; Bender & Roche, 2013; Fabbris & Scioni, 2018; Robst, 2007b). In these cases, the chosen employment is not necessarily considered a 'bad job' (Rodríguez, Vidal, & Vieira, 2018; Shevchuk et al., 2015).

Education-job match from a gender perspective

Studies that have described the incidence of gender mismatch reveal that differences between men and women are scarce, with results also inconsistent with respect to the prevalence of one or the other gender. In Spain, Salinas-Jiménez et al., (2013), working with 2006 data from the Wage Structure Survey, found overqualification rates of 37.4% in the case of men and 34.6% in the case of women. In the international context, Dibeh et al. (2019) and McGowan and Andrews (2015) also found a greater probability of vertical mismatch in men. Research conducted by the International Labour Organization (ILO, 2014) also showed scarce differences, although in this case, the overqualification percentages were higher among women (24% versus 23%).

In the case of horizontal match, Robst (2007b), studying graduates in the United States, presented percentages of 53% in men and 58% in women. In Sweden, Nordin et al. (2010) indicated that 77% of men and 83% of women worked in jobs related to their area of study. In Spain, Rodríguez (2014) noted that 56% of women with a university degree had a first job appropriate to their area of study. In the case of men the percentage was higher (65%).

Considering the different reasons why a person chooses to accept a job that does not fit with their education, several investigations reveal significant differences between men and

women (see Mahuteau et al., 2015). Robst (2007b) found that family-related reasons were considered most important for 18% of women, a percentage reduced to 5.9% in the case of men. Bender and Roche (2013) found that the risk of mismatch for family-related reasons was approximately three times higher for women.

In any case, these reasons must be interpreted within the framework of motives that condition the different educational-labour decisions for men and women. Women tend to give higher priority to family-related reasons than to those related to professional career or wage (Castellano & Rocca, 2018; Dibeh et al., 2019; Heikkilä et al., 2016; Khoudja & Fleischmann, 2018). This means that women face greater restrictions when searching for employment; these restrictions may be geographical (Bender & Roche, 2013; Robst, 2007b). Given that geographical mobility is a factor that increases the labour match (Mateos, 2018) it may be that, in the case of women, the voluntary reasons for mismatch may be related to having to make decisions inside more restricted labour markets and with fewer labour options.

From a market point of view, Pedulla (2016) points out that mismatch can be perceived differently by employers, depending on the gender of the worker. In the case of men, who are culturally required to have access to work that is more suited to their training, it is likely that the mismatch is interpreted as a sign of incompetence on the part of the worker. However, in the case of women, employers will not have enough information to assess whether the reasons for the mismatch are related to the competencies of the worker or to other reasons, especially those based on the family obligations mentioned above.

Important differences have also been noted regarding the consequences of mismatch. In the case of horizontal mismatch, Robst (2007b) revealed that women had a 10% greater salary penalty than men. Nordin et al. (2010) found even greater differences. The job dissatisfaction caused by this type of mismatch is also greater in the case of women (Shevchuk et al., 2015). The results of the study by García-Mainar, García-Martín, and Montuenga (2015)

indicate that a reduction in mismatch would also contribute to a reduction in the occupational gender segregation still present in our labour market.

Despite the great volume of research describing the consequences of education-job mismatch, only a small set of studies analysing the factors that predict or are associated with the phenomenon could be found. Some of the aspects that have been investigated are: the influence of the company, the sector or type of contract (McGowan & Andrews, 2015); and family background or type of university (Erdsiek, 2016). However, these studies did not analyse the differential effects of these variables according to gender. Considering, therefore, that the labour mismatch has different consequences for men and women and can also be related to different expectations and motives between men and women, the present investigation was initiated.

Objectives

The objectives are as follows:

Describe vertical and horizontal match relating to first employment and current/last employment in men and women.

Analyse the influence that educational variables exert on the probability of education-job match in the initial incorporation into the labour market for both genders.

Compare if there are differences in the influence of these variables on match in current/last work in comparison with initial employment.

Method

Data and participants

For this research, data from the Survey on the Labour Insertion of University Graduates 2014 were used. This survey was carried out by the National Statistics Institute (NSI, 2014) and is framed in operation number 6652 of the National Statistical Plan (2013–2016). This operation is the most recent available. The objective of the survey is to provide information on the employment status of graduates in the first and second cycle and university graduates who finished their studies in the 2009–2010 academic year. Data collection was completed in February 2015 and the results were published in July 2016.

The original database has a total of 30379 individuals. Removed from this sample were those cases not relevant to our study (subjects who had not worked or who did not answer questions related to work adjustment). Our sample constitutes a total of 19272 individuals (60.4% women and 39.6% men).

Table 1 shows the distribution of individuals according to field of study. It can be seen that in most areas there is a predominance of women, whereas the proportion is reversed in the case of Engineering and Architecture.

Table 1. Distribution of graduates by field of study, according to gender

	Male (%)	Female (%)	Percentage of total
Social and Legal Sciences	31.6	68.4	42.9
Humanities	30.7	69.3	8.3
Sciences	32.9	67.1	9.6
Engineering and/or Architecture	71.1	28.9	23.6
Health Sciences	22.9	77.1	15.6

Source: NSI (2014). Self-made.

Variables

We used a subjective measurement of mismatch. Thus, in the case of vertical mismatch, answers to the question, ‘Taking into account your work, what do you think was the most appropriate level of training to perform that work?’ were considered. The

question is asked twice in the questionnaire, once regarding first job (question 61) and again regarding current or last job (question 81). Based on the answers, a new dichotomous variable was generated with the values of 0 (overqualified), including the categories of ‘vocational training’, ‘secondary education’, ‘primary education’, or ‘other’, and 1 (vertical

match), including the category 'university degree'. To determine the horizontal match, the question 'Considering your work, what do you think is, or was, the most appropriate field of study for this work?' was used. This question also appears twice in the questionnaire, once regarding first job (question 62) and again regarding current or last job (question 82). According to the four response options, another dichotomous variable was generated with the values of 0 (horizontal mismatch), including the categories 'a totally different field', and 'no particular field', and 1 (horizontal match), including the categories 'exclusively its own field of study' and 'its own or one related field'.

The educational variables used as independent or predictive variables have been organised into three groups. First, field of study groups the different degrees into five categories (Social and Legal Sciences, Humanities, Sciences, Engineering or Architecture, and Health Sciences) according to the classifications made by the National Statistics Institute. A second group incorporates three variables related to the current design of university education, which are directly linked to improvement in the employability of graduates. The first two variables are the realisation of academic internships, both curricular and extracurricular (García-Blanco & Cárdenas-Sempértegui, 2018). The third variable is the participation of graduates in international mobility programs. The third group includes three variables used as proxy indicators of different skills or abilities: the completion of other university studies and two competency characteristics in the information society, such as level of language and knowledge of new technologies (ICTs) (Rodríguez & Vieira, 2009). We considered it relevant to include these types of variables since skill difference is a large part of the justification for the salary differences that result from mismatch (Mateos-Romero & Salinas-Jiménez, 2017). The market seems to distinguish between education and qualifications.

Finally, the length and period of initial job search were incorporated into the model as control variables.

Analysis technique and procedure

According to the objectives of the study, contingency tests were carried out to determine the possible association between the gender of the graduates and the percentages of education-job match in both first and current or last job. Subsequently, the binary logistic regression technique has been applied to ascertain the factors that determine the probability of vertical and horizontal match for men and women in their first job. We replicated this structure for the analysis of current or last employment. It is important to consider that, in the case of current or last employment, only those subjects who have changed from their initial job are part of the sample.

The formula used is as follows:

$$\begin{aligned} \text{Logit}[\pi(Y = 1)] &= \text{Ln}\left(\frac{\pi_i}{1 - \pi_i}\right) \\ &= \beta_0 + \beta_1 x_1 + \dots + \beta_p x_p \end{aligned}$$

Being:

β , each of the coefficients associated with each variable that determines its incidence in the likelihood of match;

π_i , the likelihood of developing a matched job;
Y

$1 - \pi_i$, the likelihood that employment is not matched to level or field of study.

The estimator of the parameter β_p is interpreted as the variation in the Logit (neperian logarithm of the odds ratio) derived from a unit change in x_p . The odds ratio is defined as the ratio between the likelihood of occurrence of a phenomenon (in our case, the education-job match) in relation to the likelihood of non-occurrence of it.

The reference individual used for the comparisons in each of the variables was a graduate in Social and Legal Sciences who has

not been involved in academic, curricular or extracurricular internships; has not participated in international mobility programs; has not completed other university studies; has low level or basic language ability and ICT skills; and who had an initial period of unemployment not exceeding three months.

Results

Differences in the incidence of education-job match according to gender

Figure 1 shows that men had slightly higher vertical and horizontal match percentages,

both in first employment and in current or last employment. In the case of first job, contingency tests revealed significant differences between men and women in vertical match ($\chi^2=18.773$; $p=0.000$). For the men, 76.8% obtained a first job matched to their training level. For women this percentage was 74%. The differences are not significant in the case of horizontal match.

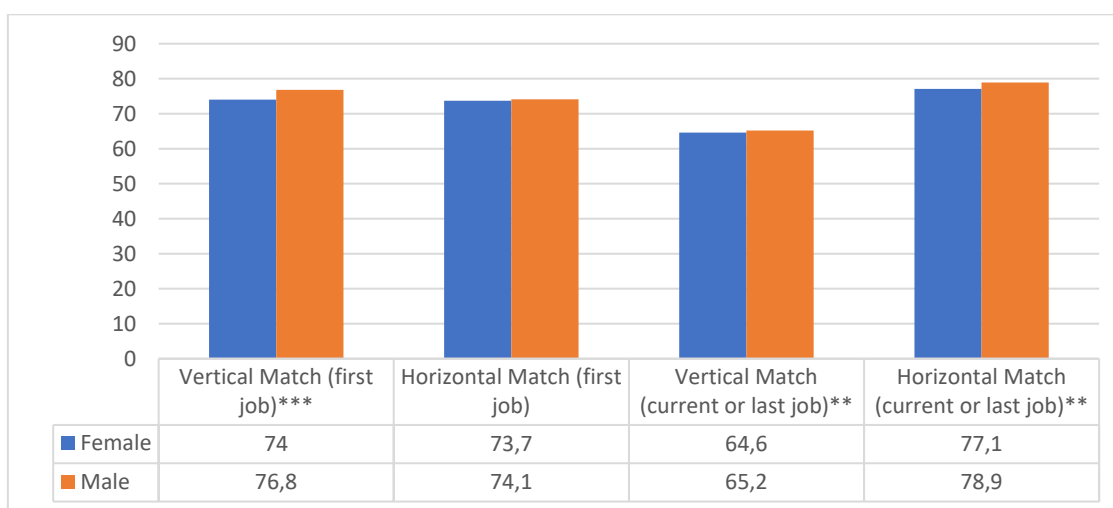


Figure 1. Matched workers according to gender

(*** $p<0.000$; ** $p<0.05$)

In relation to the analysis of match for current or last employment, we must point out that, because it was a question only answered by workers who had changed jobs from their initial one, the percentages are underestimated. This is because the matched workers who remained in their first job have not been included in the analysis. The analysis shows significant differences, both in the vertical adjustment ($\chi^2=5,846$; $p=0.028$) and in the horizontal adjustment ($\chi^2=7,796$; $p=0.005$), with higher percentages in the case of the men.

Education-job match in the initial insertion process in the labour market (first job after graduation)

Table 2 shows the coefficients of the estimates made to determine the influence of

the selected variables on the likelihood of attaining a match in first job. Four estimates have been made (two for each match modality) that consider men and women separately.

The results show no differences in the influence of age on vertical match. The negative sign associated with the regression coefficient in individuals aged between 30 and 40 years reveals that, for both men and women, the likelihood of finding a job matched to their educational level was significantly reduced compared to those aged under 30. In terms of a gender-based divergence in the case of horizontal match, it was found that the group of older workers (35 years or older) had a more than 50% greater likelihood of finding a job matched to their area of study compared to the group of women workers under 30 years old.

No age influence was observed in the case of men.

In both groups, field of study is seen as a very influential variable in education-job match, although, in general, the influence is more decisive in women. Thus, a woman with a degree in Health Sciences is almost 12 times more likely to have a first job matched to the level of her degree than a woman with a degree in Social and Legal Sciences. In the case of men, this probability is only six times higher.

The difference in likelihood of vertical match for graduates in Engineering or Architecture and in Sciences, when compared to graduates in Social and Legal Sciences, is also greater than that observed in the case of men. In horizontal match, the greater influence of this variable is also observed in the case of women, with the exception of Engineering or Architecture degrees. The differences between men and women, in terms of likelihood of match, are smaller than in the case of vertical match.

Table 2. Estimation of effects for education-job match in the initial insertion process in the labour market

	Vertical Match		Horizontal Match	
	Female	Male	Female	Male
Constant	0.303	0.718	0.512	0.996
Under 30 years old				
30 to 34 years old	-0.165**(0.848)	-0.169**(0.844)	-0.073(0.930)	-0.010(0.990)
35 or more years old	0.135(1.145)	-0.076(0.927)	0.441**(1.509)	0.095(1.100)
Educational Variables				
Field of Study				
Social and Legal Sciences				
Humanities	-0.181(0.834)	-0.526*** (0.591)	-0.475*** (0.622)	-0.662*** (0.516)
Sciences	0.554*** (1.740)	0.468*** (1.596)	0.388*** (1.474)	0.072(1.075)
Engineering/Architecture	0.456*** (1.578)	0.312*** (1.367)	0.342** (1.408)	0.471*** (1.602)
Health Sciences	2.476*** (11.897)	1.820*** (6.196)	1.891*** (6.623)	1.485*** (4.416)
Internships curricular				
No				
A quarter	-0.156(0.856)	0.008(1.008)	0.005(1.005)	0.084(1.087)
More than a quarter	-0.067(0.935)	-0.018(0.982)	0.047(1.049)	0.197(1.218)
Internships extracurricular				
No				
A quarter	-0.035(0.966)	0.232(1.262)	-0.179(0.836)	-0.029(0.972)
More than a quarter	-0.035(0.965)	0.195(1.215)	0.069(1.071)	-0.036(0.964)
International Mobility Program	0.318*** (1.375)	0.324*** (1.382)	0.151(1.164)	0.117(1.124)
Other university studies	0.581*** (1.787)	0.405*** (1.500)	0.189** (1.209)	0.093(1.098)
Language level				
Low/null				
Medium	0.161(1.174)	0.252(1.287)	0.250(1.284)	0.039(1.039)
High	0.695*** (2.005)	0.739*** (2.095)	0.419** (1.520)	0.142(1.153)
ICT knowledge				
Basic				
Advanced	0.121(1.129)	-0.037(0.964)	0.045(1.046)	-0.157(0.855)
Expert	0.376*** (1.457)	0.252(1.287)	0.156(1.169)	0.179(1.196)
Period of initial job search				
Less than 3 months				
3 months to 1 year	-0.310*** (0.733)	-0.553*** (0.575)	-0.185** (0.831)	-0.467*** (0.627)
More than a year	-0.492*** (0.612)	-0.775*** (0.461)	-0.464*** (0.629)	-0.662*** (0.516)
-2RLL	4626.666	7285.203	3843.191	2776.047
Adjusted R ² (Cox y Snell)	0.074	0.120	0.075	0.066
p<0.1 Not considered				

***p<0.01 **p<0.05. Next to the value of the exponent, the value of the odds ratio is included in brackets.

There are no differences between men and women in the influence that academic, curricular, or extracurricular internships have on the match. These activities do not improve the likelihood of a better education-job match, either vertically or horizontally, in either case. Nor did we find any differences in the influence of participation in international mobility programs. In the case of vertical match it is only participation in this type of program that increases the likelihood of a better education-job adaptation in a similar proportion in both genders.

The completion of other university studies does influence men and women differently in the likelihood of obtaining a job related to their studies (horizontal match). Only in the case of women does the variable have predictive power. In the case of vertical match the influence of the variable is greater in the case of the female gender, although the variable is significant in both groups.

Women who report a high level of language skill improve their chances of a horizontal match by 52% compared to those with little or no language skill. In the case of men, this competence is not decisive for this match modality. In the analysis of the vertical match, no differences are observed according to the gender of the graduates. The variable is influential in both cases. The knowledge of new technologies also influences the education-job match differently for men and women. Only in the latter group does expert knowledge of these tools increase the likelihood of obtaining a first job matched to educational level (vertical match), when compared to those with a basic level. This competence does not influence the likelihood of horizontal match for either group.

Finally, the variable 'period of initial job search' has been included in the model. The results show that graduates who took longer to enter the labour market decreased their likelihood of match, both in relation to their educational level and their area of study. In the case of men, the impact of the unemployment period is greater for both modalities.

Education-job match in current or last job

In this section, similar to the approach in the previous section, the predictive power of the educational variables on match in current or last job is analysed, according to the gender of the graduates. Field of study has a slightly greater influence in the case of women, but again, only in the degrees of Engineering and Architecture, and when horizontal match is considered the variable is more decisive in men. However, the differences are not very great.

Curricular-type academic internships also do not appear to influence education-job match in either current or last job. The same is true when we look at the possible influence of extracurricular internships on horizontal match. However, in the case of vertical match, women who performed this type of internship for a period of less than a quarter of a year had a decreased likelihood of finding a job matched to their educational level by almost 22%. This influence is not observed in the case of the men. Participation in international mobility programs has a similar influence on the likelihood of match for men and women in both modalities.

The variable 'other completed university studies' has results similar to that observed in the previous analysis: men and women with another university degree have a significantly increased likelihood of vertical match. In the case of horizontal match, the variable only predicts a better match in the case of women.

Gender differences are observed in the influence that the two competencies related to the information society (language level and ICT skills) have on the likelihood of match. Language level is more of a determinant in the case of women, but only on match being related to their field of study. In the case of knowledge of new technologies, the influence varies according to the type of match. For vertical match, expert knowledge of new technologies increases the likelihood only for women. For those who say they have an expert level in this skill there is a 30% greater likelihood that their current or last job was

matched to their level compared to those whose level is basic. In the case of horizontal match, the pattern of influence is different. Expert knowledge of these tools improves the

likelihood that current or last job is related to the field of study by almost 20%, but only in the case of men. In women, this variable is not a determinant.

Table 3. Estimation of effects for education-job match in current or last job

	Vertical Match		Horizontal Match	
	Female	Male	Female	Male
Constant	0.110	0.517	0.746	10.016
Under 30 years old				
30 to 34 years old	-0.259**(0.772)	-0.231**(0.794)	-0.176**(0.839)	-0.200**(0.819)
35 or more years old	0.287(1.333)	0.066(1.068)	0.013(1.013)	-0.235(0.791)
Educational Variables				
Field of Study				
Social and Legal Sciences				
Humanities	0.018(1.018)	-0.277**(0.758)	-0.545***(0.580)	-0.756***(0.470)
Sciences	0.604***(1.829)	0.565***(1.760)	0.434***(1.544)	0.342**(1.408)
Engineering/Architecture	0.562***(1.754)	0.327***(1.386)	0.234**(1.263)	0.331***(1.392)
Health Sciences	2.407***(11.106)	2.081***(8.016)	2.317***(10.143)	1.844***(6.324)
Internships curricular				
No				
A quarter	-0.094(0.910)	-0.093(0.911)	-0.053(0.949)	0.028(1.028)
More than a quarter	-0.053(0.948)	-0.038(0.962)	-0.044(0.957)	0.137(1.147)
Internships extracurricular				
No				
A quarter	-0.245***(0.783)	0.130(1.139)	0.042(1.043)	0.238(1.269)
More than a quarter	-0.031(0.969)	0.099(1.105)	-0.037(0.963)	0.152(1.164)
International Mobility				
Program	0.216***(1.241)	0.180**(1.197)	0.191**(1.210)	0.314***(1.368)
Other university studies	0.427***(1.533)	0.324***(1.383)	0.233***(1.262)	0.035(1.036)
Language level				
Low/null				
Medium	0.107(1.113)	0.111(1.118)	0.249**(1.283)	0.269(1.309)
High	0.375***(1.454)	0.458***(1.580)	0.577***(1.780)	0.409**(1.505)
ICT knowledge				
Basic				
Advanced	0.058(1.060)	-0.097(0.908)	0.102(1.108)	0.035(0.855)
Expert	0.264**(1.302)	0.088(1.092)	0.178(1.195)	0.525***(1.196)
Period of initial job search				
Less than 3 months				
3 months to 1 year	-0.243***(0.785)	-0.595***(0.552)	-0.266**(0.767)	-0.462***(0.630)
More than a year	-0.368***(0.692)	-0.568***(0.567)	-0.441***(0.644)	-0.667***(0.513)
-2RLL	8319.599	5611.402	3843.191	4428.218
Adjusted R ² (Cox y Snell)	0.125	0.076	0.075	0.067
p<0.1 Not considered				

***p<0.01 **p<0.05. Next to the value of the exponent, the value of the odds ratio is included in brackets.

In the case of the men, long initial periods of unemployment continued to negatively affect the likelihood of being matched in their current or last employment.

Discussion and conclusions

Research on education-job match has usually focused on general consequences, with few

studies including differentiated analysis of determinants according to graduate gender. The reality is, that even today, the relationships that men and women have with the labour market are different (Mahuteau et al., 2015; Pedulla, 2016). In the present investigation, the educational variables associated with education-job match have been analysed

differently for men and women. Vertical match and horizontal match, the two match modalities most commonly described in the literature, have been investigated.

Regarding the first objective, the results show slightly higher match percentages in the case of men in all the situations studied. The differences, however, although statistically significant in some cases, are not wide. This result is consistent with the reviewed studies, which reflect few variations between men and women in match data, without a clear predominance of either group (McGowan & Andrews, 2015; Montt, 2017; Nordin et al., 2010; Robst, 2007b; Salinas-Jiménez et al., 2013). It is a reality that when other labour indicators such as remuneration and type of contract (Leuze & Strauß, 2016) or possibilities of career advancement are analysed (Cebrián & Moreno, 2018), the disparity is more visible. Therefore, the few differences found in the analysis of this indicator offer support to the idea that, in many cases, the mismatch can be the product of personal decisions and that these decisions may differ between men and women.

In response to the second objective, the influence that educational variables have on the likelihood of being matched on incorporation into the labour market have been analysed for both genders. Field of study, a variable that the literature revealed as very consistent in the prediction of mismatch (Acosta-Ballesteros et al., 2018; Mahuteau et al., 2015; Montt, 2017; Rodríguez et al., 2018; Verhaest et al., 2017), shows a greater predictive power in the group of women. The difference is especially visible for Health Sciences degrees. In this field, where there is generally a greater presence of women (Barone & Assirelli, 2019; Michavila et al., 2016), the incidence of unemployment is lower. This reduces the risk of an involuntary mismatch. These results support the idea that motives related to care (Skatova & Ferguson, 2014), which affect labour decisions, are more relevant for women.

The influence of two of the actions developed by the university to improve employability has been analysed. These actions are academic curricular and extracurricular internships and participation in mobility programs. There are no differences between men and women in the influence that these actions have on the likelihood of being matched. The weak relationship of these activities with job match has been confirmed by Albert, Davia, & Legazpe (2018). In this sense, we report that the recent study by Ferrández-Berrueco and Sánchez-Tarazaga (2019) has revealed some of the shortcomings of these activities, both from the perspective of the university and from the perspective of companies. International mobility has been shown to have a stronger relationship with match (Di Paolo & Ramos, 2018) although according to the data in this research, its signalling effect in the labour market is common for both men and women.

As in the case of field of study, the three variables used as proxies for possible variations in skills and competencies (completion of other university studies, level of language, and knowledge of ICT), have a greater influence on the likelihood of match in the case of women. On one hand, the market seems to interpret these signals differently according to the gender of the worker (Pedulla, 2016). This competence complement contributes to reducing gender stereotypes still present in the productive sector. On the other hand, family-type conditions that are more present in the case of women (Bender & Roche, 2013; Cebrián & Moreno, 2018; European Institute for Gender Equality, 2017; Robst, 2007b) create limitations on labour insertion and career pathways by causing individuals to move in more geographically restricted labour markets. We understand that the value added by these training supplements as signals within labour market—which also generate more favourable starting conditions in highly competitive situations—is higher in the case of women.

Finally, we have observed that prolonged periods of unemployment cause a greater risk of education-job mismatch in the case of men.

From the point of view of demand, we interpret this as a consequence of the gendered division of labour, which is still in force. Men assume a greater need to access the labour market (Dibeh et al., 2019; Pedulla, 2016). Therefore, when the period of initial unemployment is prolonged, they decide to accept mismatched jobs as an alternative to unemployment more frequently than women.

In relation to the third objective, the relationship of these variables with match in current or last job has been described in relation to what happened in initial job. Initial access to the labour market in a mismatched job reduces the possibility of gaining a match a few years later (Acosta-Ballesteros et al., 2018). The present study has also confirmed that the pattern of influence of educational variables on this phenomenon is similar to that found in the first incorporation into the labour market. The variables analysed do not exert a corrective effect on mismatch for men and women throughout their careers.

Specifically, it is observed that, in the case of women, the greatest influence exerted by field of study is maintained in this second analysis. It appears, both significantly and somewhat surprisingly, that there is a greater risk of vertical mismatch for women who take part in extracurricular internships. We cannot offer a plausible explanation for this fact. The pattern of influence of the variables (completion of other university studies, language level, and knowledge of ICT) is similar to that found in analysis of first job. In cases where there are differences between men and women, the influence of the variable is greater in the latter group. Either for reasons due to demand or supply, this 'plus competence' not only makes it easier for women to enter the labour market in a matched job (Pedulla, 2016) but also increases the likelihood that this adjustment is maintained in the subsequent career path.

In summary, this research has shown that there are differences between men and women in the variables associated with education-job match. The educational variables studied are, in general, more decisive in the case of women.

When other objective indicators are considered, women are at a disadvantage. However, when considering the incidence data of being matched, there are few differences between the two groups. Taken together, these data support the idea that, in many cases, mismatch is the product of voluntary decisions made by graduates themselves. Complementary support for this conclusion is evident in there being greater differences in the case of horizontal match, a modality in which reasons related to personal decisions are more common (Robst, 2007b). The lower influence of educational variables for men can be explained on the basis of the different motivations that underlie the decision to choose a job not suited to their training. Faced with reasons related to family obligations (Castellano & Rocca, 2018; Heikkilä et al., 2016; Khoudja & Fleischmann, 2018) and those related to higher expectations of taking on professional tasks matched to the acquired skills (Pérez-Carbonell & Ramos Santana, 2015), decisions oriented to professional career improvement seem more frequent in the case of men.

It is also in complementary education (possession of another university degree, language, and ICT knowledge) where the most relevant differences occur. On one hand, it seems that the labour market values these additional skills differently according to the gender of the worker. Women move in more restrictive labour markets, especially from a geographical point of view. In these situations of greater competitiveness, the value of this additional training seems higher.

The main limitation of this study is the lack of information on other educational variables, such as training in generic skills or variables related to family situation. As Robst (2007b) points out, specific hypotheses about gender differences on the consequence of mismatch cannot be raised because they may depend on the reasons why such a situation is accepted. Therefore, it is necessary to engage in further analysis of these variables that can affect personal decisions, controlling for unobserved heterogeneity. When analysing educational

decisions made by individuals the family context must be a considered variable (González-Rodríguez, Vieira, & Vidal, 2019). In any case, education-job mismatch must be analysed as a multidimensional phenomenon.

References

- Acosta-Ballesteros, J., Osorno-del Rosal, M.P. & Rodríguez-Rodríguez, O.M. (2018). Overeducation of Young Workers in Spain: How Much Does the First Job Matter? *Social Indicators Research*, 138, 109–139. <http://doi.org/10.1007/s11205-017-1643-z>
- Albert, C., Davia, M.A. & Legazpe, N. (2018). Experiencia laboral durante los estudios y desajuste educativo en el primer empleo en los graduados universitarios españoles. *Cuadernos económicos de ICE*, 95, 189–208. <http://doi.org/10.32796/cice.2018.95.6647>
- Badillo-Amador, M. L., López-Nicolás, A. & Vila, L. (2012). The consequences on job satisfaction of job–worker educational and skill mismatches in the Spanish labour market: a panel analysis. *Applied Economics Letters*, 19(4), 319–324. <http://doi.org/10.1080/13504851.2011.576999>
- Barone, C. & Assirelli, G. (2019). Gender segregation in higher education: an empirical test of seven explanations. *Higher Education*, <http://doi.org/10.1007/s10734-019-00396-2>
- Béduwé, C. & Giret, J-F. (2011). Mismatch of vocational graduates: What penalty on French labour market? *Journal of Vocational Behavior*, 78(1), 68–79. <http://doi.org/10.1016/j.jvb.2010.09.003>
- Bender, K. & Roche, K. (2013). Educational mismatch and self-employment. *Economics of Education Review*, 34, 85–95. <http://doi.org/10.1016/j.econedurev.2013.01.010>
- Castellano, R. & Rocca, A. (2018). Gender disparities in European labour markets: A comparison of conditions for men and women in paid employment. *International Labour Review*, 157(4), 589–608. <http://doi.org/10.1111/ilr.12122>
- Cebrián, I. & Moreno, J. (2018). Desigualdades de género en el mercado laboral. *Panorama social*, 27, 47–63.
- Cedefop (2015). *Skills, qualifications and jobs in the EU: the making of a perfect match? Evidence from Cedefop's European skills and jobs survey*. Luxembourg: Publications Office. Cedefop reference series; N° 103. <http://doi.org/10.2801/606129>
- Dibeh, G. Fakih, A. & Marrouch, W. (2019). Employment and skill mismatch among youth in Lebanon. *International Journal of Manpower*, 40(8), 1438–1457. <http://doi.org/10.1108/IJM-02-2018-0073>
- Di Paolo, A. & Ramos, R. (2018). El efecto de la movilidad durante los estudios sobre el desajuste educativo de los graduados recientes. Evidencia a partir de la encuesta de inserción laboral de los titulados y tituladas de las universidades catalanas. *Cuadernos Económicos del ICE*, n° 95, 209–235
- Dolado, J., Jansen, M., Felgueroso, F., Fuentes, A. & Wölfl, A. (2013). Youth labour market performance in Spain and its determinants: A micro level perspective. *OECD Economics Department Working Papers*, 1039. OECD Publishing. <http://doi.org/10.1787/18151973>
- Erdsiek, D. (2016). Overqualification of graduates: assessing the role of family background. *Journal for Labour Market Research*, 49, 253–268. <http://doi.org/10.1007/s12651-016-0208-y>
- European Institute for Gender Equality. (2017). *Gender Equality Index 2017. Measuring gender equality in the European Union 2005-2015*. <https://eige.europa.eu/publications/gender-equality-index-2017-measuring-gender-equality-european-union-2005-2015-report>
- European Parliament. (2015). *Labour Market Shortages in the European Union: Study for the EMPL Committee*. Brussels: Directorate General for Internal Policies, Policy Department A. Economic and Scientific Policy. IP/A/EMP/ST/2013-06. http://www.europarl.europa.eu/RegData/etudes/STUD/2015/542202/IPOL_STU%282015%29542202_EN.pdf
- Fabbris, L. & Scioni, M. (2018). Salary Acceptability and Substitution Factors for Graduates' Employment. *Italian Journal of Sociology of Education*, 10(3), 220–244. <http://doi.org/10.14658/pupj-ijse-2018-3-11>

- Ferrández-Berruero, R. & Sánchez-Tarazaga, L. (2019). Las prácticas externas desde la perspectiva de las entidades colaboradoras. *RELIEVE*, 25(1), 1-13. <http://doi.org/10.7203/relieve.25.1.13189>
- Flisi, S., Goglio, V., Meroni, E., Rodrigues, M. & Vera-Toscano, E. (2014). *Occupational mismatch in Europe: Understanding Overeducation and Overskilling for Policy Making*. JRC Science and Policy reports, European Commission, Luxemburg. <http://doi.org/10.2788/61733>
- García-Mainar, I., García-Martín, G. & Montuenga, V. (2015). Over-education and gender occupational differences in Spain. *Social Indicators Research*, 124, 807–833. <http://doi.org/10.1007/s11205-014-0811-7>
- García-Blanco, M. & Cárdenas-Sempértegui, E.B. (2018). La inserción laboral en la Educación Superior. La perspectiva latinoamericana. *Educación XXI*, 21(2), 323-347. <http://doi.org/10.5944/educXXI.16209>
- González-Rodríguez, D., Vieira, M.J. & Vidal, J. (2019). Factors that influence early school leaving: a comprehensive model. *Educational Research*, 61(2), 214–230. <http://doi.org/10.1080/00131881.2019.1596034>
- Heikkilä, T., Hyppölä, H., Vänskä, J., Halila, H., Kujala, S., Virjo, I., Sumanen, M., Kosunen, E. & Mattila, K. (2016) What predicts doctors' satisfaction with their chosen medical specialty? A Finnish national study. *BMC Medical Education* 16(1), 1-9. <http://doi.org/10.1186/s12909-016-0643-z>
- Herrera, D. (2017). Empleabilidad versus sobrecualificación. Desajuste entre formación y empleo en las trayectorias laborales de los jóvenes titulados en España. *Sociología del trabajo*, 89, 29-52.
- Hur, H., Maurer, J.A. & Hawley, J. (2019) The role of education, occupational match on job satisfaction in the behavioral and social science workforce. *Human Resource Development Quarterly*, 30(3), 407-435. <http://doi.org/10.1002/hrdq.21343>
- INE (2014). Encuesta de Inserción Laboral de los Titulados Universitarios. http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176991&menu=ultiDatos&idp=1254735976597
- ILO (2014). *Skills mismatch in Europe*. Geneva: Department of Statistics. http://www.ilo.org/wcmsp5/groups/public/--dgreports/---stat/documents/publication/wcms_315623.pdf
- Iriondo, I. & Pérez-Amaral, T. (2016). The effect of educational mismatch on wages in Europe. *Journal of Policy Modeling*, 38, 304–323. <http://doi.org/10.1016/j.jpolmod.2015.12.008>
- Khoudja, Y. & Fleischmann, F. (2018). Gender Ideology and Women's Labor Market Transitions Within Couples in the Netherlands: Gender Ideology and Women's Labor Market Transitions. *Journal of Marriage and Family*, 80(5), 1087 -1106. <http://doi.org/10.1111/jomf.12510>
- Leuze, K. & Strauß, S. (2016). Why do occupations dominated by women pay less? How 'female-typical' work tasks and working-time arrangements affect the gender wage gap among higher education graduates. *Work, Employment & Society*, 30(5), 802-820. <http://doi.org/10.1177/0950017015624402>
- Mahuteau, S., Mavromaras, K., Sloane, P. & Wei, Z. (2015) Horizontal and vertical educational mismatch and wages. *NILS working paper series* 216 /2015. <http://www.flinders.edu.au/sabs/nils/publications/working-papers/horizontal-and-vertical-educational-mismatch-and-wages.cfm>
- Mateos, L. (2018). El fenómeno de la sobreeeducación entre los jóvenes españoles. *Cuadernos de Investigación en Juventud*. 5, 24-36. <http://doi.org/10.22400/cij.5.e024>
- Mateos-Romero, L., Murillo-Huertas, I. & Salinas-Jiménez, M. (2017). Wage effects of cognitive skills an educational mismatch in Europe. *Journal of Policy Modeling* 39, 909–927. <http://doi.org/10.1016/j.jpolmod.2017.08.001>
- Mateos-Romero, L. & Salinas-Jiménez, M. (2017). Skills heterogeneity among graduate workers: Real and apparent overeducation in the Spanish labour market. *Social Indicators Research*, 132, 1247-1264. <http://doi.org/10.1007/s11205-016-1338-x>
- McGowan, M. & Andrews, D. (2015). Skill mismatch and public policy in OECD

- countries. *OECD Economics Department Working Papers*, N°. 1210. OECD Publishing.
<http://doi.org/10.1787/5js1pzw9lnwk-en>
- Michavila, F., Martínez, J. M., Martín-González, M., García-Peñalvo, F. J. & Cruz-Benito, J. (2016). *Barómetro de Empleabilidad y Empleo de los Universitarios en España, 2015* (Primer informe de resultados). Madrid: Observatorio de Empleabilidad y Empleo Universitarios.
http://catedraunesco.es/repositorio/2016/Informe_Bar%C3%B3metro_OEEU_2015.pdf
- Montt, G. (2017). Field-of-study mismatch and overqualification: labour market correlates and their wage penalty. *IZA Journal of Labor Economics*, 6:2, 1-20.
<http://doi.org/10.1186/s40172-016-0052-x>
- Nordin, M., Persson, I. & Rooth, D-O. (2010). Education-job Mismatch: Is There an Income penalty? *Economics of Education Review*, 29, 1047-1059.
<https://doi.org/10.1016/j.econedurev.2010.05.005>
- Observatorio Social de “la Caixa” (2019). *Necesidades sociales en España. Mercado de trabajo*. Junio de 2019. Informe 02.
<https://observatoriosociallacaixa.org/mercado-trabajo>
- Pedulla, S. (2016). Penalized or Protected? Gender and the Consequences of Nonstandard and Mismatched Employment Histories. *American Sociological Review*, 81(2), 262–289.
<http://doi.org/10.1177/0003122416630982>
- Pérez-Carbonell, A. & Ramos Santana, G. (2015). Preferencias de los y las estudiantes universitarias sobre el empleo desde una perspectiva de género. *Revista Complutense de Educación*, 26(3), 721-739.
http://doi.org/10.5209/rev_RCED.2015.v26.n3.44804
- Robst, J. (2007a). Education and job match: the relatedness of college major and work. *Economics of Education Review*, 26, 397–407.
<http://doi.org/10.1016/j.econedurev.2006.08.003>
- Robst, J. (2007b). Education, college major, and job match: gender differences in reasons for mismatch. *Education Economics*, 15, 159–175.
<http://doi.org/10.1080/09645290701263070>
- Rodríguez, A. (2014). *El ajuste entre formación y empleo de los universitarios en España. Incidencia de factores educativos y familiares en el ajuste laboral de tipo horizontal*. Publicia.
- Rodríguez, A., Vidal, J. & Vieira, M-J. (2018). Un análisis de la empleabilidad de los universitarios en España a través del ajuste horizontal. *Revista de Educación*, 384, 229-254. <http://doi.org/10.4438/1988-592X-RE-2019-384-411>
- Rodríguez, A. & Vieira, M-J. (2009). La formación en competencias en la universidad: un estudio empírico sobre su tipología. *Revista de Investigación Educativa*, 27(1), 27-47.
<http://revistas.um.es/rie/article/view/94261>
- Salinas-Jiménez, M., Rahona-López, M. & Murillo-Huertas, I. (2013). Gender wage differentials and educational mismatch: an application to the Spanish case. *Applied Economics*, 45(30), 4226-4235,
<http://doi.org/10.1080/00036846.2013.781260>
- Shevchuk, A., Strebkov, D. & Davis, S. (2015). Educational mismatch, gender, and satisfaction in self-employment: The case of Russian-language internet freelancers. *Research in Social Stratification and Mobility*, 40, 16–28.
<http://doi.org/10.1016/j.rssm.2015.02.004>
- Skatova, A. & Ferguson, E. (2014) Why do different people choose different university degrees? Motivation and the choice of degree. *Front Psychol*, 5:1244, 1-15.
<http://doi.org/10.3389/fpsyg.2014.01244>
- Somers, M., Cabus, S., Groot, W. & Maassen van den Brink, H. (2016). *Horizontal Mismatch between Employment and the Field of Education: Evidence from a Systematic Literature Review*. Tier working paper series. Tier WP16/02
- Teichler, U. (2007). Does Higher Education Matter? Lessons from a Comparative Graduate Survey. *European Journal of Education*, 42(1), 11-34.
<https://doi.org/10.1111/j.1465-3435.2007.00287.x>

Verhaest, D., Sellami, S. & van der Velden, R. (2017). Desajuste de calificación horizontal y vertical según los países y las carreras estudiadas. *Revista Internacional*

del Trabajo. 136(1), 1-23.
<http://doi.org/10.1111/ilrs.1204>

Authors / Autores

Rodríguez-Esteban, A. (arode@unileon.es)  0000-0002-7409-5976

Assistant Professor in the Department of Psychology, Sociology and Philosophy (Area of Research Methods and Diagnosis in Education) of the Faculty of Education at the University of Leon. Postal address: Faculty of Education, Campus de Vegazana, s / n, 24071-Leon (Spain)

Vidal, J. (javier.vidal@unileon.es)  0000-0003-1060-6957

Full Professor in the Department of Psychology, Sociology and Philosophy (Area of Research Methods and Diagnosis in Education) of the Faculty of Education at the University of Leon. Postal address: Faculty of Education, Campus de Vegazana, s / n, 24071-Leon (Spain)



Revista ELectrónica de Investigación y EValuación Educativa
E-Journal of Educational Research, Assessment and Evaluation

[ISSN: 1134-4032]



Esta obra tiene [licencia de Creative Commons Reconocimiento-NoComercial 4.0 Internacional](https://creativecommons.org/licenses/by-nc/4.0/).
This work is under a [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by-nc/4.0/).