

Title	Social Capital, Labour Market Status and Wages: Some Evidence from Spain
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Abstract	<p>This article analyses the social capital's influence on the Spanish labour market. In particular, this study examines to what extent the social capital increases the likelihood of being employed, taking into account different labour market status, and diverse dimensions of the social capital. Focusing on wage earners, it is also analysed whether network structures in Spain influence on the wage earnings. The methodology applied to analyse the labour market status is a multinomial logit model. For the analysis of wages, it is specified a wage model with sample selection bias. In both cases, social capital indicators are included as regressors. The results show that social participation exerts a positive influence on the probability of being self-employed, and lowers the likelihood of being unemployed. Moreover, it is verified that the interaction with family members or close friends influences positively on wages. Further research should emphasise how employers assess the workers' competences associated with the social capital. The findings provide knowledge to policymakers useful to increase the role of social participation in the labour market. The importance of social network as an instrument for the job search must be enhanced. This article overcomes some drawbacks associated with the analysis of social capital from an aggregate perspective. Furthermore, social capital indicators are obtained using the Categorical Principal Components Analysis (CATPCA), which is unprecedented in the economic literature.</p>
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Social Capital, Labour Market Status and Wages: Some Evidence from Spain

Abstract

Purpose - This article analyses the social capital's influence on the Spanish labour market. In particular, this study examines to what extent the social capital increases the likelihood of being employed, taking into account different labour market status, and diverse dimensions of the social capital. Focusing on wage earners, it is also analysed whether network structures in Spain influence on the wage earnings.

Design/Methodology/Approach - The methodology applied to analyse the labour market status is a multinomial logit model. For the analysis of wages, it is specified a wage model with sample selection bias. In both cases, social capital indicators are included as regressors.

Findings - The results show that social participation exerts a positive influence on the probability of being self-employed, and lowers the likelihood of being unemployed. Moreover, it is verified that the interaction with family members or close friends influence positively on wages.

Research Limitations - Further research should emphasise how employers assess the workers' competences associated with the social capital.

Practical Implications - The findings provide knowledge to policymakers useful to increase the role of social participation in the labour market.

Social Implications - The importance of social network as an instrument for the job search must be enhanced.

Originality/Value - This article overcomes some drawbacks associated with the analysis of social capital from an aggregate perspective. Furthermore, social capital indicators are obtained using the Categorical Principal Components Analysis (CATPCA), which is unprecedented in the economic literature.

Keywords: Social capital, labour market outcomes, CATPCA.

Paper type: Research paper.

1. Introduction

The economic literature has found hard evidence about the importance of general and specific human capital –acquired through education and/or work experience– to increase the participation in the labour market, get a steady job and have a successful career characterised by higher wages and more options of getting an upward labour mobility through promotions or better jobs in other firms (Sicherman and Galor, 1990). The current evolution of the Spanish labour market is in line with this evidence because more educated individuals have the lowest unemployment rate: 8.9% in 2018 for the Spanish population with higher education, that is, 18 percentage points lower than the one corresponding to individuals with only primary education (INE, 2018). Moreover, they receive more labour market opportunities to progress in the workplace and are located at the top of the wage distribution (e.g. Caparros-Ruiz, 2016).

In recent times, additional elements integrated in the concept of social capital have emerged as key determinants of the individual labour market performance. Social capital is a factor that arises from the interactions and cooperation within and among the different groups comprising a community, and creates added value when converting it into economic capital (Bourdieu, 1985). Individuals take advantage of their location and participation in the social structure and, considering social capital as a productive factor, they will invest in it as long as its benefits overcome its costs (Glaeser, 2001). According to Cote and Healy (2001), the components of the social capital facilitate the understanding within and among collectives, and their different dimensions are social network and social support, social and civic participation, reciprocity and trust, and local knowledge. From these dimensions, it is possible to segment the social capital in different concepts such as bonding or bridging. Bonding refers to strong ties with family members or close friends, while bridging corresponds to weak ties with casual friends or other weak relationships generated through social participation.

The benefits associated with the social capital generate an increase of the productivity and have a bearing on the economic growth (Sobel, 2002). Focusing on the labour market performance, ability and other individual characteristics are hard to observe by employers whether there is asymmetric information. Thus, the different patterns of social capital (bonding and bridging) could provide

information about new job offers unavailable through formal networks or employment protocols, and about the workers' true productivity, which would reduce the cost of job search. This could lead to better labour market outcomes such as increasing the probability of getting an employment or improving the quality of job match (e.g. Calvó-Armengol and Zenou, 2005). Consequently, social capital would facilitate the progress in the workplace and would enhance the options of promotions and upward social mobility.

This article contributes to the increasing literature about social capital and its economic effects in Spain by analysing some aspects related to the labour market from a microeconomic approach. To the best of our knowledge, this study is unprecedented in the Spanish research, and addresses relevant issues for the economic literature given the worst situation of the Spanish labour market in comparison to other developed countries. For example, in 2019, the Spanish unemployment rate stands at 14%, which contrasts with the 3% observed in Germany.

This research looks at the extent that social capital enhances the probability of career success in Spain, taking into account different labour market status and diverse dimensions of the social capital. Furthermore, going beyond the previous objective and focusing on wage earners, we analyse whether network structure in Spain –family or friends relationships and social participation– influences on wage earnings. This study uses statistical information for the years 2006 and 2015, which allows us to observe how the interrelationship between social participation and the Spanish labour market has evolved before and after the Great Recession. Moreover, the only available Spanish microeconomic survey with social capital and labour market information corresponds to the 2006 and 2015 Living Conditions Survey (INE, 2006, 2015). The methodological approach consists in performing a multinomial logit model to explain the individual labour market status and estimating a wage model. In both cases, the set of regressors includes different measures of social capital obtained by applying Categorical Principal Components Analysis (CATPCA).

The remainder of the paper is organised as follows: Section 2 is dedicated to the literature review; Section 3 presents the data and examines the information about the different proxies of social capital included in the survey; Section 4 shows the statistical and econometric methodology proposed;

whereas Section 5 displays the results and discusses the main findings. The theoretical and policy implications are summarised in Section 6.

2. Literature Review

This section is dedicated to review some studies analysing the social capital's influence on the labour market. Most microeconomic studies operationalise the concept of social capital observing different indicators of the individual's network structure such as its composition, size or diversity. The measures used capture the interdependence of individuals and their interpersonal ties, describing the resources inherent in the family structure, friendship, professional networks or community relations (e.g., participation in associations, political parties, trade unions, volunteer activities). Moreover, they also focus on the tie strength –that is, the closeness and intensity of the relationships between the individuals –to assess the flow and quality of the information. This is the perspective followed in this article to measure the social capital, which is more extensively developed in the data section.

From a social-network approach, it is possible to mention the studies conducted by Caspi *et al.* (1998), Smith (2000) and Aguilera (2002) on discriminated collective. Caspi *et al.* (1998) conclude that children involved in antisocial behaviour and with low social capital have more probability of being unemployed in adulthood. Smith (2000) and Aguilera (2002) find that social capital is effective to reduce social inequality of disadvantaged groups. Other studies such as Blumberg and Pfann (2001) and Granovetter (2005) have underlined the role of social capital in an imperfect labour market. Thus, Blumberg and Pfann (2001) indicate that social capital increases the transition to self-employment, whereas Granovetter's work (2005) reveals that social network decreases the job search costs by providing information to job seekers about new job opportunities and facilitating the recruitment of workers to employers. This information comes from interpersonal ties, and its effects depend on the tie strength. According to Granovetter (1973), individuals obtain more novel information from weak ties than from strong ones. This is known as the Granovetter's hypothesis and, applied to the labour market, implies that weak ties have more positive effects on workers' careers than strong ties. The last ones connect individuals from the same social circle and can discourage workers from labour

mobility. It can block their advancement (Halpern, 2005; David *et al.*, 2010) or generate a mismatch between the occupational choice and the workers' comparative productive advantage (Bentolila *et al.*, 2010). Hence, social capital through strong ties would be a negative externality for labour markets' performance. Its role would only exist to diminish the search costs when the labour market is imperfect, that is, with asymmetric information. In this regard, Labini (2004) also observes that the use of family networks is associated with wage penalty, while the opposite is true for the professional networks (weak ties) that are used by employers to get information about the workers' ability. Furthermore, as predicted by the Granovetter's hypothesis, other studies such as Brown and Konrad (2001) or Yakubovich (2005) have verified that weak ties represent a main resource to get a job. Brown and Konrad (2001) observe that it depends on the industry conditions: for example, laid-off workers from growing industries focus their job search process through weak ties. Yakubovich (2005) finds out that weak ties provide useful and non-redundant information for the unemployed job seekers, regardless of the individual personal characteristics. From a different point of view, Bramoullé and Saint-Paul (2010) specify a model where social ties and labour market status evolve over time. Their findings conclude that the social connections with workers increase the likelihood of getting a job for short-term unemployed, but long-term unemployed have lower probability of finding a job than short-term unemployed since they are less connected with the employee population. Interestingly, this study also concludes that a new tie is more likely to arise among individuals with the same job status, which is referred as economic homophily. According to Burt (1992), this would not have a special gain of information because it would only occur when the new tie is developed among multiple separate networks. Finally, regarding the immigrant population, Hagan (2004) considers that social capital is an element that offsets the lack of human capital or the existing constraints to access to certain occupations.

The economic literature discussed in Spain has approached the interrelationship between social capital and economic effects from different perspectives. From a macroeconomic standpoint, Miguelez *et al.* (2011) use the regional social capital variables created by The Valencian Institute of Economic Research (Serrano and Fernández de Guevara, 2008) and observe that social capital fosters

knowledge creation and is complementary to other productive factors, but only in high-income regions. The association between social capital and other factors such as human or organizational capital and its influence on innovative performance are proved by Cabello-Medina *et al.* (2011) using a sample of firms with R&D department. In particular, they show that the creation of knowledge is a process of collaboration where social capital plays a key role to stress the effects of human capital on innovation. On the other hand, Fernández de Guevara *et al.* (2015) support the hypothesis that the worsening economic and social conditions caused by the recent Spanish economic crisis have originated a lack of trust in the public institutions and, as a consequence, a loss of social capital. From a microeconomic perspective, the literature is scarce mainly due to the lack of suitable data to measure exactly the social capital for each individual. Going forward, it is possible to highlight some analysis focusing on the relationships between social capital and the labour market performance of immigrants. Stanek and Veira (2012) use the National Immigrant Survey of Spain (INE, 2007) to note that social capital plays a significant role to explain immigrants' occupational mobility in the Spanish labour market. On the other hand, Vidal-Coso and Miret-Gamundi (2014) find that informal networks place female foreign-workers at the end of the occupational scale, especially those engaged in household chores. This negative effect is also observed for the new legal immigrant in the US (Tegegne, 2015).

The microeconomic approach adopted in this study overcomes some drawbacks associated with the analysis of social capital from an aggregate perspective. One of its primary objectives is to test the Granovetter's hypothesis, that is, whether weak social ties have a higher positive influence on the individual labour market status than strong ties. Furthermore, it is analysed whether social capital increases wages. The main channels to achieve this effect would be the information flows and the reduction of the transaction costs (e.g. Simon and Warner, 1992). In this way, social capital would help individuals ameliorate the information asymmetries and imperfections of the labour market. For example, social capital could improve the noisy information that employer has about the workers' productivity.

3. Data

The data set used in this work is the Living Conditions Survey (LCS). The National Statistics Institute (INE) provides this survey, which replaces the EU Household Panel for Spain. The LCS starts in 2004 and compiles data both on cross-sectional and longitudinal dimension. As of 2005, it includes annual modules in the cross-sectional component in order to take into account relevant and special topics. The modules corresponding to 2006 and 2015 are specialized in social participation and are appropriate to address the study's topics since they show information on social capital indicators. Another point of interest is that the two years considered (2006 and 2015) allow us to observe how the social capital's effects on the labour market situation have evolved before and after the Great Recession.

The sample used is restricted to individuals aged 25 to 60 years. This sample selection reduces the possibility of including young people with temporary and precarious employment or older people who are considering retirement. Moreover, full time students and individuals who are permanently disabled have been excluded. Table 1 and 2 depict the descriptive statistics of the variables used. In particular, Table 1 shows the statistics corresponding to the individual labour market status and the personal characteristics, that is: age, educational level (as a proxy of human capital), gender, marital status, household composition, geographic origin, health status, region of residence, and degree of urbanization.

[Insert Table 1]

Table 2 provides the descriptive statistics of the variables associated with the social capital during the 12-month period prior to the date of the survey. These variables are grouped into two blocks, taking into account the multidimensionality of the social capital. They are consistent with the proxy variables proposed by the UK's Office for National Statistics (e.g. Piracha *et al.*, 2013). The first block includes variables related to strong ties-based social capital such as whether the individual has met or contacted family members –outside the household– or close friends on a daily or weekly basis or whether she/he could ask for help if necessary. The second one is associated with weak ties-based social capital, formed by variables showing the type and intensity of the social participation (Brook, 2005) in

volunteer activities, political parties, trade unions, associations, or social networks (e.g., Facebook, Twitter, etc.).

[Insert Table 2]

In relation to the strong ties-based social capital, on the one hand, it is worth noting that the distribution of individuals according to their frequency of contacts with family members or close friends has varied between 2006 and 2015. Thus, the proportion of individuals contacting family members –outside the household– or close friends on a daily or weekly basis has increased in 11 and 20 percentage points during the time period considered, respectively. Moreover, the proportion of individuals who could ask for help if necessary has little changed between 2006 and 2015, with percentages around 95%.

Concerning to the second block corresponding to the weak ties-based social capital, first, we can note that the participation in volunteer activities has sharply declined between 2006 and 2015 (from 50% to 10%). Secondly, the participation in political parties, trade unions, or professional associations rose slightly (in 4 and 5 percentage points, respectively). Third, it must be stressed that there are some differences in the questionnaires corresponding to the two surveyed years, in relation to the variables of social capital. In particular, in questionnaire of 2015, individuals are not surveyed on their participation in “other associations”. On the contrary, it includes information on the use of social networks (e.g., Facebook, Twitter, etc.). In particular, it is observed that 47% of the sample accesses to social networks on a daily or weekly basis.

The second main objective is to analyse the impact of the social capital’s variables on wages. Table 3 reports the descriptive statistics corresponding to the real monthly wage to 2006 and 2015, for each category of the social capital’s indicators. For most variables, the participation in social capital activities is associated with higher wages, and this is corroborated with the statistics yielded by the paired t-tests that determine whether the mean difference between two sets of observations –participating or not participating in the social capital activity– is different from zero. The only exception corresponds to the variables showing whether the individuals meet with family members or friends or use social networks on a daily or weekly basis, where the non-participation sheds higher

average wages. Another interesting result is that the highest positive difference between the participation and non-participation in social capital activities is observed for the individuals who could ask for help if necessary and those engaging in political activities or professional associations.

[Insert Table 3]

The above findings motivate an econometric analysis where social capital variables explain the wages once controlled the rest of regressors proposed (personal and labour characteristics). The set of personal explanatory variables comprises the following regressors: age, educational level, gender, geographic origin, health status, region of residence, and degree of urbanization. Concerning the labour characteristics, the variables considered are labour experience, type of working day and contract, firm size, and sector.

4. Methodology

This section aspires to reach two main objectives within its scope. The first one specifies the econometric model for the labour market status, and the second one is dedicated to the formulation of the wage model.

4.1 Econometric Specification of the Labour Market Status

The econometric model specified to explain the labour market status is a multinomial logit model where the dependent variable captures the four possible alternatives: out of labour force ($Y=0$), unemployed ($Y=1$), self-employed ($Y=2$), or wage earner ($Y=3$). The probability for the alternative j is:

$$\Pr(Y_i = j | X_i) = \frac{\exp(\beta_j' X_i)}{\sum_{j=0}^3 \exp(\beta_j' X_i)}, \quad (j=0,1,2,3) \quad (1)$$

β_j is the vector of parameters associated with each alternative j and X_i is the vector of regressors for each individual. The identification of the model requires that the vector of coefficients for an

alternative is the null vector. In particular, it is considered that this happens for $j=0$, so the likelihood of the occurrence of each alternatives is:

$$\Pr(Y_i = j | X_i) = \frac{\exp(\beta_j' X_i)}{1 + \sum_{j=1}^3 \exp(\beta_j' X_i)}, \quad (j=1,2,3) \quad (2)$$

The coefficient estimates from the multinomial logit are difficult to interpret. Hence, it is usual to compute the marginal effects to analyse the effect of the explanatory variables on the probability of being observed in a particular status. The marginal effect for continuous regressors are obtained through the following expression (Wooldridge, 2010):

$$\frac{\partial \Pr(Y_i = j | X_i)}{\partial x_k} = \Pr(Y_i = j | X_i) \left\{ \beta_{jk} - \frac{\sum_{h=1}^3 \beta_{hk} \exp(\beta_h' X_i)}{1 + \sum_{j=1}^3 \exp(\beta_j' X_i)} \right\} \quad (4)$$

In relation to the marginal effects for the dummy variables, they are calculated as the change of probability when the categorical variable varies from 0 to 1, whereas all other variables are hold at their mean values.

The set of regressors corresponding to social capital is characterised by a large number of categorical variables associated with each other, which could cause multicollinearity problems. In particular, the estimators' variance could increase and would be harder to reject the null hypothesis when testing the significance of the coefficients. One solution to this potential problem would be to reduce the number of variables to a smaller number of uncorrelated variables, called principal components, which are linear relationships of the original variables. Principal Components Analysis (PCA) is the traditional methodology applied to achieve this, but it is not an appropriate method of dimension reduction for this study, because the variables accounting for social capital are nominal (categorical variables), and PCA can only be used when the variables are continuous. To face this methodological issue, the most suitable methodology is the Categorical Principal Components Analysis (CATPCA) that can handle

a mixture of nominal, ordinal or numeric variables with non-linear relationships among each other. Focusing on nominal variables, CATPCA transforms them into numeric variables through an optimal scaling, and then the traditional PCA is applied to obtain a reduced number of uncorrelated variables that represent the whole set of social capital indicators (e.g. Linting and van der Kooij, 2012).

4.2 Econometrics Specification of the Wage Model

The earnings model is estimated for wage earners who are a subgroup of the total population composed by individuals observed in different labour market status. In particular, we consider the following model:

$$\log w_i = \gamma' Z_i + u_i \quad (5)$$

$$y_{ij}^* = \beta_j' X_i + \varepsilon_{ij}, \quad j=0,1,2,3 \quad (6)$$

In Equation 5, $\log w_i$ is the logarithm of the real wage, Z_i is the set of explanatory variables described above in the data section, and u_i is the error term. Equation 6 shows the unobservable stochastic utility function, y_{ij}^* , which is function of the regressors collected in X_i , and the error term ε_{ij} . The dependent variable in Equation 5 is observed only if the option chosen is to be a wage earner. Consequently, the procedure followed to estimate the wage model is the proposed by Lee (1983), which generalises the Heckman's methodology (Heckman, 1979) and corrects the sample selection when the set of choices is composed by more than two alternatives. This method implies that the likelihood of selecting an alternative j (labour market status) is formulated by a multinomial logit model and consists in two steps. The first step lies in estimating the multinomial logit model presented in Equation 2 and generates the variable $\hat{\lambda}_w$, for the wage-earner category:

$$\hat{\lambda}_w = \frac{\phi(J(\hat{\beta}_w' X_i))}{F(\hat{\beta}_w' X_i)} \quad (7)$$

where ϕ denotes the standard normal density, F is the logistic marginal distribution, J is $\Phi^{-1}(F)$, and Φ is the standard normal distribution function. In the second step, the variable $\hat{\lambda}_w$ is included in the wage model to correct the sample selection bias.

5. Results

The following section is dedicated to highlight and discuss the results associated with the econometric models formulated in the above section.

5.1 Estimates and Discussion of the Labour Market Status Model

Tables 4 and 5 show the marginal effects obtained once estimated the multinomial logit model specified to explain the labour market status for the years 2006 and 2015, respectively. In relation to the marginal effects of the social capital variables observed for 2006, it is possible to highlight some interesting results. Firstly, being socially engaged with family members or close friends on a daily or weekly basis positively influences on the probability of being self-employed, while lowers the likelihood of being unemployed. The same relationships are observed for the variable indicating whether the individual participates in professional associations. However, this regressor has a negative influence on the labour market status “wage earner,” while participating in political parties or trade unions exerts a significant positive effect since it increases the options of working as an employee in 12 percentage points. For 2015, being regularly engaged with family and friends exerts a positive effect on employment and its intensity increases in relation to 2006. For example, contacting close friends decreases the likelihood of being unemployed by 4.8 percentage points (–2.4 percentage points in 2006). Moreover, these variables are now positively related to the probability of being a wage earner –their marginal effects are around 3 percentage points. Another noteworthy result for 2015 is that those individuals who could ask for help if necessary have a higher probability of being self-employed, something that is not observed in 2006. Furthermore, social networks affect positively the opportunities of getting a job, since individuals who use them on a daily or weekly basis increase their options of being a wage earner by 1.9 percentage points.

Regarding the results associated with the personal characteristics, we observe that they play an important role. Firstly, age has a positive influence on the probability of being self-employed: an additional year increases this probability in 0.5 (0.2) percentage points for 2006 (2015). Secondly, our findings suggest that amassed human capital lessens the likelihood of being unemployed. This result is in line with the one stated by the Human Capital Theory (Becker, 1964). Moreover, it is noteworthy that this figure is higher than that of 2006 in absolute value, which means the positive education's effect on careers has increased over time, that is, human capital is now more valuable for the Spanish labour market. Besides, it is observed a gender asymmetry in the labour market since men have more probability of being employed –self-employed or wage earner– than that of women. This is consistent with the gender inequality observed in the Spanish labour market (e.g. Guner *et al.*, 2014). Concerning the geographic origin, the marginal effects obtained show significant differences according to the collectives considered. For example, people from EU countries have the highest likelihood of being self-employed in 2006. On the other hand, non-EU individuals show the highest probability of being unemployed or out of labour force in 2015. Finally, as expected, being in a good health has a positive influence on the probability of being a wage earner, and this effect has increased over time (from 3 to 6 percentage points, between 2006 and 2015).

Concerning the variables related to the residence area, it is possible to highlight some interesting conclusions. Firstly, individuals living in areas with low and medium degree of urbanization register the highest likelihood of being self-employed, while the opposite occurs for the status of wage earner where the socio-economic dynamics associated with the area highly urbanised favours the arrival of job opportunities. Secondly, the marginal effects corresponding to the regional dummy variables indicate a significant influence on the labour market status, which is a sign of the regional socioeconomic disparities existing in Spain (e.g. Bande *et al.*, 2007). For example, individuals living in the South region or Extremadura have the highest likelihood of being unemployed.

[Insert Table 4]

[Insert Table 5]

As indicated in the methodological section, the results previously obtained for the indicators of social capital could be affected by the relationships existing among them. To get an idea of the magnitude of this problem, we have applied the likelihood ratio chi-square test, and the statistics obtained indicate the existence of interaction for all pairs of variables. According to these results, it is possible to conclude the presence of associations among the variables chosen to approximate the concept of social capital. In this way, the estimated coefficients corresponding to these variables may be inaccurate because the regressors' changes are not independent of each other. This could affect the interpretations and conclusions obtained, and would hamper the evaluation of the real role of each variable in the model.

In this setting, the use of the methodology corresponding to the Categorical Principal Components Analysis (CATPCA) would be appropriate to moderate the problems associated with the multicollinearity (that is, the estimators' variance increases and is harder to reject the null hypothesis when testing the significance of the coefficients), since the initial number of variables would be reduced to a small number of uncorrelated principal components. The application of the CATPCA for the categorical variables used to approach the social capital transforms them into numeric variables.

With the transformed variables obtained through the CATPCA, it is possible to reduce the dimension of the original group of variables obtaining the principal components that explain the highest percentage of the total variance. The choice of the number of principal components is an issue where the researcher's criterion is important, for example, the dimensions chosen should be interpretable from a socio-economic perspective according to the set of original variables. From a statistical point of view, only principal components with eigenvalues greater than one should be considered, since it entails that their variances are greater than the variances of the original variables. Following both criteria, we have chosen two dimensions for 2006 and three dimensions for 2015.

In order to appropriately interpret the chosen dimensions in accordance with the original variables, it is necessary to obtain the component loadings, that is, the Pearson correlations among the principal components and the numeric variables obtained from CATPCA. Thus, it is possible to verify the

variables most strongly correlated with each dimension (regardless of the correlation coefficient's sign). The consideration of a correlation as large or small is a subjective decision, but it is common to take into account those values around or higher than 0.5. These component loadings can be found in Table 6 for the years 2006 and 2015.

[Insert Table 6]

The first and second components share similar characteristics and interpretations for the years 2006 and 2015. Thus, the first one shows individuals that frequently interact with family members or friends, since the numeric variables from these categorical variables are highly correlated with this first principal component, with Pearson correlation coefficients higher than 0.5, specially for the variable “contacting with friends on a daily or weekly basis” (0.72). In particular, this component reflects the strong ties with individuals outside the household (family members or close friends). The second principal component shows high correlations with the numeric variables from categorical variables noting weak ties through social participation; in particular, the highest value corresponds to the participation in political parties or trade unions and professional associations (0.55 and 0.64, respectively). In regard to the third principal component corresponding to 2015, it is possible to note a negative correlation with the numeric variable from “meeting with family members on a daily or weekly basis” (-0.45), and a positive correlation with the numeric variable from “use of social networks on a daily or weekly basis” (0.80). This dimension could represent to those individuals that compensate the lack of family ties with the use of social networks (such as Facebook or Twitter), that is, weak ties through the internet.

Once obtained the principal components, they are included in the multinomial logit model substituting the social capital indicators. Table 7 shows the marginal effects associated with these principal components and their statistical significance, which allows us to observe their real influence on the individual labour market status. Thus, the first principal component that takes into account the strong ties with family members or close friends lowers the likelihood of being unemployed and exerts a positive influence on the probability of being self-employed. The effects' magnitudes are higher for 2006 than for 2015. In relation to the second principal component –noting weak ties through social

participation–, the marginal effects indicate a negative influence on the probability of being out of labour force, and positive on the propensity of being self-employed, although this only happens for 2006. According to the previous results some interesting conclusions can be highlighted. Firstly, the hypothesis proposed by Blumberg and Pfann (2001) -in which social capital increases the transition to self-employment- is mainly corroborated for 2006 since the two principal components affect positively the likelihood of being self-employed. These results are in line with Fernández de Guevara *et al.* (2015), since the recent economic crisis has caused a loss of social capital and the weak ties through social participation are not having effect on the probability of being employed. Finally, the Granovetter’s hypothesis is not entirely corroborated for the Spanish labour market since weak ties through participation do not have higher influence than strong ties. This conclusion is contrary to the predictions proposed for some economic model for the US economy (e.g. Montgomery, 1991) where weak ties are demonstrated to be very important to determine labour market outcomes. This may be explained by the collectivist features of the Spanish culture with intense relationships between members belonging to the same social circle; instead, the United States is a country characterised by an individualistic culture (e.g. Hofstede, 1980).

In relation to 2015, the results associated with the third principal component (highly correlated with the variable “use of social networks on a daily or weekly basis”) show a positive influence on the probability of being a wage-earner. This is consistent with the results obtained by the economic literature (e.g., Ioannides and Loury, 2004) and show that the use of social networks might be a source of information to locate vacancies and job opportunities without bearing high job search costs (Granovetter, 2005).

[Insert Table 7]

5.2 Estimates and Discussion of the Wage Model

Focusing on the second main objective of this study -the social capital’s effects on wages-, we have considered two specifications (Table 8). The first one includes all the social capital indicators and the second one only the principal components obtained using the Categorical Principal Components

Analysis (CATPCA). In both specifications, the estimates include the rest of regressors affecting wages.

[Insert Table 8]

The results corresponding to the first specification indicate that the social capital's influence has changed between years 2006 and 2015. For example, on the one hand, "contacting family members on a daily or weekly basis" has a positive effect in 2006 but not in 2015. The same occurs for participating in professional associations generating a wage increase of 13% only in 2006. On the opposite, for both years, the dummy variables showing participation in political parties or trade unions, and whether the individual could ask for help if necessary have a positive effects on wages. In particular, for the last one, the effect in 2015 is much higher than in 2006 (an increase of 19% versus 4% in 2015 and 2006, respectively). The importance of these variables is explained because the family support may cause that the individuals accept more demanding jobs in terms of working hours but with higher wages. Finally, it is verified that use of social networks on a daily or weekly basis does not positively affect wages. On the contrary, they tend to earn 3% lower wages over that of other wage earners in the aggregate.

Similar to the analysis of the labour market status, the above results may be affected by the existing associations between the variables that intend to capture the social capital. These associations are analysed and the results prove that they are statistically significant. This fact motivates the application of the CATPCA incorporating the principal components used in the previous analysis of the labour market status. For both 2006 and 2015, the first and second principal components show individuals frequently interacting with family members or friends and those with a high social participation, respectively. In line with previous studies (e.g. Wang *et al.* 2014), the results note that both principal components exert a positive effect on wages, generating an increase of earnings that ranges from 1% to 3%. It seems that the Spanish labour market values the two dimensions of the social capital collected by the principal component variables. This recognition of the social capital might come from its help to improve the job matching and could reveal the individuals' social skills useful for their labour tasks. On the contrary, the third principal component, highly correlated with the variable

“use of social media on a daily or weekly basis (e.g., Facebook or Twitter, etc.) has a negative influence on the wages.

Table 9 depicts the coefficient estimates associated with the personal and labour characteristics in the wage model using all social capital indicators. The wage model is semilogarithmic, thus the effects of the dummy variables are estimated by computing the exponential of their coefficients and subtracting the value of 1 (Halvorsen and Palmquist, 1980). There are displayed two specifications: one without correcting the endogeneity bias and another one correcting it. The last one uses the Lee’s method specified in the methodology section. For both specifications, it is possible to observe differences in the magnitudes of the estimated coefficients and, mainly, the variable correcting the selection bias is statistically significant for both 2006 and 2015, which supports the econometric methodology used to regress the wage model. Moreover, its positive sign means that there is positive correlation between the omitted factors explaining the probability of being a wage earner and the omitted factors in the wage equation.

[Insert Table 9]

In relation to the personal characteristics, it is noteworthy that the results are consistent with the previous literature (e.g. Kunze, 2008). Firstly, gender is a relevant variable since men earn more than women, once controlled for the rest of regressors. Secondly, human capital variables are relevant to explain wages, and their effects have increased between 2006 and 2015: for instance, people with higher education in 2015 earned 32% more than individuals with only primary education, while for 2006 this figure was only 19%. Thirdly, foreign workers born outside the EU tend to earn less, 11% less than the rest of wage earners in 2015. Finally, it is verified that people living in areas with low degree of urbanization receive low wages in comparison to the rest of areas.

Concerning the labour characteristics, the results confirm the segmentation existing in the Spanish labour market in relation to the wages received by type of contract, since open-ended contracts are better remunerated, and the differences with the fixed-term contract have increased through time. Thus, wage earners with stable labour relationships in 2015 have wages 31% higher than unstable workers, while in 2006 the percentage difference was 13%. This result is explained by an insider-

outsider Spanish labour market characterized by a contractual dualism where the insiders with open-ended contracts are more represented in the collective bargaining process (Bentolila *et al.*, 2012). Moreover, this result is strengthened by the relationship observed between wages and firm sizes, since wage earners working in firms with higher number of employees are better remunerated. Finally, it is remarkable that labour experience –as a proxy of the human capital acquired outside the educational system– exerts a positive influence on salaries.

6. Theoretical and Policy Implications

The main aims of this study have been to quantify the influence of the social capital on the individual labour market status and on wages. Data used correspond to the 2006 and 2015 Living Conditions Survey (INE, 2006, 2015), where information about social capital is provided at an individual level. For the analysis of the labour market status, the methodology applied has consisted in specifying and estimating a multinomial logit model whose dependent variable shows the individual labour market status. For the analysis of wages, a wage model has been specified correcting the sample selection bias through the Lee's methodology (1983). In both cases, social capital indicators are included as regressors, and the Categorical Principal Components Analysis (CATPCA) is applied to obtain uncorrelated explanations showing diverse dimensions of the social capital. As far as we know, this study is unprecedented in the economic literature and its main contribution is to shed empirical evidence about some economic effects of the social capital following a microeconometrics approach. We have considered a group of variables taking into account the multidimensionality of the social capital's concept. In particular, we have distinguished between strong ties and weak ties-based social capital. The first one is formed by variables showing whether the individual has met or contacted family members (outside the household) or close friends on a daily or weekly basis or whether she/he could ask for help if necessary. The second one is associated with the type and intensity of the social participation: volunteer activities, political parties, trade unions, associations, or social networks (e.g., Facebook, Twitter, etc.).

From a statistical point of view, we have verified that the proportion of individuals taking part in social activities has evolved over time. For example, we have corroborated that strong ties-based in contacting family members or close friends have improved. However, weak ties -such as the participation in volunteering- have sharply decreased between 2006 and 2015. In addition, by using the Categorical Principal Components Analysis (CATPCA), we have obtained principal component variables that have summarised the different perspectives of the social capital. For 2006, two principal components have been detected: the first one considers strong ties with family members or close friends, while the second one takes into account weak ties through social participation. For 2015, it has been necessary to add a third social capital dimension showing people with few family ties and large use of social networks, that is, weak ties through the internet.

In relation to the labour market status, firstly, we have observed that the first and second principal component (strong ties and weak ties through social participation) exert a positive influence on the probability of being self-employed, and negative on the likelihood of being unemployed. Secondly, we have verified that weak ties are not more important than strong ties to determine labour market outcomes, that is, the Granovetter's hypothesis is not corroborated for the Spanish case. Moreover, for 2015, the second component that takes into account the social participation does not influence on the probability of being employed, which could be caused by a deterioration of social trust originated during the past economic crisis. Instead, for 2015, the results associated with the third social capital's dimension are positive, indicating that social networks may be a source of information to decrease the job search costs and improve the job opportunities, since it exerts a positive effect on the likelihood of being a wage earner. In this way, social capital can be acting as a matching function. Individuals who often use social network may be more flexible to acquire new technological skills and this could be valuable by employers.

Concerning the analysis of social capital's effects on wages, it is verified a positive influence of the social capital concepts associated with the interaction with family members or close friends and with the social participation. In this line, Lee *et al.* (2005) find out that individuals with extensive social life are more prone to interaction and cooperation, and this is a professional profile valued and

required by employers. However, the intensive use of social media has a negative effect on wages, which reflect that this activity can be in conflict with the daily time dedicated to the paid employment.

In summary, our findings allow to identify some policy implications. Firstly, it is necessary to increase the role of social participation as a mechanism to generate social capital useful to get a job and obtain higher wages. Accordingly, policy makers should increase the support to the participation in those organizations that improve social connections and favour the arrival of new job opportunities. Secondly, the importance of social networks as an instrument for the job search process should be enhanced. Consequently, it would be interesting to provide training courses aimed to unemployed people in order to facilitate them the acquisition of knowledge on how to use social media to find new job opportunities and present their professional skills. Moreover, the results obtained are a support to increase the study of the cooperation within and among groups. For example, it would be interesting to conduct longitudinal surveys, where the evolution of interrelationships between social capital and labour market outcomes are more explicitly collected. Thus, further research could analyse other topics such as the intergenerational transmission of social capital, and its effects on the upward social mobility, or how employers assess the competences associated with the use of social networks to promote workers.

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Table 1. Descriptive statistics of variables related to personal characteristics

Variables	2006 year		2015 year	
	Mean	Std. dev.	Mean	Std. dev.
Labour market status				
Inactive	0.14	0.34	0.08	0.26
Unemployed	0.09	0.29	0.21	0.21
Self-employed	0.14	0.35	0.13	0.13
Wage-earner	0.63	0.48	0.57	0.57
Age (years)	41.94	9.71	44.15	9.62
Educational level				
Primary studies	0.25	0.43	0.12	0.32
Lower secondary education	0.25	0.42	0.28	0.45
Upper secondary education	0.21	0.40	0.19	0.38
Higher technical education	0.01	0.11	0.01	0.03
Higher education	0.28	0.45	0.36	0.48
Gender				
Male	0.52	0.50	0.52	0.50
Female	0.48	0.50	0.48	0.50
Marital status				
Married	72.88	0.44	0.69	0.46
Not married	27.12	0.44	0.31	0.46
Household composition				
An adult living alone	0.04	0.20	0.06	0.22
Adults without dependent children	0.38	0.49	0.40	0.49
Adults with dependent children	0.58	0.50	0.54	0.50
Geographic origin				
Spain	0.93	0.25	0.89	0.32
EU	0.01	0.10	0.03	0.16
Not EU	0.06	0.24	0.08	0.26
Health Status				
Very good	0.78	0.41	0.82	0.38
Not very good	0.22	0.41	0.18	0.38
Region of residence				
Aragon	0.05	0.20	0.05	0.20
Asturias	0.05	0.20	0.05	0.19
Basque Country	0.05	0.21	0.06	0.23
Cantabria	0.03	0.15	0.04	0.16
Castilla-La Mancha	0.05	0.21	0.05	0.20
Catalonia	0.12	0.31	0.11	0.30
Castilla-León	0.09	0.25	0.06	0.23
Extremadura	0.05	0.21	0.05	0.20
Galicia	0.07	0.25	0.07	0.24
La Rioja	0.03	0.17	0.03	0.16
Madrid	0.06	0.23	0.11	0.31
Murcia	0.05	0.21	0.04	0.20
Navarra	0.04	0.18	0.03	0.17
South	0.17	0.35	0.17	0.35
Valencia	0.09	0.27	0.08	0.26
Degree of urbanization				
Low	0.31	0.46	0.28	0.45
Medium	0.22	0.41	0.22	0.41
High	0.47	0.50	0.50	0.50
Observations	15,504		14,937	

Source: Own elaboration based on the Living Condition Survey (INE, 2006, 2015).

Table 2. Descriptive statistics of the variables related to social capital

Variables	2006 year		2015 year	
	Mean	Std. dev.	Mean	Std. dev.
Strong ties-based social capital				
Meeting with family members on a daily or weekly basis				
Yes	0.62	0.48	0.63	0.48
Not	0.38	0.48	0.37	0.48
Contacting with family members on a daily or weekly basis				
Yes	0.69	0.46	0.80	0.39
Not	0.31	0.46	0.20	0.39
Could you ask for help if necessary?				
Yes	0.96	0.18	0.95	0.20
Not	0.04	0.18	0.05	0.20
Meeting with friends on a daily or weekly basis				
Yes	0.65	0.47	0.69	0.46
Not	0.35	0.47	0.31	0.46
Contacting with friends on a daily or weekly basis				
Yes	0.60	0.50	0.80	0.29
Not	0.40	0.50	0.20	0.29
Weak ties-based social capital				
Volunteer activities				
Yes	0.50	0.50	0.10	0.30
Not	0.50	0.50	0.90	0.30
Political parties or trade unions				
Yes	0.05	0.22	0.09	0.28
Not	0.95	0.22	0.91	0.28
Professional associations				
Yes	0.06	0.24	0.11	0.31
Not	0.94	0.24	0.89	0.31
Other associations				
Yes	0.08	0.27	-	-
Not	0.92	0.27	-	-
Using social network (Facebook, twitter...) on a daily or weekly				
Yes	-	-	0.47	0.50
Not	-	-	0.53	0.50
Observations	15,504		14,937	

Source: Own elaboration based on the Living Condition Survey (INE, 2006, 2015).

Table 3. Descriptive statistics of the real monthly wage (€)^a

Variables	2006 year		2015 year	
	Mean	Std. dev.	Mean	Std. dev.
Strong ties-based social capital				
Meeting with family members on a daily or weekly basis				
Yes	1,306	656	1,363	874
Not	1,374	732	1,353	846
Paired-t-test	-4.54***		0.47	
Contacting with family members on a daily or weekly basis				
Yes	1,365	701	1,368	797
Not	1,254	645	1,314	860
Paired-t-test	6.87***		2.05**	
Could you ask for help if necessary?				
Yes	1,338	687	1,367	853
Not	1,169	678	1,019	660
Paired-t-test	4.17***		5.38***	
Meeting with friends on a daily or weekly basis				
Yes	1,310	663	1,347	822
Not	1,377	731	1,389	861
Paired-t-test	-4.33***		1.97**	
Contacting with friends on a daily or weekly basis				
Yes	1,351	674	1,361	854
Not	1,299	694	1,350	832
Paired-t-test	3.42**		0.42	
Weak ties-based social capital				
Volunteer activities				
Yes	1,339	676	1,535	912
Not	1,325	698	1,334	839
Paired-t-test	0.96		6.91***	
Political parties or trade unions				
Yes	1,614	677	1,598	859
Not	1,310	741	1,330	845
Paired-t-test	10.89***		8.76***	
Professional associations				
Yes	1,933	950	1,538	903
Not	1,290	644	1,335	841
Paired-t-test	22.25***		6.90***	
Other associations				
Yes	1,432	754	-	-
Not	1,285	647	-	-
Paired-t-test	9.44***		-	
Using social network (Facebook, twitter...) on a daily or weekly				
Yes			1,293	830
Not			1,429	867
Paired-t-test			7.12***	
Observations	8,786		7,872	

Note:

(a) (***) The null hypothesis "equality of means" is rejected at 1%, (**) at 5%.

Source: Own elaboration based on the Living Condition Survey (INE, 2006, 2015).

**Table 4. Estimates of the multinomial logit model of labour market status in 2006 year:
marginal effects^{a,b}**

Variables	Inactive		Unemployed		Self-employed		Wage-earner	
Age (years)	0.001		-0.001 ***		0.005 ***		-0.003 ***	
Educational level								
Lower secondary education	-0.003	***	-0.025	***	-0.008		0.036	***
Upper secondary education	-0.008	***	-0.044	***	-0.003		0.059	***
Higher technical education	-0.007	***	-0.030	*	-0.047	**	0.084	**
Higher education	-0.014	***	-0.071	***	-0.060	***	0.146	***
Gender								
Male	-0.186	***	-0.043	***	0.062	***	0.168	***
Marital status								
Married	0.012	***	-0.051	***	0.040	***	-0.002	
Household composition								
Adults without dependent children	0.004		0.037	***	-0.002		-0.211	
Adults with dependent children	0.007	**	0.025	**	-0.007		-0.258	
Geographic origin								
EU	-0.001		0.028		0.146	***	-0.172	***
Not EU	-0.001		0.015		-0.039	**	0.023	*
Health Status								
Very good	-0.002	*	-0.037	***	0.008		0.032	**
Region of residence								
Aragon	-0.003	**	-0.059	***	0.008		0.055	***
Asturias	0.001		-0.018	*	0.095	***	-0.078	**
Basque Country	-0.001		-0.034	***	0.045	**	-0.011	
Cantabria	0.002		-0.040	**	0.081	**	-0.043	
Castilla-La Mancha	0.001		-0.054	***	0.001		0.053	**
Castilla-León	-0.001		-0.032	**	0.072	***	-0.038	**
Catalonia	-0.006	***	-0.064	***	0.051	***	0.018	
Extremadura	-0.002		-0.002		-0.021		0.026	
Galicia	-0.006	***	-0.027	***	0.071	***	-0.037	**
La Rioja	-0.001		-0.046	***	0.053	**	-0.007	
Madrid	-0.003	**	-0.048	***	-0.002		0.053	**
Murcia	-0.001		-0.059	***	-0.006		0.066	***
Navarra	-0.003	**	-0.052	***	0.043	*	0.012	
Valencia	-0.005	***	-0.046	***	0.041	**	0.009	
Degree of urbanization								
Low	0.001		-0.002		0.100	***	-0.098	**
Medium	0.001		-0.005		0.034	***	-0.029	**
Strong-tie based social capital								
Meeting with family on a daily or weekly basis	0.001	**	0.002		0.008	*	-0.012	
Contacting with family on a daily or weekly basis	-0.001		-0.014	**	0.010	**	0.004	
He/she could ask for help if necessary	-0.001		-0.016		-0.009		0.027	
Meeting with friends on a daily or weekly basis	-0.001		-0.009		0.011		0.001	
Contacting with friends on a daily or weekly basis	-0.001		-0.024	**	0.019	**	0.005	
Weak-tie based social capital								
Volunteer activities	0.001		0.001		0.001		-0.002	
Political parties or trade unions	-0.008	***	-0.014		-0.094	***	0.116	***
Professional associations	-0.007	***	-0.045	***	0.199	***	-0.145	***
Other associations	0.001		0.008		-0.002		-0.007	
Observations	15,504							

Notes:

(a) The reference category corresponds to a single Spanish woman with primary studies and living alone, who resides in an area of high urbanization in the South region, and does not participate in social capital activities.

(b) (***) significant at 1%, (**) at 5%, (*) at 1%.

Source: Own elaboration based on the Living Condition Survey (INE, 2006).

**Table 5. Estimates of the multinomial logit model of labour market status in 2015 year:
marginal effects^{a,b}**

Variables	Inactive		Unemployed		Self-employed		Wage-earner	
Age (years)	0.001	***	-0.001	***	0.002	***	-0.001	
Educational level								
Lower secondary education	-0.001		0.049	***	0.025	**	-0.074	***
Upper secondary education	-0.002	**	-0.048	***	0.043	***	0.007	
Higher technical education	0.007		0.033		0.203		-0.244	*
Higher education	-0.005	**	-0.120	***	0.028	**	0.097 ***	
Gender								
Male	-0.084	***	-0.046	***	0.028	***	0.067 **	
Marital status								
Married	0.004	***	-0.086	***	0.037	***	0.044 ***	
Household composition								
Adults without dependent children	0.003	*	0.091	***	-0.023	**	-0.070 **	
Adults with dependent children	0.004	**	0.056	***	-0.011		-0.049 **	
Geographic origin								
EU	0.001		0.026		-0.018		-0.009	
Not EU	0.005	**	0.087	***	-0.039	***	-0.053 **	
Health Status								
Very good	-0.001		-0.057	***	-0.004		0.063 ***	
Region of residence								
Aragon	-0.001		-0.132	***	0.082	***	0.050 **	
Asturias	-0.001		-0.076	***	0.059	**	0.015	
Basque Country	-0.001		-0.090	***	0.030	**	0.061 **	
Cantabria	0.001		-0.088	***	0.055	**	0.032	
Castilla-La Mancha	0.001		-0.040	**	0.043	**	-0.003	
Castilla-León	-0.001		-0.068	***	0.072	***	-0.003	
Catalonia	-0.002	**	-0.117	***	0.059	***	0.061 ***	
Extremadura	-0.002	**	0.004		0.014		-0.016	
Galicia	-0.001	**	-0.065	***	0.046	**	0.019	
La Rioja	-0.001		-0.118	***	0.051	**	0.067 **	
Madrid	-0.001	**	-0.090	***	0.011		0.078 ***	
Murcia	0.002		-0.083	***	0.043	**	0.039 *	
Navarra	-0.001		-0.137	***	0.021		0.118 ***	
Valencia	-0.001		-0.058	***	0.021		0.037 **	
Degree of urbanization								
Low	-0.001		-0.012	**	0.077	***	-0.054 ***	
Medium	0.001		-0.016		0.027	**	-0.014	
Strong-tie based social capital								
Meeting with family on a daily or weekly basis	0.001	***	0.012	***	0.004		-0.017 ***	
Contacting with family on a daily or weekly basis	0.001		-0.023	***	-0.006		0.029 **	
He/she could ask for help if necessary	0.002	**	0.030		0.044	**	-0.075 ***	
Meeting with friends on a daily or weekly basis	0.004		0.034	***	-0.004		-0.017 *	
Contacting with friends on a daily or weekly basis	-0.001	**	-0.048	***	0.006		0.029 **	
Weak-tie based social capital								
Volunteer activities	0.001		-0.004		0.008		-0.005	
Political parties or trade unions	-0.002	**	0.002		-0.112		0.012	
Professional associations	-0.001		0.011		0.011		-0.023 *	
Social networks	-0.002	**	-0.016	**	-0.001		0.019 **	
Observations	14,937							

Notes:

(a) The reference category corresponds to a single Spanish woman with primary studies and living alone, who resides in an area of high urbanization in the South region, and does not participate in social capital activities.

(b) (***) significant at 1%, (**) at 5%, (*) at 1%.

Source: Own elaboration based on the Living Condition Survey (INE, 2015).

Table 6. Component loadings between principal components and numeric variables

Variables	2006		2015		
	Principal components		Principal components		
	1	2	1	2	3
Meeting with family members on a daily or weekly basis	0.556	-0.198	0.601	-0.159	-0.450
Contacting with family members on a daily or weekly basis	0.616	-0.096	0.716	-0.110	-0.185
He/she could ask for help	0.307	0.018	0.664	-0.174	-0.210
Meeting with friends on a daily or weekly basis	0.662	-0.197	0.767	-0.103	-0.089
Contacting with friends on a daily or weekly basis	0.720	-0.150	0.387	0.062	0.203
Daily or weekly use of social media	-	-	0.441	-0.024	0.799
Volunteer activities	0.281	0.296	0.187	0.724	-0.128
Political parties or trade unions	0.141	0.549	0.149	0.549	0.002
Professional associations	0,170	0.638	0.191	0.726	-0.026
Other associations	0,231	0.576	-	-	-

Source: Own elaboration based on the Living Condition Survey (INE, 2006, 2015).

**Table 7. Estimates of the multinomial logit model of labour market status^{a,b}:
principal components' marginal effects**

Year / Principal component	Out of labour force		Unemployed		Self-employed		Wage-earner	
2006								
First principal component	-0.001		-0.016	***	0.018	***	-0.001	
Second principal component	-0.001	**	-0.002		0.008	**	-0.003	
Observations	15,504							
2015								
First principal component	-0.001	*	-0.005	*	0.004	*	0.001	
Second principal component	-0.004	*	0.001		0.002		-0.002	
Third principal component	-0.001	**	-0.011	***	-0.003		0.015	***
Observations	14,937							

Notes:

(a) (***) significant at 1%, (**) at 5%, (*) at 1%.

(b) The model estimated controls for the personal characteristics.

Source: Own elaboration based on the Living Condition Survey (INE, 2006, 2015).

**Table 8. Regression wage equation estimation results:
two specifications proxying the social capital^{a,b}**

Variables	2006				2015			
	Without correcting endogeneity bias		Correcting endogeneity bias		Without correcting endogeneity bias		Correcting endogeneity bias	
First specification with all social capital indicators								
Strong ties based social capital								
Meeting with family members on a daily or weekly basis	-0.024	**	-0.016	**	0.024	*	0.031	**
Contacting with family members on a daily or weekly basis	0.015	*	0.036	***	0.027		0.017	
Could you ask for help if necessary?	0.046	**	0.039	**	0.131	**	0.175	***
Meeting with friends on a daily or weekly basis	-0.010		-0.009		-0.021		-0.005	
Contacting with friends on a daily or weekly basis	0.015	**	0.006		0.035	*	0.016	
Weak ties based social capital								
Volunteer activities	-0.001		0.002		0.042	**	0.045	**
Political parties or trade unions	0.044	**	0.043	**	0.042	**	0.034	*
Professional associations	0.171	***	0.126	***	0.005		0.014	
Other associations	0.017	**	0.014	**	-	-	-	-
Using social networks (Facebook, Twitter, etc.) on a daily or weekly basis	-	-	-	-	-0.018		-0.029	**
Second specification with principal component variables								
First principal component	0.020	***	0.016	***	0.026	***	0.025	***
Second principal component	0.035	***	0.029	***	0.013	**	0.015	**
Third principal component	-	-	-	-	-0.019	**	-0.025	***
Sample selection variable	-	-	0.061	**	-	-	0.306	**
Adjusted R-squared	0.532		0.582		0.444		0.447	
Observations	8,786				7,872			

Notes:

(a) (***) significant at 1%, (**) at 5%, (*) at 1%.

(b) The models estimated control for the personal and labour characteristics.

Source: Own elaboration based on the Living Condition Survey (INE, 2006, 2015).

**Table 9. Regression wage equation estimation results:
personal and labour characteristics^{a,b}**

Variables	2006				2015			
	Without correcting endogeneity bias		Correcting endogeneity bias		Without correcting endogeneity bias		Correcting endogeneity bias	
Age (years)	0.003	***	0.004	***	0.005	***	0.007	***
Educational level								
Lower secondary education	0.057	***	0.036	**	0.019		0.046	*
Upper secondary education	0.163	***	0.102	***	0.114	***	0.098	***
Higher technical education	0.121	***	0.061	**	0.312	***	0.410	*
Higher education	0.354	***	0.177	***	0.327	***	0.274	***
Gender								
Male	0.194	***	0.166	***	0.152	***	0.124	***
Geographic origin								
EU	0.030		0.036		-0.059	*	-0.068	
Not EU	-0.083	**	-0.038	**	-0.130	***	-0.113	***
Health Status								
Very good	0.051	***	0.039	***	0.025		0.001	
Region of residence								
Aragon	0.028	*	0.036	**	0.067	**	0.040	
Asturias	-0.018		-0.011		0.046		0.037	
Basque Country	0.071	***	0.088	***	0.196	***	0.168	***
Cantabria	0.032		0.047	**	0.041		0.025	
Castilla-La Mancha	0.014		0.011		0.009		0.010	
Castilla-León	-0.052	**	-0.042	**	0.005		-0.001	
Catalonia	0.052	***	0.052	***	0.079	**	0.048	**
Extremadura	-0.070	***	-0.070	***	-0.023		-0.023	
Galicia	-0.064	***	-0.064	***	-0.034		-0.049	*
La Rioja	-0.076	*	-0.057	**	0.107	**	0.070	*
Madrid	0.024		0.018		0.050	**	0.021	
Murcia	0.025		0.022		-0.070	**	-0.091	**
Navarra	0.097	***	0.092	***	0.134	***	0.084	**
Valencia	-0.016		-0.024	*	-0.038		-0.056	**
Degree of urbanization								
Low	-0.051	***	-0.032	**	-0.056	***	-0.034	**
Medium	-0.020	***	-0.012		0.008		0.014	
Current labour experience (years)	0.005	***	0.005	***	0.005	***	0.004	***
Type of working day								
Full-time	0.485	***	0.465	***	0.609	***	0.607	***
Type of contract								
Open-ended contract	0.140	***	0.125	***	0.269	***	0.269	***
Sector								
Industry	0.086	***	0.067	**	0.079	***	0.082	***
Retail trade	0.019		-0.001		-0.012		-0.008	
Construction	0.129	***	0.119	***	0.103	**	0.099	***
Hotels and restaurants	0.051	**	0.036		-0.106	***	-0.102	**
Transport	0.137	***	0.100	***	0.264	***	-0.037	
Financial intermediation	0.132	***	0.084	***	0.073	**	0.221	***
Education, health, and public administration	0.169	***	0.064	**	0.018		0.076	***
Scientific and artistic activities	-	-	-	-	0.019		0.021	
Household activities	-0.020		-0.029		-0.229	***	-0.219	***
Firm size								
Less than 10 employees	-0.132	***	-0.125	***	-0.247	***	-0.248	***
Between 10 and 50 employees	-0.075	***	-0.081	***	-0.110	***	-0.110	***
Sample selection variable	-	-	0.061	**	-	-	0.306	***
Adjusted R-squared	0.532		0.582		0.444		0.444	
Observations	8,786				7,872			

Notes:

(a) The individual of reference is a Spanish woman, with primary studies or less, not very health status, residing in an area of high degree of urbanization in the South region, working in a firm of more than 10 employees in the agricultural sector, with a fixed-term and part-time contract.

(b) (***) significant at 1%, (**) at 5%, (*) at 1%.

Source: Own elaboration based on the Living Condition Survey (INE, 2006, 2015).