

Job satisfaction, insecurity and the Great Recession: The effect of others' unemployment

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Abstract

Job security may be considered the most important working condition during an economic recession. In this paper we use a very rich repeated cross-section dataset on workers' job conditions, together with regional unemployment information at the activity level, to test whether employees value job security differently after the recent economic downturn. We use subjective-wellbeing measures of perceived and actual job insecurity in our assessments. We find that peers' unemployment affected job satisfaction negatively before the recession, but not afterwards. The economic valuation of job insecurity increased after the financial crisis when measured subjectively. Objective measures related to the industry's unemployment rates decreased. Our main conclusions are robust to sample selection and method of computation. This suggests that increased job insecurity constitutes an important welfare loss associated with increased unemployment during recessions.

Keywords: Job satisfaction, job insecurity, unemployment, Spain, Great Recession

1. Introduction

This paper looks at the effect of the rise in unemployment generated by the recent economic downturn on the working conditions of the employed, with a special emphasis in the role of job security.

Unemployment is widely considered to be one of the strongest correlates of individual wellbeing (Clark *et al.* 2010). Losing a job is associated with a significant drop in not only income, but also social status, self-esteem, and other non-pecuniary effects. Recently, however, evidence has gathered showing a clear effect of general unemployment on subjective wellbeing, even after controlling for personal unemployment (Blanchflower 2007; Di Tella *et al.* 2001). Unemployment is therefore commonly found to be associated with lower levels of well-being also among the employed, most probably because of its effect on the individual's perception of job insecurity: others' unemployment increases one's own risk of becoming unemployed.

In Spain, the recent recession has seen a surge in unemployment from slightly over 8% in 2006 to more than 20% in 2010. The increase has not been homogeneous, though, with some industries experiencing very slight increases (from 2 to 5 % in the Financial Services sector) and others suffering from huge rises (from 6 to 27% in the Construction sector).

We contend that, in this context of increased unemployment, job security stands as the most valued non-pecuniary job characteristic. We test this hypothesis using different methodologies in the calculation of compensating variations for job insecurity and different measures of this non-pecuniary job attribute. In particular we use both the traditional Rosen's (1986) hedonic-wages method and the more recent subjective-wellbeing method of Helliwell and Huang (2010). Also we consider objective measures of job insecurity like the industry's unemployment rate or the type of contract, together with perceived approximations, like the subjective probability of losing one's job. The potential endogeneity of the latter will be investigated in a robustness check section. Finally we try to capture the general effect of the recent recession by using a simple difference in differences model.

We merge information from two data sets. The first one is a very rich repeated cross-section dataset on workers' job conditions from the First and Second Surveys of Job Quality in Seville, conducted in 2006 and 2009, respectively. These surveys contain information on individual job satisfaction, together with demographic and human capital characteristics of employees, employers' features, and pecuniary and non-pecuniary job characteristics, including perceived and actual job security aspects. The other information are regional unemployment rates by industry computed from the Spanish Labour Force Survey (Encuesta de Población Activa, EPA), for the same years.

Following the work of Locke (1969), Hammermesh (1977), Freeman (1978) and Borjas (1979), economists became increasingly in issues related to subjective evaluations of the utility derived from work as measured by stated job satisfaction since it is related to gains in efficiency at an organizational and an individual level. The literature provides evidence for a strong relationship

between job satisfaction and specific socioeconomic characteristics, namely, gender, age, education, wages (Borra and Gómez, 2012), working hours, trade unions status and establishment size (García-Serrano, 2011). This literature is surveyed in Theodossiou and Vasileiou (2007).

The case of employment insecurity refers to all forms of welfare-reducing (uncertainty over the continuity of the current job), uncertainty over the work itself, and uncertainty over future labour market prospects. This broad definition is often simplified in analyses by focusing on two components of the mean expected welfare loss arising from uncertainty: the probability of job loss and its costs (including non-pecuniary losses). From a human resource management point view, subjective perceptions of risk of job loss can have important motivational effects for the workforce, which in turn has consequences on productivity, efficiency, wages and employment.

One consistent finding in the job satisfaction literature is the large and significant effect of job insecurity on job satisfaction –Heaney *et al.* (1994), Blanchflower and Oswald (1999)-. As stated, the aim of our analysis is to evaluate the joint effect exerted by the (objective) type of contract and the (subjective) perceived job insecurity on job satisfaction.

For example, Ferrer-i-Carbonell and van Praag (2006) used 1995-2000 ECHP data to examine the effect of the type of contract on the individual's job satisfaction in Spain and the Netherlands. They showed that this effect varies between the two countries analysed: whilst for Spain temporary contracts are strongly negatively correlated with job satisfaction, for the Netherlands there is no relationship between job satisfaction and fixed-term contracts lasting more than a year and causal contracts. So the literature reviewed above shows that effects of perceived risk of job loss are significant and important. Yet, the literature has largely ignored the issue of the endogeneity in the job satisfaction-risk of job loss relationship, exceptions being the papers of Theodossiou and Vasileiou (2007) and Origo and Pagani (2009).

Another important question is that high unemployment rates have effects on individual contemporaneous and future economic situations. It is well documented the negative effect of unemployment in the well-being of unemployed –Clark y Oswald (1994), Winkelmann y Winkelmann (1998) y Clark (2003)-, but the externalities from higher regional unemployment are not restricted to unemployed –Clark *et al.* (2010)-. So, working conditions may become harsher in times of high unemployment (lower average wages, rise in working hours- reduced leisure time, reduced promotion opportunities and, among others, anticipated economic distress, as, for instance, the probability that a worker may himself experience a spell of unemployment in the future increases).

As far as we know, no previous study has examined these issues in the context of the Great Recession, with a survey of employees. For instance, Wolfers (2003) examines the effects of business cycle

volatility on subjective well-being, but does not consider the effect on the economic valuation of job insecurity.

We add to existing literature in at least three ways. First, to our knowledge this is the first study to assess the effect of the recent recession on the individual economic valuation of job insecurity. Second, instead of focusing on objective (Böckerman *et al.* 2011) or subjective (Theodossiou and Vasileiou 2007, Origo and Pagani 2009, Clark *et al.* 2010) indicators we use both actual and perceived measures of job insecurity in our calculations. And third, unlike most studies on the subject (Theodossiou and Vasileiou 2007, Origo and Pagani 2009, Clark *et al.* 2010, among others), we compare subjective-wellbeing measures of compensating variations for job insecurity to those computed by hedonic-wage methods, in line with Böckerman *et al.* (2011) approach.

This paper is organized as follows. The next section presents the theoretical framework. Section 3 describes the dataset and Section 4, the estimation procedure. Section 5 presents the results and explores their sensitivity to unobserved heterogeneity. Finally, Section 6 concludes.

2. Theoretical framework

The theoretical model that supported our estimations assumes that the utility of an individual worker depends on wages, job insecurity and other working conditions:

$$U(w, JI, Z) \quad (1)$$

where w is the wage, JI is job insecurity, and Z all other variables that affect utility.

It is assumed that $\frac{\partial U}{\partial w} = U_w > 0$ and $\frac{\partial U}{\partial JI} = U_{JI} < 0$. If this disamenity is compensated in the form of

higher wages, we have $w = w(JI, X)$ with $\frac{\partial w}{\partial JI} = w_{JI} > 0$. The vector X includes all other determinants

of wages, such as human capital. Inserting the wage equation in the utility function gives:

$$U(w(JI, X), JI, Z) \quad (2)$$

Compensation of the job insecurity implies that, in the margin, JI does not affect utility:

$$dU = U_w w_{JI} dJI + U_{JI} dJI = 0 \quad (3)$$

This finally gives:

$$w_{JI} = -\frac{U_{JI}}{U_w} \quad (4)$$

That is, the marginal compensation of job insecurity in terms of wage has to equal the marginal rate of substitution of wage and job insecurity.

The econometric difficulties posed by using hedonic wage equations –see Brown (1980)- to identify compensating differentials suggest that it might be more promising to use subjective well-being data as a direct measure of utility, thereby permitting compensating differentials to be estimated as ratios of coefficients estimating the well-being effects of wage and job insecurity¹.

Once we have estimated a linear version of equation 1, we should ask: ¿How much does wages need to increase to compensate an individual for his job insecurity?

In analytical terms:

$$0 = \beta_w \Delta w + \eta_{JI} \Delta JI \quad (5)$$

so that,

¹ A very similar approach has been used by Helliwell and Huang (2010) to estimate how income and job characteristics affect life satisfaction.

$$CV_w^{JI} = \frac{\Delta w}{\Delta JI} = -\frac{\eta_{JI}}{\beta_w} \quad (6)$$

CV will be the log change in wage that has for the average employee the same job satisfaction effect as a hypothetical change in the non-financial job characteristic (JI). In this paper we compare hedonic and well-being estimations of the monetary value of job insecurity.

3. Data and variables

We use data from the First and Second Surveys of Job Quality in Seville, conducted in 2006 and 2009, respectively. Each survey consists of approximately 2,000 face-to-face interviews. Respondents were asked a number of questions relative to their jobs, including overall job satisfaction, pay, type of contract, perceived job security, industry, and other demographic information like age, gender, nationality, and education. We merge this information with regional industry unemployment rates computed from the Spanish Labour Force Survey (EPA).

The measure of overall job satisfaction is derived from the following question: “With everything in mind, how would you rate your overall job satisfaction with your main employment?” It is measured on an ordinal 11-point Likert scale from “very badly” (0) to “excellently” (10). As a first approximation to our research question, Table 1 summarizes the dependent variable by survey year. Apparently the recession has significantly increased the job satisfaction of those employed.

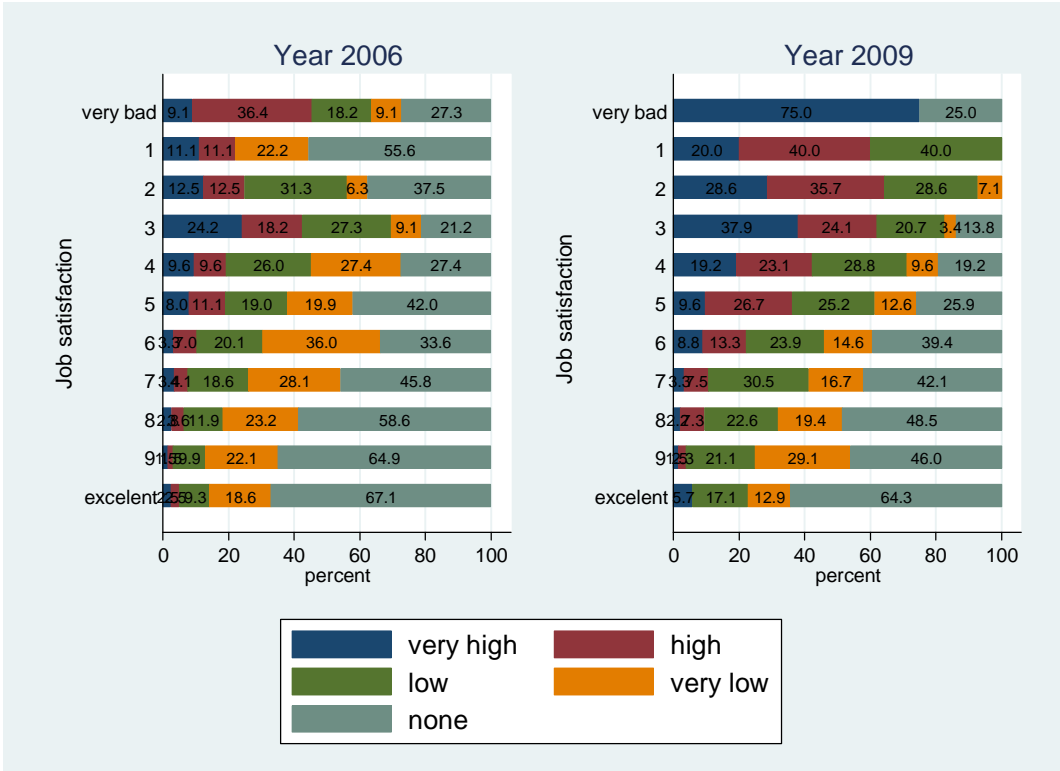
Table 1. Dependent variable

| Satisfaction levels | Year 2006 | Year 2009 | t-test |
|---------------------|-----------|-----------|----------|
| very bad | 0.62 | 0.21 | |
| 1 | 0.18 | 0.26 | |
| 2 | 0.68 | 0.74 | |
| 3 | 1.60 | 1.74 | |
| 4 | 4.07 | 2.95 | |
| 5 | 10.97 | 8.21 | |
| 6 | 18.11 | 14.53 | |
| 7 | 25.26 | 27.38 | |
| 8 | 22.43 | 27.33 | |
| 9 | 10.29 | 13.27 | |
| excelent | 5.79 | 3.37 | |
| Total | 100.00 | 100.00 | |
| No. Obs | 1,669 | 1,899 | |
| Mean | 6.929 | 7.105 | -3.60*** |
| Std. Dev. | 1.713 | 1.580 | |

We use several indicators of job security. Some may be considered completely exogenous to our decisions of interest, some others, fairly exogenous, and still others, potentially endogenous. Our first indicator is the perceived risk of job loss measured in terms of expectations of job loss based on the following question: “How likely is it that you will lose your job over the next 12 months?” The answers are ranked on a Likert scale from 1 (not likely at all) to 5 (very likely). Campbell *et al.* (2001)

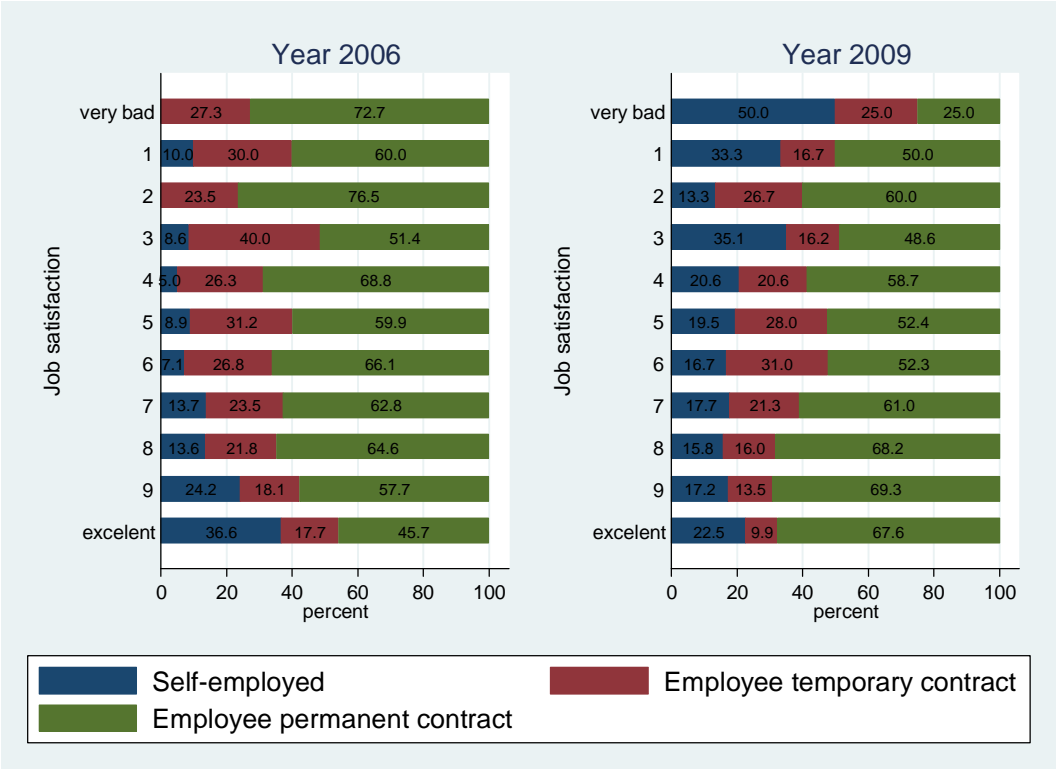
have found that the expectations of job loss reported by workers are strong predictors of actual unemployment experiences in the subsequent year. Figure 1 presents the descriptive association between job satisfaction and perceived risk loss. Most satisfied workers are in jobs with low risk loss. In addition, the recession has negatively affected this relationship increasing the proportion of workers in job loss risk. This measure of job insecurity may be potentially endogenous, however, given that dissatisfied workers may cause their own jobs to become more likely to be terminated. Whether the association showed in Figure 1 is spurious due to endogeneity or not will be the focus of the robustness check section.

Figure 1. Job satisfaction and perceived risk of job loss



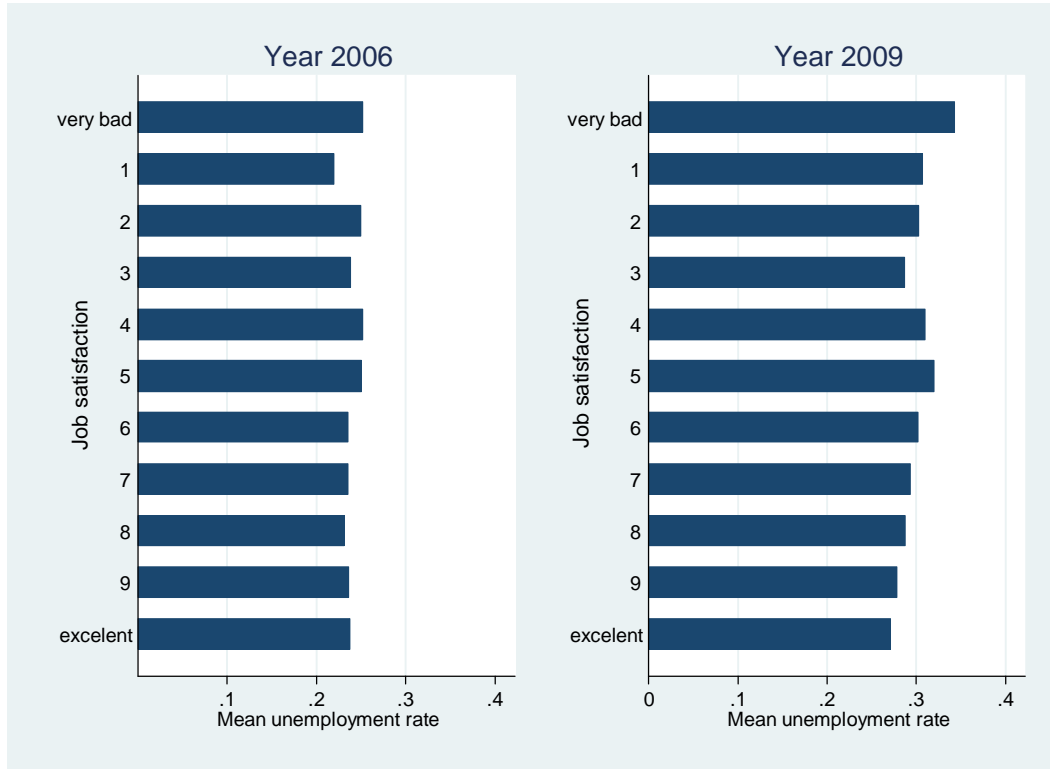
Our second measure is the type of contract. We consider permanent-contract employees, temporary-contract employees and the self-employed, showing increasing a priori job insecurity. This indicator of job insecurity can be considered fairly exogenous, even though we acknowledge that satisfied temporary workers may be offered permanent contracts. Figure 2 shows that the recession has impacted job satisfaction differently by type of contract. While in 2006 the self employed showed the highest levels of job satisfaction, in 2009 an increasing proportion of them showed low levels of job satisfaction. Temporary workers tend to show lower levels of satisfaction and permanent contract workers, higher, both in 2006 and 2009.

Figure 2. Job satisfaction and type of contract



Finally we consider the regional industry unemployment rate. We contend that the higher the unemployment rate in the respondent’s industry, the more likely it is that his job becomes insecure. This measure can be considered completely exogenous, given that it is an aggregate measure computed in a different dataset. Figure 3 shows average unemployment rates by categories of overall job satisfaction. No clear association between the variables appears to exist for 2006, whereas for 2009 workers pertaining to industries with higher unemployment rates show lower levels of overall job satisfaction.

Figure 3. Job satisfaction and unemployment rates



A major advantage of the dataset is that it contains an extremely rich set of background variables, which allows the implementation of econometric methods to a very high standard. In particular the survey offers personal and demographic characteristics, human capital features and other non-financial job characteristics -apart from job security. Table A.1 in the appendix shows definitions and descriptive statistics of all variables used in the analyses, by survey year. Quite a few differences are found in both samples that may well be due to the different impact of the recession on different employment groups. All estimations also include the territorial dummy variables used in the stratification process.

4. Empirical strategy

Our purpose is to explore how the recession may have impacted the economic valuation of job insecurity. With that aim in mind, we estimate the following equation in our benchmark analysis:

$$\begin{aligned}
 JS_{ist} = & \alpha + \beta_1 Pjobloss_i + \beta_2 Selfemp_i + \beta_3 Temporary_i + \beta_4 Urate_s + \beta_5 Lwage_i + \beta_6 Year09_t \\
 & + \beta_7 Pjobloss_i \times Year09_t + \beta_8 Selfemp_i \times Year09_t + \beta_9 Temporary_i \times Year09_t \\
 & + \beta_{10} Urate_s \times Year09_t + \beta_{11} Lwage_i \times Year09_t \\
 & + X_i \gamma + \phi_r + \varepsilon_{it}
 \end{aligned}
 \tag{7}$$

where the dependent variable is the individual's i from industry's overall job satisfaction in year t . The variable $Pjobloss$ is a dummy indicative of a high or very high likelihood of losing one's job; the

variable *Selfemp* indicates that the individual is self-employed, and *Temporary*, that the individual holds a temporary contract; *Urate* is the regional unemployment rate of the corresponding industry; *Lwage* is the logarithm of the individual's net monthly earnings. The model also includes a dummy indicative of the survey year that aims to capture the financial crisis general impact on job satisfaction. Additionally it includes interaction terms to test our main hypothesis, whether the recent recession increased the value of job security, however measured. We also control for a variety of individual level personal and job characteristics included in the vector *X* known to be correlated to job satisfaction, such as age, gender, educational attainment, nationality, job experience, occupation, accident risk. Additionally, denoting by *r* the district of employment of individual *i*, district fixed-effects account for a variety of other meso-economic factors possibly correlated to working conditions. Finally, standard errors are clustered at the survey level.

Our dependent variable is intrinsically ordered in nature. However, usual estimators like ordered probit or logit may not be flexible enough for our purposes. Van Praag and Ferrer-i-Carbonell (2006) show that the latent variable underlying an ordinal variable can be approximated by adequately re-scaling the variable. Therefore, we will use this approach termed Probit OLS and transform the variable into a pseudo-continuous one as explained by Corneliben (2009) and use a traditional linear regression estimator.

As long as some unobserved individual characteristics simultaneously affect both job satisfaction and insecurity, the above estimated effects of equation (7) will be biased. Even if a large set of variables on workers' characteristics is available, some unobserved factors may remain. Therefore we also present an analysis of endogeneity issues in the robustness checks section.

5. Results

Table 2 presents our baseline estimates. The first specification includes no additional controls, except for the district fixed-effects. The second specification adds in a range of variables indicating demographic and human capital characteristics of the individual, while the third specification controls for the full set of variables described in Section 3, including the individual's monthly earnings.

Estimates of the crisis general effect in the first and second specifications (columns 1 and 2 in Table 2) seem to indicate that the recent recession has exerted no effect on workers job satisfaction. It has however changed the influence of being self-employed, that turns negative after the crisis; increased the negative effect of perceiving higher chances of losing one's job; and diminished the effect of peers' unemployment, as measured by industry's unemployment rates. As soon as other job characteristics, like earnings, working hours, job training, occupation, accident risk, ..., are included the general effect of the recession turns negative and very significant. The differential effect of being self-employed before and after the crisis remains, as does the negative influence of perceiving a high likelihood of losing one's job. The effect of the industry's unemployment rate appears more clearly too. If before the recession working in an industry with a high level of unemployment was bad for the

worker's wellbeing, after the recession, the effect is positive –though not very large. Given that we are already controlling for the perceived probability of job loss, wages, and working conditions, others' unemployment affect workers differently depending on the business cycle. During the economic expansion working for high unemployment industries tends to be associated to higher economic insecurity, even without perceiving that the job is at risk, and thus lower job satisfaction (Clark *et al* 2010). However, during the recession, a countervailing effect from social comparisons emerges. The negative effect of having worse employment prospects is compensated by the positive effect from their relative standing vis-à-vis those unemployed (Luechiger *et al.* 2010).

Table 2. The effect of job insecurity on job satisfaction

| | Specification1 | | Specification 2 | | Specification3 | |
|-------------------------------|----------------|-----|-----------------|----|----------------|-----|
| Job security variables | | | | | | |
| JOB LOSS RISK | -0.034 | * | -0.019 | | -0.044 | |
| | (0.004) | | (0.013) | | (0.011) | |
| SELF-EMPLOYED | 0.529 | ** | 0.508 | ** | 0.567 | ** |
| | (0.019) | | (0.014) | | (0.033) | |
| TEMPORARY | -0.148 | *** | -0.066 | * | -0.015 | |
| | (0.002) | | (0.010) | | (0.010) | |
| REG. UNEMPLOYMENT | -1.218 | ** | -0.662 | ** | -0.497 | ** |
| | (0.023) | | (0.049) | | (0.029) | |
| Crisis effect | | | | | | |
| YEAR 2009 | 0.244 | * | 0.159 | | -1.596 | *** |
| | (0.019) | | (0.035) | | (0.007) | |
| Interaction variables | | | | | | |
| YEAR 2009*JOB LOSS RISK | -0.651 | ** | -0.609 | ** | -0.423 | ** |
| | (0.015) | | (0.010) | | (0.013) | |
| YEAR 2009*SELF-EMPLOYED | -0.648 | ** | -0.639 | ** | -0.780 | ** |
| | (0.032) | | (0.026) | | (0.022) | |
| YEAR 2009*TEMPORARY | 0.031 | | 0.048 | | -0.001 | |
| | (0.016) | | (0.013) | | (0.020) | |
| YEAR 2009*UNEMPLOYMENT | 0.224 | * | 0.428 | | 0.517 | ** |
| | (0.025) | | (0.079) | | (0.024) | |
| Demographic/personal charact. | No | | Yes | | Yes | |
| Job characteristics | No | | No | | Yes | |
| No. Obs. | 3568 | | 3568 | | 3568 | |
| R squared | 0.084 | | 0.123 | | 0.206 | |

Compensating differentials are computed as a ratio of its estimated coefficient to that of the log of income, as explained in Section 2. The estimates represent the percent change in mean earnings that compensates for the non-financial job attribute. Table 3 presents the estimates of the income-equivalent value of our job insecurity measures from the coefficients in Specification 3 of Table 2. Except for the value of having a temporary contract, estimated compensating differentials are very

large. Being self-employed was actually a positive feature of the job before the crisis and required a decrease in wages above the mean earnings to be compensated. After the financial crisis, however, this non-financial job attribute is a disamenity of work and calls for an increase in average earnings of approximately 35% to be compensated for. The economic value of working in an insecure industry before the onset of the recession is also quite large and requires a compensation well above average earnings. In the recession this feature is no longer considered negative, as workers consider that at least they have a job.

Table 3. Estimated Compensating Differentials. Wellbeing model. All workers (3568 obs.)

| | Compensating differentials Year 2006 | | | Compensating differentials Year 2009 | | | Difference F-test |
|-------------------|---|-----------|-----|---|-----------|---|----------------------|
| | Coef. | Std. Err. | t | Coef. | Std. Err. | t | |
| JOB LOSS RISK | 14.25% | 0.041 | | 77.93% | 0.071 | * | 461.86 ** |
| SELF-EMPLOYED | -182.02% | 0.014 | *** | 35.43% | 0.033 | * | 14350.79 *** |
| TEMPORARY | 4.76% | 0.029 | | 2.61% | 0.689 | | 1.23 |
| REG. UNEMPLOYMENT | 159.46% | 0.013 | *** | 3.33% | 0.090 | | 438.17 ** |

6. Robustness checks

In this section we test the reliability of the baseline results to changes in different elements of the model. We consider a different sample selection and we adopt a different method of computation of compensating differentials.

6.1. Sample selection

Most former studies of insecurity and job satisfaction consider only employed workers. Therefore in order to ease comparisons, in this subsection we drop the observations related to self-employed individuals and replicate our estimates.

Table 4 presents compensating differentials for the job insecurity indicators considered. In this case perceived risks of job loss affect job satisfaction both before and after the financial crisis. The economic valuation of this disamenity is however significantly higher after the onset of the recession. Having a high or very high likelihood of losing one's job requires an increase of about 72% in average wages to be compensated for in 2009. The negative effect of working in an industry of high unemployment is now higher than when all workers are considered. This fact would require a substantial increase in the average wage to be compensated before the financial crisis but after the crisis, as previously found. Also, the type of contract does not affect job satisfaction, once the rest of non-financial job characteristics, including perceived risk of job loss, are controlled for.

Table 4. Estimated Compensating Differentials. Wellbeing model. Employed workers (3080 obs.)

| | Compensating differentials Year 2006 | | | Compensating differentials Year 2009 | | | Difference F-test |
|-------------------|---|-----------|-----|---|-----------|---|----------------------|
| | Coef. | Std. Err. | t | Coef. | Std. Err. | t | |
| JOB LOSS RISK | 21.24% | 0.022 | * | 72.36% | 0.106 | * | 37.21 * |
| TEMPORARY | 1.18% | 0.038 | | 3.00% | 0.048 | | 2.86 |
| REG. UNEMPLOYMENT | 256.29% | 0.013 | *** | 9.69% | 0.191 | | 238.28 ** |

6.2. Hedonic wages method

Bockerman and Ilmakunnas (2006) and Bökerman *et al.* (2011) suggest testing estimated compensating wage differentials by using both hedonic-wages and wellbeing methods. However, it should be stressed that for both models to give similar results the assumptions of a competitive labour market –free of unemployment, influences of market power, and state restrictions– must be fulfilled (Manning, 2003; van Praag and Baarsma, 2005; Borra and Gómez, 2012). Therefore conflicting evidence may just be indicative of the existence of a non-competitive labour market.

Table 5 provides compensating differentials computed for the whole sample and for only employed workers by the hedonic wages method (Panels A and B respectively). We should mention quite a counterintuitive result in the first place. Apparently, before the crisis perceived job insecurity, as measured by the subjective risk of job loss, was considered a positive job characteristic, which required about 10% decrease in earnings to be compensated for. We suggest that this finding must be due to either the effect of unmeasured characteristics of the worker or inefficiencies of the labour market. More able or better trained workers may be in a position to choose jobs that produce more income and more job security.

Compared to our former results, and apart from this finding, results appear somewhat similar. Being self employed has a different effect before and after the onset of the recession, even though figures are not as large in this method. Holding a temporary contract presents a fairly small compensating differential. Finally there is quite a large compensating wage differential for working in an insecure industry in 2006, which fades away in 2009.

Table 5. Estimated Compensating Differentials. Hedonic wages model.

| | Compensating differentials Year 2006 | | | Compensating differentials Year 2009 | | | Difference F-test |
|--------------------------------|---|-----------|-----|---|-----------|----|----------------------|
| | Coef. | Std. Err. | t | Coef. | Std. Err. | t | |
| A. All workers (3568 obs.) | | | | | | | |
| JOB LOSS RISK | -10.68% | 0.004 | ** | 7.40% | 0.013 | | 93.73 * |
| SELF-EMPLOYED | -17.89% | 0.001 | *** | 7.18% | 0.001 | ** | 88164.70 *** |
| TEMPORARY | 12.20% | 0.011 | * | 0.68% | 0.014 | | 1561.41 ** |
| REG. UNEMPLOYMENT | 131.09% | 0.022 | ** | 6.68% | 0.048 | | 2844.99 ** |
| B. Employed workers (3080 obs) | | | | | | | |
| JOB LOSS RISK | -15.89% | 0.001 | *** | 5.76 | 0.013 | | 218.13 * |
| TEMPORARY | 12.04% | 0.012 | * | 0.20% | 0.014 | | 5352.94 *** |
| REG. UNEMPLOYMENT | 118.13% | 0.017 | *** | 1.04% | 0.085 | | 130.84 ** |

7. Conclusions

Job security may be considered the most important working condition during an economic recession. In this paper we use a very rich repeated cross-section dataset on workers' job conditions, together with regional unemployment information at the activity level, to test whether employees value job security differently after the recent economic downturn. We use subjective-wellbeing measures of perceived and actual job insecurity in our assessments. We find that, first, peers' unemployment affected job satisfaction negatively before the recession, but not afterwards. We interpret that, after controlling for the perceived risk of job loss, peers' unemployment makes working individual happier for having a job. Second, we find that the economic valuation of job insecurity increased after the financial crisis when measured subjectively; however when measured objectively, the economic valuation of the insecurity related to the industry's unemployment rates decreased. Our main conclusions are robust to sample selection and method of computation. This suggests that increased job insecurity constitutes an important welfare loss associated with increased unemployment during recessions.

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Appendix

Table A.1. Control variables

| Variable | Año 2006 | | Año 2009 | | Diff. |
|--|----------|-----------|----------|-----------|-----------|
| | Mean | Std. Dev. | Mean | Std. Dev. | t-test |
| <i>Personal characteristics</i> | | | | | |
| SEX (=1 male) | 0.582 | 0.493 | 0.592 | 0.492 | -1.21 |
| AGE (years) | 37.314 | 11.251 | 39.041 | 11.261 | -4.63*** |
| AGE2 (years squared) | 1518.807 | 884.124 | 1650.947 | 924.100 | -4.44*** |
| FOREING (=1 foreign nationality) | 0.051 | 0.219 | 0.036 | 0.186 | 1.88 |
| <i>Human capital</i> | | | | | |
| LESS PRIMARY (less than primary education) | 0.022 | 0.145 | 0.005 | 0.072 | 4.21*** |
| PRIMARY (primary studies) | 0.155 | 0.362 | 0.172 | 0.377 | -1.85 |
| SECUNDARY_F (secondary studies, first cycle) | 0.190 | 0.393 | 0.270 | 0.444 | -5.63*** |
| SECUNDARY_S (secondary studies, second cycle) | 0.364 | 0.481 | 0.306 | 0.461 | 3.59*** |
| UNIVERSIT_F (university studies, first cycle) | 0.145 | 0.352 | 0.120 | 0.325 | 2.79*** |
| UNIVERSIT_S (university studies, upper cycles) | 0.124 | 0.330 | 0.127 | 0.334 | -0.07 |
| JOB EXPERIENCE (job experience in days x 1000) | 2.999 | 3.425 | 3.236 | 3.551 | -1.95 |
| UNRELATED (=1 job unrelated to studies) | 0.300 | 0.458 | 0.350 | 0.477 | -3.54*** |
| <i>Job attributes</i> | | | | | |
| MONTHLY EARNINGS (net monthly earnings) | 1161.352 | 577.98 | 1191.054 | 547.22 | -2.29* |
| LOG M_EARNINGS (logarithm of net monthly earnings) | 6.916 | 0.58 | 6.966 | 0.52 | -3.80*** |
| LOGHOURS (Logarithm of weekly working hours) | 3.584 | 0.403 | 3.578 | 0.432 | 0.33 |
| TRAINING (=1 formal training paid by the firm) | 0.611 | 0.488 | 0.382 | 0.486 | 12.43*** |
| WHITECOLLAR (=1 white collar occupation) | 0.306 | 0.461 | 0.325 | 0.468 | -1.02 |
| OVERTIME (=1 works overtime without increase in pay) | 0.258 | 0.438 | 0.051 | 0.220 | 17.50*** |
| FAMILY TIME (=1 devotes to family more than 2 daily hours) | 0.590 | 0.492 | 0.757 | 0.429 | -11.62*** |
| ACCIDENT RISK (=1 considers the job has any accident risk) | 0.320 | 0.467 | 0.363 | 0.481 | 1.22 |
| Number observations | 1669 | | 1899 | | |