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## Wages and Job Satisfaction in Portugal

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## **Wages and Job Satisfaction in Portugal**

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### **Abstract**

The interest in the analysis of job satisfaction has increased among economists. Indeed, reported levels of satisfaction have been seen as a good predictor of individual behaviour such as job turnover, productivity and absenteeism. Because of this, several studies have tried to identify the determinants of job satisfaction. This paper is concerned with job satisfaction in Portugal. For this purpose, we use the first six waves of the European Household Panel Data (EHP). The panel nature of the data allows us to use a random effects estimator in order to control for unobservable individual heterogeneity. The results indicate that wages matter for job satisfaction but do not tell the whole story. In particular, having a good health status, a permanent contract and working the public sector influences positively the level satisfaction. We also find a great heterogeneity in satisfaction by regions, even in a small country as Portugal. These findings are valid for overall job satisfaction as well as for satisfaction with specific job domains such as pay, security, type of work and hours worked.

Key words: job satisfaction, wages, regions, unobserved heterogeneity

JEL Code: J28

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## 1. Introduction

There has been an increasing interest among economists on the examination of job satisfaction, although this research area is still in its infancy. It has been argued in the literature that answers to questions about how people feel toward their job are not meaningless but rather convey useful information on individual behaviour such as job turnover, productivity and absenteeism. Freeman (1978) defined job satisfaction as an economic variable. Akerlof *et al.* (1988) examined the relation between job satisfaction and job switching in the U.S. labour market. Groot and Van den Brink (1999) analysed job satisfaction of older workers. Moreover, well-being at work has been considered a strong predictor of overall individual well-being (Argyle, 1989 and Judge and Watanabe, 1993). It has also been viewed as a measure of job quality (Leontaridi and Sloane, 2003).

Because of this, some studies have attempted to identify the determinants of job satisfaction. The available empirical evidence indicates that wages are important but do not explain the whole variation in reported levels of job satisfaction. For instance, Clark (1996) finds that after controlling for wages and a large set of other covariates, females report a higher overall satisfaction at work than males. His results also reveal that they are happier than men with respect to particular job domains such as promotion prospects, pay, relations at work, job security and with hours of work. However, the results presented in Nguyen *et al.* (2003) do not suggest any difference in overall satisfaction nor in satisfaction with pay, fringe benefits, promotion prospects and job security by gender.

It has been found that reported satisfaction depends on variables such the age of the worker, health status, comparison wage rates, level of education, employer size, union membership and hours of work, although in some cases the evidence is mixed (see, for instance, Borjas, 1979, Miller, 1990, Meng, 1990, Idson, 1990, Clark, 1996 and 1997, Clark and Oswald, 1996, Leontaridi and Sloane, 2001, Souza-Poza and Sousa-Poza, 2000 and Sloane and William, 2000).

The main goal of this paper is twofold. Firstly, it intends to examine the determinants of job satisfaction in Portugal. Secondly, it aims at shedding further light on an issue for which the international evidence is very recent and therefore scarce. For this purpose, the analysis is not restricted to overall satisfaction but also to specific job domains such as pay, security, type of work and number of hours of work.

The paper is organized as follows. Next section describes the data. Section 3 presents the statistical model. Section 4 includes the estimation results. Finally, section 5 concludes and summarises.

## **2. The Data**

The data used in this paper come from the first six waves (1994-1999) of European Community Household Panel (ECHP) for Portugal. This is a rich data set, which includes information about the individuals and their families, such as gender, education, age, wages and other income sources, marital status, health status, family size and social relations, among others. It also includes information on variables such as the type of employment contract, employer size and the number of hours of work in the main activity.

With respect to job satisfaction individuals were asked to report on a six-point scale how satisfied they were with their work or main activity. The lowest level of the scale stands for workers who were not satisfied at all whereas highest stands for fully satisfied workers. Apart from overall satisfaction, individuals were also asked to rank their levels of satisfaction with respect to particular domains of the job such as pay, job security, type of work and number of hours of work.

Individuals older than 65 years, the self-employed and observations with missing values were deleted from the sample. The final unbalanced panel contains 23409 observations gathered from 6520 individuals.

### 3. The Statistical Model

Satisfaction is reported in the data on six-point ordinal scale. Furthermore, the panel nature of the data enables us to control for individual unobserved heterogeneity. This seems to be an interesting feature since one may suspect that some levels of satisfaction are likely to be recorded because of underlying unobserved characteristics such as the emotional state or mood, which may vary across individuals. Because of this, the random effects ordered probit model has been chosen.

Consider that the propensity of individual  $i$  to report a certain level of satisfaction in period  $t$  is driven by the following structure:

$$I_{it}^* = \beta_0 + \beta_1' X_{it} + \varepsilon_{it}$$

where  $\varepsilon_{it} = v_{it} + u_i$

$$\text{and } \text{var}(\varepsilon_{it}) = \sigma_v^2 + \sigma_u^2 = 1 + \sigma_u^2$$

It is assumed that  $v_{it}$  is distributed  $N(0,1)$  and that the individual time-invariant specific term  $u_i$  is  $N(0, \sigma_u)$ .

However, we do not observed  $I_{it}^*$  but instead an indicator variable of the type:

$$I_{it} = \begin{cases} 0 & \text{if } I_{it}^* \leq \mu_0 \\ j & \text{if } \mu_{j-1} < I_{it}^* \leq \mu_j, \quad j = 1,2,3,4 \\ 5 & \text{if } I_{it}^* > \mu_4 \end{cases}$$

The associated log-likelihood for this model can be generalized from the arguments made by Butler and Moffit (1982). As usual in the ordered probit model, we assume that  $\mu_0=0$ . Furthermore, heterogeneity is handled by using the Gauss-Hermite quadrature to integrate the effect out of joint density of the  $T_i$  observations for the  $i$ th group. For this

purpose, we use a 20 point quadrature. The derivation of the likelihood function for this model and further discussion of the Gauss-Hermite quadrature can be found in Frechette (2001).

#### **4. Estimation Results**

The estimation results are included in Table 1. As we can observe, wages influence job satisfaction positively. This valid for overall job satisfaction and for specific domains of the job such as pay, security, type of work and the number of hours of work. Moreover, satisfaction follows a U-shaped pattern with age. These findings are in line with most of the literature on the issue (see, for instance, Clark, 1997).

As we can also observe having a permanent contract exerts a positive effect on satisfaction, although the coefficient is not statistically significant for the satisfaction with pay. Moreover, having a good health status and working in the public sector also increases satisfaction across the board. (Appendix, Table 1)

The literature indicates that the effect of education on overall job satisfaction is mixed, although most of the studies point out a negative relationship. In the present study, however, we find no evidence that education influences overall satisfaction. However, more-educated workers (i.e. those with secondary or higher education) are unhappier with pay and with hours of work.

We also do not find evidence that overall satisfaction reported by female workers is higher than the one reported by males (although the estimated coefficient associated to the male dummy variable is negative it is not statistically different from zero). However, females are happier with pay than males.

As we can also observe, overall job satisfaction increases with employer size. It also increases with the number of hours of work. This is an unexpected result which is at odds with most of the empirical and theoretical evidence on the issue (although Leontaridi and Sloane, 2001, report an identical result for higher paid males in U.K.). Satisfaction with job security also increases with the number of hours of work, which is in line with the results presented by Nguyen *et al.* (2003). However, satisfaction with the number of hours of work decreases as the number of hours increases.

Finally, job satisfaction is related with regions. The highest levels of satisfaction are reported by those working in the Portuguese islands (Azores and Madeira). This finding is valid for overall satisfaction and for each of the job domains under analysis. The lowest level of satisfaction is reported by those working in the central region (for overall satisfaction, satisfaction with the type of work and satisfaction with the number of hours of work) and in Lisbon and the Tagus Valley (satisfaction with pay and with job security).

## **5. Conclusions**

This paper has analysed the determinants of job satisfaction in Portugal. In particular, it has examined overall job satisfaction and satisfaction with job domains such as pay, security, type of work and number of hours of work. The results indicate that wages matter for job satisfaction but do not tell us the whole story. In particular, having a good health status, a permanent contract and working the public sector influences positively the level satisfaction, *ceteris paribus*. Individual age and the employer size are also important.

Contrary to what has been reported in several studies, we find no evidence that females are happier at work as compared with males, except for happiness with pay. Moreover, satisfaction is not related with education. Finally, we also find a great heterogeneity in the satisfaction by regions even in a small country as Portugal. In particular, the highest levels of satisfaction are reported in the islands. The lowest satisfaction with pay is reported in Lisbon and the Tagus Valley. Since most of the studies indicate that wages are higher in Lisbon than in the other regions, this is a striking result which deserves further investigation in a near future.

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## Appendix

Table 1 – Job Satisfaction: random effects ordered probit estimation

	Overall	Pay	Job security
Intercept	-2.748 (0.330) *	-8.119 (0.299) *	-2.543 (0.323) *
Ln hourly wages	0.559 (0.024) *	1.050 (0.016) *	0.438 (0.024) *
Ln hours of work	0.694 (0.045) *	1.149 (0.044) *	0.593 (0.042) *
Age	-0.040 (0.007) *	-0.071 (0.006) *	-0.027 (0.007) *
Age squared/100	0.047 (0.008) *	0.083 (0.008) *	0.041 (0.008) *
Male	-0.033 (0.031)	-0.082 (0.030) *	-0.023 (0.031)
Education $\geq$ secondary	0.030 (0.036)	-0.081 (0.034) **	0.037 (0.036)
Married	0.028 (0.027)	-0.038 (0.026)	0.098 (0.026) *
Good health	0.047 (0.021) **	0.131 (0.020) *	0.081 (0.020) *
Permanent contract	0.289 (0.025) *	0.004 (0.025)	0.984 (0.023) *
Public sector	0.177 (0.032) *	0.085 (0.032) *	0.233 (0.032) *
5 $\leq$ Employer size <20	0.095 (0.027) *	0.029 (0.027) *	-0.018 (0.027)
20 $\leq$ Employer size <50	0.096 (0.034) *	-0.009 (0.034) *	0.031 (0.033)
50 $\leq$ Employer size <100	0.143 (0.038) *	-0.098 (0.038) *	0.052 (0.038)
Employer size $\geq$ 100	0.151 (0.033) *	-0.067 (0.033) *	0.088 (0.032) *
Services	0.161 (0.029) *	0.010 (0.029) *	0.159 (0.029) *
North	-0.483 (0.047) *	-0.562 (0.048) *	-0.121 (0.047) **
Centre	-0.524 (0.043) *	-0.624 (0.043) *	-0.273 (0.042) *
Lisbon & Tagus Valley	-0.389 (0.042) *	-0.759 (0.043) *	-0.317 (0.042) *
Alentejo	-0.196 (0.045) *	-0.611 (0.042) *	-0.069 (0.044)
Algarve	-0.170 (0.038) *	-0.260 (0.036) *	-0.172 (0.036) *
Wave 2	-0.359 (0.032) *	-0.053 (0.033)	-0.747 (0.032) *
Wave 3	-0.488 (0.032) *	-0.164 (0.031) *	-0.808 (0.031) *
Wave 4	-0.551 (0.033) *	-0.215 (0.033) *	-0.752 (0.032) *
Wave 5	-0.368 (0.034) *	-0.056 (0.032) ***	-0.630 (0.032) *
Wave 6	-0.409 (0.034) *	-0.067 (0.033) **	-0.626 (0.032) *
$\mu_1$	0.858 (0.023) *	1.206 (0.016) *	0.913 (0.019) *
$\mu_2$	1.999 (0.025) *	2.680 (0.018) *	1.969 (0.021) *
$\mu_3$	4.065 (0.027) *	4.482 (0.022) *	3.828 (0.022) *
$\mu_4$	5.444 (0.030) *	5.405 (0.030) *	5.164 (0.025) *
$\sigma_v$	0.870 (0.012) *	0.888 (0.012) *	0.891 (0.012) *
Log-L	-26773	-29000	-28976
N	23049	23049	23049

	Type of work			# hours of work		
Intercept	-1.515	(0.336)	*	3.332	(0.304)	*
Ln hourly wages	0.424	(0.025)	*	0.367	(0.025)	*
Ln hours of work	0.529	(0.045)	*	-0.369	(0.037)	*
Age	-0.026	(0.007)	*	-0.033	(0.007)	*
Age squared/100	0.033	(0.008)	*	0.039	(0.008)	*
Male	-0.026	(0.031)		-0.005	(0.031)	
Education $\geq$ secondary	0.052	(0.037)		-0.065	(0.036)	***
Married	0.072	(0.027)	*	0.024	(0.027)	
Good health	0.056	(0.020)	*	0.087	(0.020)	*
Permanent contract	0.171	(0.025)	*	0.107	(0.026)	*
Public sector	0.151	(0.032)	*	0.326	(0.033)	*
5 $\leq$ Employer size <20	0.063	(0.027)	**	0.029	(0.027)	
20 $\leq$ Employer size <50	0.072	(0.034)	**	-0.007	(0.033)	
50 $\leq$ Employer size <100	0.149	(0.040)	*	0.053	(0.039)	
Employer size $\geq$ 100	0.103	(0.033)	*	0.045	(0.033)	
Services	0.201	(0.029)	*	0.027	(0.029)	
North	-0.218	(0.047)	*	-0.390	(0.046)	*
Centre	-0.323	(0.042)	*	-0.492	(0.043)	*
Lisbon & Tagus Valley	-0.241	(0.042)	*	-0.401	(0.042)	*
Alentejo	-0.028	(0.044)		-0.206	(0.044)	*
Algarve	-0.068	(0.036)	***	-0.180	(0.037)	*
Wave 2	-0.085	(0.033)	**	-0.135	(0.033)	*
Wave 3	-0.137	(0.033)	*	-0.123	(0.033)	*
Wave 4	-0.196	(0.033)	*	-0.153	(0.034)	*
Wave 5	-0.128	(0.034)	*	-0.063	(0.035)	***
Wave 6	-0.186	(0.034)	*	-0.124	(0.034)	*
$\mu_1$	0.819	(0.027)	*	0.845	(0.024)	*
$\mu_2$	1.892	(0.029)	*	2.024	(0.027)	*
$\mu_3$	3.908	(0.029)	*	4.204	(0.028)	*
$\mu_4$	5.446	(0.032)	*	5.492	(0.032)	*
$\sigma_v$	0.888	(0.013)	*	0.866	(0.012)	*
Log-L		-26534			-25829	
N		23049			23049	

\* Significant at the 1% level \*\* Significant at the 5% level \*\*\* Significant at the 10% level  
Asymptotic standard errors are in parentheses. All regressions also include controls for, occupations, family size, and benefits provided by the employer such as free or subsidized housing.  $\sigma_v$  denotes the standard deviation of the random effect.