Low-pay higher pay and job quality: empirical evidence for Portugal

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This paper examines to what extent low pay jobs can be considered of low quality. For this purpose, we use three waves (1997-1999) of the European Community Household Panel (ECHP) for Portugal. The results indicate that low pay workers report a lower level of job satisfaction when compared with their higher paid counterparts. Moreover, some of the determinants of job satisfaction differ between these two types of workers. This supports the idea that low wage employment mainly comprises low quality jobs and is consistent with the segmented labour market theory, which claims the existence of good and bad jobs. This is, however, at odds with some empirical evidence recently reported for the British labour market where low pay individuals report a higher level of satisfaction, which is more in line with the notion that these workers obtain compensating differences in the form of non-pecuniary benefits.

Keywords: Job satisfaction, job quality, low-wage

JEL Classification: J28

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Low-pay higher pay and job quality: empirical evidence for Portugal

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Abstract

This paper examines to what extent low pay jobs can be considered of low quality. For this purpose, we use three waves (1997-1999) of the European Community Household Panel (ECHP) for Portugal. The results indicate that low pay workers report a lower level of job satisfaction when compared with their higher paid counterparts. Moreover, some of the determinants of job satisfaction differ between these two types of workers. This supports the idea that low wage employment mainly comprises low quality jobs and is consistent with the segmented labour market theory, which claims the existence of good and bad jobs. This is, however, at odds with some empirical evidence recently reported for the British labour market where low pay individuals report a higher level of satisfaction, which is more in line with the notion that these workers obtain compensating differences in the form of non-pecuniary benefits.

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We are grateful to Instituto Nacional de Estatística (INE) for providing access to the European Community Household Panel (ECHP). Financial support from the Portuguese Science Foundation and FEDER, under Grant POCTI/ECO37668/2001 is also acknowledged.
1. Introduction

The incidence and the persistence of low-pay work has become a matter of great concern in many developed economies as a result of increasing wage inequality (see OECD, 1996 and 1997a, Asplund et al., 1998, Lucifora and Salverda, 1998, Stewart and Swaffield, 1999, Cappellari, 2000, Cardoso et al., 2000). Moreover, low pay employment and job quality have become important policy issues, namely in the European Union (see European Commission, 2001 and 2002). Also Salverda et al. (2001) put forward the idea that policies towards low-wage jobs should centre on their quality at least as importantly as on the level of pay which they provide.

Job quality is a relative concept regarding objective characteristics of the job-worker match. It also involves the subjective evaluation of these characteristics by the respective worker, on the basis of his characteristics and expectations. The European Union Employment in Europe (2001) report suggests that in the absence of a single composite indicator any analysis of job quality must be based on data on both objective and subjective evaluations of the worker-job match. In addition, the European Union Employment (2002) report reinforces this stance with the suggestion of the inclusion of job satisfaction in its definition of job quality. We follow the same type of reasoning in the present paper.

Indeed, Leontaridi and Sloane (2001) use job satisfaction as a proxy of job quality in the British labour market. Furthermore, they attempt to distinguish between two strands of the literature: the segmented labour market theory versus compensating wage differentials theories. The segmented labour market view, or, at least, the dual labour
market version, claims the existence of two distinct labour markets with strong mobility barriers between them. In addition, this theory argues that we can classify jobs into good jobs and bad jobs, with bad jobs being those not only having worse working conditions, but also lower wages. As Leontaridi and Sloane (2001) argue, this contrasts with the compensating wage differentials theory according to which jobs with poor working conditions would be expected, ceteris paribus, to compensate for this with higher pay.

Leontaridi and Sloane (2001) surprisingly conclude that higher paid workers report lower job satisfaction than their lower paid counterparts. In their opinion, this casts doubt on the view that low paid jobs are bad jobs and that high paid jobs are good jobs. This is reinforced by their finding that it is by no means the case that moving from a low paid to a higher paid job increases job satisfaction. In sum, the results do not support the view that low paid jobs are inherently of low quality, at least as far as British evidence is concerned. This seems in line with a view that low paid workers likely obtain compensating differences in the form of non-pecuniary benefits. Jones and Sloane (2003) and Leontaridi et al. (2004) also present this type of conclusion. Apparently, there is a matching process in the labour market as a whole in which individuals seeking higher pay are allocated to higher-paying jobs and those seeking for non-pecuniary benefits are allocated to low-paying jobs. In such a case, removing low paid jobs, namely through regulation, would not necessarily improve worker’s well being.

This paper tries to evaluate to what extent the aforementioned findings also hold for Portugal. For this purpose, we use three waves of the European Community Household
Panel (ECHP). The panel nature of the data allows us to use a random effects estimator in order to control for unobservable individual heterogeneity.

The paper is organised as follows. The next section describes the data and provides evidence on reported levels of job satisfaction by low and higher paid workers. Section 3 evaluates the determinants of job satisfaction for low and high paid workers separately. Finally, section 4 concludes.

2. Data and raw evidence on job satisfaction between low and higher paid workers

In this paper we use three waves (1997-1999) of the 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 the highest stands for fully satisfied workers. Hourly wages were computed as monthly wages divided by the number of hours worked per month. As usual in the literature, a low-wage worker is defined as an individual who earns less than two thirds of the median hourly wage. Individuals over 65 years, the self-employed and observations with missing values were deleted from the sample. The final unbalanced panel contains 12247 observations gathered from 5347 individuals.
Table 1 in appendix presents some sample descriptive statistics. As we can observe, 13.4% of the workers in the sample fall into the low pay segment. Moreover, more than 50% of the low-paid workers are females and the low-wage group is nearly two years younger than their higher-wage counterparts. The incidence of low-wage employment decreases with the level of education and with the employer’s size. Finally, the share of public sector workers is much lower in the low wage group (nearly 3%) than among the higher paid group (27%), indicating that low wage employment is mainly concentrated in the private sector.

The information depicted in Figure 1 indicates that the mode of the sample is located at level of satisfaction 3, which is valid for both low-wage and higher-wage workers. However, the same figure indicates that the proportion of workers reporting one of the three lowest levels of satisfaction is higher among the low paid group. The reverse occurs for the proportion of workers reporting one of the three highest levels of satisfaction. Thus, low paid workers are, overall, unhappier with their work. The same conclusion holds when we pool the sample or when we split the sample by years (see Figures 2-4).

Indeed, the information included in Table 1 clearly indicates that the mean value of job satisfaction is higher in the higher-wage segment. Moreover, the differences in the mean values of these two types of workers are statistically different from zero at the 1% level.
of significance. Contrary to what has been reported for the British labour market, this finding is inconsistent with the notion that low paid workers are compensated with non-pecuniary benefits. It is, however, consistent with the existence of a two-tier labour market.

3. The determinants of job satisfaction

This section examines the determinants of job satisfaction for low paid jobs and for higher paid jobs separately. As we noted in the previous section, the level of satisfaction is reported on a six-point ordinal scale. Furthermore, the panel nature of the data enables us to control for individual unobserved heterogeneity. We explore this interesting feature of the data since one may suspect that some levels of satisfaction are likely to be recorded because of some underlying unobserved characteristics such as the emotional state or mood, which may vary across individuals. Because of this, we chose a random ordered probit model to carry our empirical work.

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

$$S_{it}^* = \beta X_{it} + \nu_{it}$$

$i = 1, ..., N \quad t = 1, ..., 6$ (1)

where $\nu_{it} = \epsilon_{it} + u_i$, $var(\nu_{it}) = \sigma^2 + \sigma_u^2 = 1 + \sigma_u^2$ and $\rho_v = \frac{\sigma_u^2}{1 + \sigma_u^2}$

We assume that $\epsilon_{it}$ is distributed $N(0, 1)$ and that the individual time-invariant specific term $u_i$ is $N(0, \sigma_u^2)$. 
Note that we do not observe $S^*_u$ but observe instead an indicator variable of the type:

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

(2)

The log-likelihood function reads:

$$LogL = \sum_{i=1}^{N} \log P(S_{i1}, ..., S_{iT})$$

(3)

Defining $a_u = \mu_{j-1} - \beta' \mathbf{X}_u$ and $b_u = \mu_j - \beta' \mathbf{X}_u$ we can write (3) as follows:

$$P(S_{i1}, ..., S_{iT}) = \prod_{i=1}^{b_{iT}} \prod_{i=1}^{b_{iT}} \phi(\mathbf{v}_{i1}, ..., \mathbf{v}_{iT}) d\mathbf{v}_{i1} \cdots d\mathbf{v}_{iT} = \left[ \begin{array}{c} \phi(\epsilon_{i1} | u_i) \phi(u_i) du_i d\epsilon_{iT} \cdots d\epsilon_{i1} \\
\end{array} \right] =$$

\begin{align*}
\int_{-\infty}^{\infty} \phi(u_i) \prod_{i=1}^{T} \left( \Phi(b_u | u_i) - \Phi(a_u | u_i) \right) du_i 
\end{align*}

(4)

where $\phi$ and $\Phi$ denote the probability distribution function and the cumulative distribution function of the normal distribution, respectively.
Therefore, the log-likelihood for this model can be generalized from the arguments made by Butler and Moffit (1982). Heterogeneity is handled by using the Guass-Hermite quadrature to integrate out the joint density. As usual in the ordered probit model, we assume that \( \mu_0 = 0 \). All estimations were performed using the statistical package Limdep 8.0.

In order to identify the determinants of job satisfaction we relied on available evidence on the issue, which suggests 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 for a large set of other covariates, females are happier at work than males. Moreover, it has been found that reported satisfaction depends on variables such the age of the worker, comparison wage rates, level of education, employer size, industry, union membership status, region, health status, type of employment contract, hours of work and educational mismatches, among others (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 and Jones and Sloane, 2003). For the purpose of this work, we use as explanatory variables the logarithm of hourly wages, logarithm of hours worked, the individual’s age and its square value. Furthermore, we also control for gender, education, marital status, health status, job-worker skill mismatches, type of contract, private versus public sector, employer size, occupations, regions, and whether the employer provides health care and subsidized housing.

----- Insert Table 1 about here -----
The estimation results are presented in Table 2. As in most of the literature, job satisfaction follows a U-shaped pattern with age. We find however, no significant effect for education and gender, which differs substantially from what has been presented in the international literature. The fact of being overskilled has a negative impact on satisfaction for both high and low paid workers (the reverse is valid for having a permanent contract which increases satisfaction). Hourly wages, working in the public sector, and working full time exert a positive, statistically significant, impact on satisfaction for higher paid workers, while are not statistically different from zero for low paid workers. The same holds for the provision of health care and for subsidized housing by the employer.

5. Conclusions and remarks

This paper examines the relation between low-wage employment and job quality. We find support for the European Commission concern that low pay jobs are inherently of low quality, at least in Portugal. Our results are at odds with empirical evidence recently reported for the British labour market. However, our results are consistent with the existence of good and bad jobs, as in dual labour markets, where some workers are involuntarily trapped in bad jobs (i.e. low-wage) segment.

Furthermore, a regression analysis which controls for unobserved heterogeneity reveals that the impact on satisfaction of variables such as hourly wages and the provision of fringe benefits by the employer, like subsidized housing and health care, differ across low-paid and higher-paid segments of the labour market. This means that the determinants of job satisfaction differ across the two segments.
The results also suggest that empirical evidence on job quality can hardly be generalised across the European labour markets. This is particularly important for policy making at the European Union level. Such a heterogeneity means that if in some countries removing low employment, namely through regulation, may worsen the workers’ well-being, in other cases such a policy may lead to a totally different outcome.
References


### Appendix

Table 1 – Sample Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Higher pay</th>
<th></th>
<th>Low pay</th>
<th></th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Mean</td>
<td>Std.Dev.</td>
<td>Mean</td>
<td>Std.Dev.</td>
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<td>Log hourly wage</td>
<td>6.547</td>
<td>0.520</td>
<td>5.669</td>
<td>0.410</td>
</tr>
<tr>
<td>Log hours</td>
<td>5.071</td>
<td>0.175</td>
<td>5.172</td>
<td>0.300</td>
</tr>
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<td>Age</td>
<td>37.34</td>
<td>11.97</td>
<td>35.40</td>
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</tr>
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<td>Age squared</td>
<td>1538</td>
<td>967.8</td>
<td>1471</td>
<td>1213</td>
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<td>Gender (male)</td>
<td>0.593</td>
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<td>Education ≥ secondary</td>
<td>0.268</td>
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<td>Overskilled</td>
<td>0.425</td>
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</tr>
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<td>Married</td>
<td>0.676</td>
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<td>0.654</td>
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<td>Health care provided by employer</td>
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<td>Employer provides subsidized housing</td>
<td>0.027</td>
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<td>Permanent contract</td>
<td>0.826</td>
<td>0.609</td>
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<tr>
<td>Full time job</td>
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<td>Public sector</td>
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<td>Workplace size 5-19</td>
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<td>0.297</td>
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<td>Workplace size 20-49</td>
<td>0.171</td>
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<tr>
<td>Workplace size 50-99</td>
<td>0.112</td>
<td>0.047</td>
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<td>Workplace size 100 plus</td>
<td>0.208</td>
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<td>Services</td>
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<td>Professionals</td>
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<td>Technicians</td>
<td>0.099</td>
<td>0.009</td>
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<td>Clerks</td>
<td>0.127</td>
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<tr>
<td>Service workers and sellers</td>
<td>0.140</td>
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<td>Agriculture and fishing</td>
<td>0.022</td>
<td>0.139</td>
<td></td>
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</tr>
<tr>
<td>Craft and related trades workers</td>
<td>0.225</td>
<td>0.209</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant and machine operators</td>
<td>0.119</td>
<td>0.066</td>
<td></td>
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<tr>
<td>Elementary occupations</td>
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<td>0.299</td>
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<tr>
<td>Madeira</td>
<td>0.088</td>
<td>0.060</td>
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<tr>
<td>Norte</td>
<td>0.199</td>
<td>0.172</td>
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<td>Centro</td>
<td>0.216</td>
<td>0.238</td>
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<td>Lisboa e Vale do Tejo</td>
<td>0.124</td>
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<td>0.138</td>
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<td>Year=1998</td>
<td>0.342</td>
<td>0.317</td>
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<tr>
<td>Year=1999</td>
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<td>0.345</td>
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<tr>
<td>N</td>
<td>10605</td>
<td>1642</td>
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Tables to insert in the Text
Table 1 - T-tests for the equality of means on reported job satisfaction between low and higher paid workers

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<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std.Dev.</th>
<th>N</th>
<th>DF</th>
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<th>P-value</th>
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<td><strong>1. Pooled Sample</strong></td>
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<tr>
<td>Higher pay</td>
<td>3.073</td>
<td>0.846</td>
<td>10605</td>
<td>2041</td>
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<td>Low pay</td>
<td>2.666</td>
<td>0.975</td>
<td>1642</td>
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<tr>
<td><strong>2. Year=1997</strong></td>
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<tr>
<td>Higher pay</td>
<td>2.990</td>
<td>0.861</td>
<td>3364</td>
<td>697</td>
<td>10.06</td>
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<tr>
<td>Low pay</td>
<td>2.540</td>
<td>0.993</td>
<td>554</td>
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<td><strong>3. Year=1998</strong></td>
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<td>Higher pay</td>
<td>3.103</td>
<td>0.850</td>
<td>3626</td>
<td>641</td>
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<td>2.768</td>
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<td>521</td>
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<td><strong>4. Year=1999</strong></td>
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<td>Higher pay</td>
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<td>705</td>
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<td>Low pay</td>
<td>2.697</td>
<td>0.953</td>
<td>567</td>
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Table 2 - Ordered Probit Random Effects Estimation

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<tr>
<th>Higher pay</th>
<th>Coeff.</th>
<th>Std. Error</th>
<th>Low Pay</th>
<th>Coeff.</th>
<th>Std. Error</th>
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<td>Constant</td>
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<td>0.670</td>
<td>*</td>
<td>-1.570</td>
<td>1.487</td>
</tr>
<tr>
<td>Log hourly wage</td>
<td>0.651</td>
<td>0.048</td>
<td>*</td>
<td>0.207</td>
<td>0.130</td>
</tr>
</tbody>
</table>
| Log hours           | 0.673  | 0.107      | *                | 0.742  | 0.200      | **
| Age                 | -0.033 | 0.009      | *                | -0.050 | 0.020      | **
| Age squared/100     | 0.035  | 0.010      | *                | 0.061  | 0.024      | *
| Gender(male)        | -0.044 | 0.037      | -0.074 | 0.109      | *
| Education > secondary | 0.021 | 0.047      | 0.005  | 0.157      | *
| Overskilled         | -0.129 | 0.030      | -0.353 | 0.084      | *
| Married             | 0.010  | 0.036      | 0.120  | 0.099      | *
| Good health         | 0.054  | 0.031      | 0.073  | 0.092      | *
| Health care provided by employer | 0.090 | 0.041 | ** 0.273 | 0.219 | *
| Permanent contract  | 0.317  | 0.037      | 0.322  | 0.083      | *
| Employer provides subsidized housing | 0.180 | 0.080 | ** -0.015 | 0.264 | *
| Full time Job       | 0.370  | 0.107      | 0.088  | 0.213      | *
| Public sector       | 0.297  | 0.041      | 0.027  | 0.253      | *
| Workplace size 5-19 | 0.055  | 0.041      | -0.005 | 0.094      | *
| Workplace size 20-49 | 0.058  | 0.049      | -0.125 | 0.162      | *
| Workplace size 50-99 | 0.130  | 0.055      | -0.294 | 0.190      | *
| Workplace size 100 plus | 0.174  | 0.052      | 0.280  | 0.264      | *
| Services            | 0.078  | 0.040      | 0.236  | 0.123      | ***
| Professionals       | 0.016  | 0.129      | 0.741  | 0.758      | *
| Technicians         | 0.039  | 0.131      | 0.754  | 0.818      | *
| Clerks              | -0.128 | 0.132      | 0.538  | 0.690      | *
| Service workers and salers | -0.047 | 0.133 | 0.421 | 0.644 | *
| Agriculture and fishing | -0.404 | 0.158 | ** 0.236 | 0.657 | *
| Craft and related trades workers | -0.257 | 0.133 | *** 0.496 | 0.652 | *
| Plant and machine operators | -0.159 | 0.134 | 0.275 | 0.669 | *
| Elementary occupations | -0.442 | 0.134 | * 0.056 | 0.646 | *
| Madeira             | -0.520 | 0.099      | -0.610 | 0.254      | **
| Norte               | -0.691 | 0.063      | -0.593 | 0.161      | *
| Centro              | -0.860 | 0.062      | -0.532 | 0.139      | *
| Lisboa e Vale do Tejo | -0.702 | 0.062 | -0.661 | 0.149      | *
| Alentejo            | -0.763 | 0.071      | -0.364 | 0.161      | **
| Algarve             | -0.561 | 0.068      | -0.365 | 0.150      | **
| Year=1998           | 0.178  | 0.030      | 0.322  | 0.081      | *
| Year=1999           | 0.138  | 0.030      | 0.214  | 0.084      | **
| $\mu_1$             | 0.828  | 0.040      | 1.198  | 0.100      | *
| $\mu_2$             | 1.986  | 0.045      | 2.473  | 0.115      | *
| $\mu_3$             | 4.380  | 0.049      | 4.724  | 0.154      | *
| $\mu_4$             | 6.016  | 0.058      | 5.539  | 0.177      | *
| Sigma               | 0.920  | 0.020      | 0.969  | 0.066      | *

Log-L       -11216  -2023
Chi-Squared  1177   108
N           10605  1642

* significant at the 1% level ** significant at the 5% level *** significant at the 10% level
Figures to insert in the text
Figure 1 - The distribution of Job satisfaction (pooled sample)

Figure 2 - The distribution of Job satisfaction (1997)
Figure 3 - The distribution of Job satisfaction (1998)

Figure 4 - The distribution of Job satisfaction (1999)