



**Job Satisfaction in Europe\***  
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### **Abstract**

Job satisfaction is an important part of overall life satisfaction among the working age population. We examine Western Europeans' overall job satisfaction and the satisfaction levels in several job domains using the European Community Household Panel Survey (1994-2001). With respect to overall job satisfaction, wage is important. Yet, some other factors show equally or more important effects. For example, health turns out to be a single most important determinant of overall job satisfaction. Job match quality, contract type and job status are also important. With respect to the relationship between overall and job domain satisfaction, work type comes out as the most important job domain in all countries, followed by pay, working condition and job security. In analyzing determinants of each job domain satisfaction, we find some interesting results. Female workers declare higher pay satisfaction but lower work hour satisfaction, which are consistent with the hypothesis of low aspiration and greater non-market responsibility among women. Good job matches increase satisfaction levels in all job domains, but in particular with respect to pay and work type. Local unemployment rate has no effects on overall job satisfaction, but it has significant effects in two job domains, job security and work hours. Those in countries or times of high unemployment declare much lower satisfaction with job security, while they declare higher satisfaction with hours of work. Finally, even after controlling many variables which are responsible, directly and indirectly, for overall and each job domain satisfaction, there still remain large country fixed effects. Given the same observed worker and job characteristics, Austrian, Danish and Irish workers declare substantially higher satisfaction in all job domains than the workers in the Mediterranean countries.

JEL Classification: C23, J28, M54.

*Key words:* job satisfaction, job domain satisfaction, pay, worker and job characteristics.

### **Resumen**

La satisfacción en el trabajo es una parte importante del bienestar individual entre la población en edad de trabajar. En este documento examinamos los determinantes del grado de satisfacción en el trabajo y en varias de sus características utilizando el Panel de Hogares de la Unión Europea (1994 – 2001). Con respecto a la satisfacción en el trabajo, el salario es importante. Sin embargo, otros factores muestran iguales o mayores efectos. Por ejemplo, el estado de salud resulta ser el determinante más importante. La calidad del emparejamiento laboral, el tipo de contrato y el grado de responsabilidad también son importantes. Con respecto a la relación entre la satisfacción en el empleo y la satisfacción con sus características, el tipo de trabajo se revela como el rasgo más importante en todos los países, seguido por la retribución, las condiciones laborales y la estabilidad. Al analizar los determinantes de la satisfacción con cada una de las características, encontramos algunos resultados interesantes. Las mujeres declaran un mayor grado de satisfacción con sus ingresos, pero menor con el número de horas de trabajo, lo cual es consistente con la hipótesis de menores aspiraciones y mayores responsabilidades de no-mercado. Una buena calidad del emparejamiento laboral incrementa la satisfacción con todas las características del empleo, pero en particular, con respecto a la retribución y al tipo de trabajo. La tasa de desempleo local no tiene efectos significativos sobre la satisfacción en el trabajo, pero sí sobre la satisfacción con su estabilidad y con el número de horas trabajadas. Finalmente, incluso después de controlar otras variables, todavía permanecen efectos fijos de país de gran magnitud, tanto en el análisis de la satisfacción en el trabajo, como en el de sus características. *Ceteris paribus*, los empleados Austriacos, Daneses e Irlandeses declaran un nivel de satisfacción sustancialmente mayor en todos los ámbitos que los empleados de los países Mediterráneos.

Códigos JEL: C23, J28, M54.

*Palabras Clave:* satisfacción en el trabajo, satisfacción con características, salario.

## 1. Introduction

Typical motivations offered for studying job satisfaction are its implications on productivity, job turnover, absenteeism and mobility (Freeman, 1978; Warr, 1999). But job satisfaction is important in itself as it is an important part of overall life satisfaction among the working-age population.

In this paper, we analyze job satisfaction in Europe using the data from the European Community Household Panel survey (henceforth ECHP). In the ECHP, overall job satisfaction is captured in a question “How satisfied are you with your work or main activity?” For those employees who work more than 15 hours a week, we can examine their job satisfaction as their main activity is defined as work. The survey, furthermore, asks satisfaction questions on several domains of work: earnings, security, work type, hours, working time (day, night or shift), working conditions and commuting distance. This provides us with an opportunity to examine not only the job and worker characteristics which affect overall job satisfaction but also their mechanisms of operation. For example, how important is the satisfaction level in each domain of work in overall job satisfaction? And how each job characteristics affect each domain satisfaction and ultimately overall job satisfaction?

Previous studies mostly examined the effect of earnings or wages on job satisfaction presuming implicitly that they are the most important factors in determining workers’ job satisfaction. Another justification for focusing on wage is that it is highly correlated with other job characteristics which affect job satisfaction, therefore wage serving as a good proxy for overall job quality. However, there is sufficient evidence that there are many other factors of job quality (job-related stress as an example) which are not correlated with pay (see also Leontaridi and Sloane, 2003).

Following the seminal paper by Hamermesh (1977), several authors have contributed to the economic job satisfaction literature. Freeman (1978) evaluates the use of self-reported job satisfaction in the labor market analysis. His results show that job satisfaction is one of the main determinants of labor market mobility. Clark and Oswald (1996) analyze the importance of individual and workplace conditions in explaining reported job satisfaction in UK. They find that being female, younger than thirty, non-university educated, working fewer hours and being employed in small-medium firms increase self-reported job satisfaction. Clark (1997) tries to explain why women report higher levels of job satisfaction than men. His conclusion is that gender differential in job satisfaction is due to gender difference in job expectations: women’s expectations are lower than men’s. Oswald (1997) examines how improvements in economic performance affect reported life and job satisfaction. He finds that

job satisfaction has not increased over time in the US and the UK, therefore raising the question why so in spite of the clear improvement in important work domains such as pay, work type and working conditions.

Some other interesting works have recently appeared. Clark (1999) and Grund and Sliwka (2001) find positive effects of both wages and wage increase on job satisfaction in the UK and Germany respectively. A recent work by Oswald (2002) emphasizes job security and hierarchical position as important factors in job satisfaction. Hamermesh (2001) examines the relation between changes in job satisfaction across earnings distribution and changes in income inequality for the US and Germany and contrasts several hypotheses about the determinants of satisfaction. His results show that job satisfaction among the workers in the top earnings quartile increased more than those in lower quartiles. Moreover, he suggests that job satisfaction is responsive more to surprises in the returns to observable skills than that to unobservable.

In this paper, we examine the determinants of job satisfaction in Western Europe using the eight waves of European Community Household Panel data (1994-2001). Next section describes the data and presents some descriptive results. Section 3 discusses the regression results of job satisfaction while Section 4 discusses the contribution of each job domain satisfaction to overall job satisfaction and their determinants. Section 5 deals with the cross-country differences in the effect of wage on job satisfaction. Section 6 concludes.

## **2. Data and Descriptive Results**

The data we use come from the European Community Household Panel, which was conducted annually from 1994 until 2001 across many western European countries. It started with 12 then member countries and was joined by Austria in 1995 and by Finland in 1996. Sampling and survey questions are carefully prepared to insure maximum comparability across countries.<sup>1</sup> A further advantage of the ECHP is that surveyed countries share more or less similar culture and development levels as well as geographical proximity.

At the outset, it is important that one understands well the survey questions we analyze. The respondents in the ECHP were asked “How satisfied are you with your present situation in your work or main activity?” with 6 possible response categories ranging from ‘very dissatisfied’ (=1) to ‘fully satisfied’ (=6).

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<sup>1</sup> See Nicoletti and Peracchi (2002) and Peracchi (2002) for a general description of the survey and some discussion on the problems of attrition, non-response and weighting procedures in the survey.

The satisfaction question is based entirely on individuals' own perception. The question asked is not concrete in terms of comparison groups or in the description of each category of satisfaction levels<sup>2</sup>, therefore leaving a large room for interpretation variability among interviewees. Economists are traditionally skeptical about considering any subjective measure of individual's preference because they suffer from several shortcomings.

First, there is a controversy with respect to the cardinality and interpersonal comparability of subjective data. Economists usually assume that satisfaction answers are only ordinally comparable. In psychology literature, however, satisfaction scales are created as if they were cardinal measures of the underlying subjective states (Konow and Early, 2002). Cardinality assumption implies that the numerical difference between any two categories has a meaning by itself and this meaning is the same for all individuals. Schwartz (1995) argues that surveyed individuals interpret a choice of numbers as a cardinal question. Van Praag (1991), Dixon (1997) and Ng (1997) also argue in favor of cardinality assumption to measure satisfaction<sup>3</sup>. On the other hand, it is difficult to justify interpersonal comparability of the answers since we do not know if the word "satisfied" and the adverbs such as "very much" or "fully" represent the same meaning for different individuals. However, there is ample empirical evidence that self-reported satisfaction correlates with many observed variables with expected signs<sup>4</sup>, which favors the validity of interpersonal comparisons.

Second, psychologists claim that the answers to the satisfaction question can be clustered around the top categories since respondents tend to report greater satisfaction levels than the real one in an effort to present themselves more favorably (Konow and Early, 2002). This is what is denominated as *social desirability bias*. Easterlin (1995) verifies that this phenomenon depends on the considered country; reason why to introduce country specific variables to attenuate this bias.

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<sup>2</sup> The categories (2, 3, 4 and 5) between the best and the worst have no words attached to them. It is also interesting to note that there is no single category exactly in the middle as there are 6 categories in total. People who consider their satisfaction level about the middle (there are usually many of them) have to choose between 3 and 4.

<sup>3</sup> Ferrer-i-Carbonell and Frijters (2004) show that there is no difference in the estimation results between assuming ordinality or cardinality of satisfaction, whilst allowing for fixed-effects does change results substantially.

<sup>4</sup> See Konow and Early (2002) for a survey.

### *Average Satisfaction Levels across Country*

As the first descriptive measure of satisfaction we report the simple averages of the reported satisfaction levels by country and the year of survey. Although this measure assumes cardinality of the satisfaction scale, it may serve as an approximation even in the case of only ordinal comparability.

The average job satisfaction for the pooled cross-section sample of the ECHP is 4.36 almost same for men and women. Across country, we observe large differences as well as considerable gender differences in some countries. Danish and Austrian workers declare highest levels of satisfaction with their jobs, while Greek, Portuguese, Italian and Spanish workers declare lowest levels of satisfaction. The difference is large, for example, 1.15 points between Denmark and Greece. Why so large cross-country differences? There might be genuine differences in job characteristics and working conditions which explain the differences across country. It is also possible that language and cultural differences might be a part of explanation. In the multivariate analysis, we will examine whether the cross-country differences remain even after controlling for observed individual and job characteristics. In the UK, Germany and Ireland, male workers declare lower satisfaction levels than female workers, while the opposite is true in the Mediterranean countries. Clark (1997) argues that lower aspiration is the principal reason for higher job satisfaction among women in the UK.

We also report standard deviations to check if there are any significant differences in the distribution of the satisfaction scales across country and by gender. Luxembourg shows the smallest standard deviation while the largest one is observed in Italy. It appears that the standard deviation is smaller in northern Europe than in the South, suggesting a larger inequality in job satisfaction in the South. Nevertheless, the standard deviations are in general similar across country.

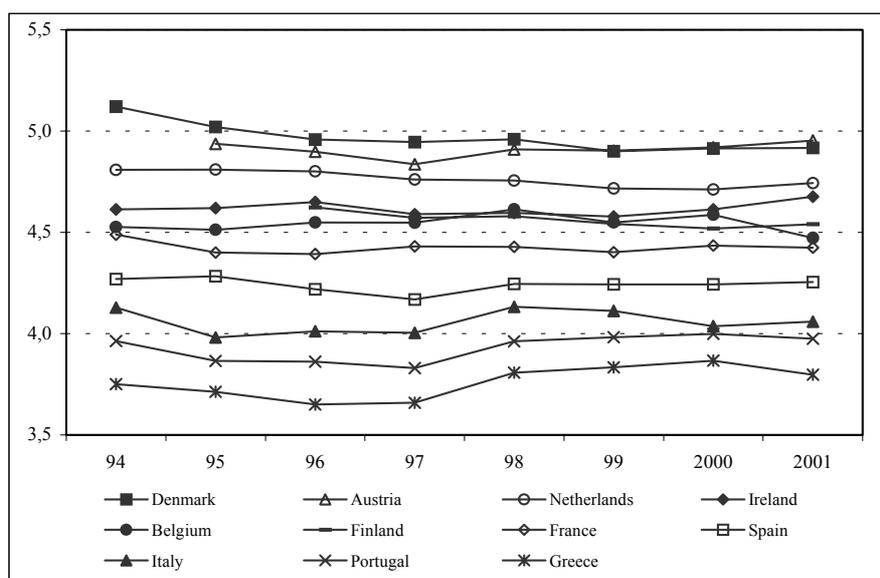
**Table 1: Average and Standard Deviation of Job Satisfaction, ECHP 1994-2001**

Country	Both Gender		Male		Female	
	Mean	SD	Mean	SD	Mean	SD
<b>Total</b>	4.360	1.166	4.352	1.166	4.371	1.166
<b>Denmark</b>	4.975	0.982	4.993	0.959	4.952	1.009
<b>Austria</b>	4.912	1.035	4.892	1.025	4.939	1.047
<b>Luxembourg</b>	4.797	1.096	4.789	1.102	4.812	1.085
<b>Netherlands</b>	4.762	0.887	4.786	0.879	4.724	0.899
<b>Ireland</b>	4.616	1.192	4.594	1.196	4.650	1.185
<b>Finland</b>	4.565	0.994	4.530	0.987	4.600	0.999
<b>Belgium</b>	4.544	1.134	4.551	1.146	4.534	1.118
<b>France</b>	4.427	1.048	4.429	1.054	4.423	1.040
<b>Germany</b>	4.407	1.087	4.380	1.095	4.446	1.073
<b>UK</b>	4.386	1.112	4.281	1.132	4.519	1.072
<b>Spain</b>	4.250	1.261	4.267	1.244	4.217	1.292
<b>Italy</b>	4.062	1.296	4.078	1.285	4.033	1.315
<b>Portugal</b>	3.942	0.962	3.976	0.953	3.898	0.972
<b>Greece</b>	3.821	1.230	3.813	1.224	3.839	1.242

Note: The sample period is 1994-1996 for Germany, Luxembourg and the UK, 1995-2001 for Austria, and 1996-2001 for Finland.

### *Temporal Variation*

Figure 1 shows the average job satisfaction levels along the sample period in each country. This also serves as an indirect check of the data quality as too volatile movements over this relatively short time period would cast doubt on data reliability. We expect the averages to stay more or less at the same level, or move slowly during this short time period. Indeed, the satisfaction level shows high stability over time and the country rankings are maintained throughout the period, suggesting some degree of reliability of the data. It is worthwhile to mention some temporal changes across country. While the job satisfaction in Denmark has been decreasing during the sample period, some improvement is observed in Portugal and Greece. Although there seems to be a trend of convergence during the sample period, cross-country differences are still large, ranging between 3.8 and 5.0 in 2001.

**Figure 1: Temporal variation of average job satisfaction**

### 3. Determinants of Job Satisfaction

Recently, several methodological papers have appeared which propose different estimation techniques of the determinants of individual satisfaction<sup>5</sup>. In the cases that job satisfaction scales are only comparable ordinally, a habitually used econometric technique is ordered latent response model. If we assume that job satisfaction scales are cardinal, we may use Ordinary Least Squares (Gardner and Oswald, 2001). Nevertheless, it is well known that discrete choice linear models (DCLM) have several shortcomings. First, error term is heteroskedastic. Second, DCLM does not account that the job satisfaction variable is bounded. Both problems can be solved using Feasible Generalized Least Squares if exogenous variables are all dummies for mutually exclusive categories and there is no categories empty (Amemiya, 1985, cap. 9). However, we will use OLS for its simplicity of estimation and because the results are usually very similar.

In the following table we present OLS regression results of job satisfaction level using pooled cross-section data from the ECHP 1994-2001. We report the results of regressions which add variables sequentially. The first regression (column A) includes only demographic variables, gender, education level, health status, age in 10 year interval, and country and year dummy variables (these last two sets of variables are not reported for brevity). The second regression (column B) includes hourly wage (in logarithm), sector and hours (not reported for brevity). The third regression (column C) includes more

<sup>5</sup> See Clark and Oswald (2002), Clark *et al.* (2004), Van Praag (2004), Ferrer-i-Carbonel and Frijters (2004), D'Addio, Eriksson and Frijters (2004), among others.

variables concerning job characteristics, such as industry, contract type, non-wage subsidy and occupation (not reported for brevity). The final regression (column D) includes self-reported job match quality variables and local unemployment rate. In interpreting the results, one has to take into account of the large sample size (N=130,151) which tends to increase statistical significance of estimated coefficients<sup>6</sup>. Most variables turn out significant at the conventional 5% level. Estimated coefficients are the effect of each variable on the satisfaction level in one to six scales.

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<sup>6</sup> Sample means are reported in Appendix.

**Table 2: OLS Job Satisfaction (very dissatisfied=1, ..., fully satisfied=6):  
Pooled Cross-section Data, ECHP 1994-2001**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Female ( <i>re: male</i> )	0,037 (0.001)**	0,086 (0.011)**	0,053 (0.012)**	0,038 (0.012)**
Education ( <i>re: low</i> )				
High	0,136 (0.013)**	0,010 (0,013)	-0,048 (0.013)**	-0,046 (0.013)**
Middle	0,031 (0.012)**	-0,007 (0,012)	-0,015 (0,012)	-0,017 (0,011)
Health Status ( <i>re: bad or very bad</i> )				
Very good	0,808 (0.042)**	0,763 (0.042)**	0,756 (0.041)**	0,735 (0.040)**
Good	0,545 (0.041)**	0,506 (0.042)**	0,502 (0.041)**	0,491 (0.039)**
Fair	0,287 (0.042)**	0,262 (0.042)**	0,256 (0.041)**	0,251 (0.040)**
Hourly net wage (log)		0,308 (0.012)**	0,214 (0.013)**	0,191 (0.013)**
Private sector ( <i>re: public</i> )			-0,028 (0.013)*	-0,025 (0.013)
Industry ( <i>re.: manufacturing</i> )				
Agriculture, forestry, fishing			0,141 (0.045)**	0,121 (0.044)**
Education			0,193 (0.022)**	0,168 (0.021)**
Health and social work			0,144 (0.020)**	0,096 (0.020)**
Job status ( <i>re: non-supervisory</i> )				
Supervisory			0,177 (0.013)**	0,179 (0.013)**
Intermediary			0,090 (0.010)**	0,091 (0.010)**
Contract type ( <i>re: permanent</i> )				
Temporary <6 months			-0,227 (0.035)**	-0,220 (0.034)**
Temporary 6 months-1 year			-0,111 (0.027)**	-0,115 (0.027)**
Non-wage subsidy ( <i>re: no</i> )			0,064 (0.010)**	0,067 (0.010)**
Over-qualified ( <i>re: no</i> )				-0,156 (0.008)**
Job-match quality ( <i>re: not at all or not very much</i> )				
A lot				0,294 (0.013)**
Fairly				0,102 (0.014)**
Unemployment rate (log)				0,051 (0.028)
Constant	3,751 (0.048)**	3,257 (0.053)**	3,417 (0.061)**	3,514 (0.063)**
Observations	130151	130151	130151	130151
Adjusted R-squared	0,084	0,095	0,107	0,125

Notes: Also included in the regressions are age, country and year dummies (in all columns), hours of work (in columns B-D) and occupation (in C and D). Standard error in parenthesis; \*significant at 5%; \*\* significant at 1%

*Individual Characteristics:* As in other studies (for example, Clark 1997) women declare higher job satisfaction levels than men even when important job characteristics are controlled for. However, the magnitude of the effect is small. Education also affects significantly job satisfaction. However, the sign of the effect changes from positive to negative as job characteristics are included. That is, higher job satisfaction among better educated workers in bivariate analysis is due to the differences in job characteristics by education. The magnitude is again relatively small.

Health, on the other hand, appears to be one of the most important factors in determining workers' job satisfaction and its magnitude remains large even after job characteristics are controlled for. Healthier workers enjoy their work much more than less healthier workers. However, the effect is likely to be overestimated due to a possible reverse causation, that is, the level of satisfaction workers obtain from their job affects their health. We, nevertheless, think that the causation from health to job satisfaction is much stronger than the other way around.

*Wage:* In the regressions in columns B through D, we add hourly wages in logarithm. Therefore, the coefficient is interpreted as the amount of change in the dependent variable corresponding to a 100% increase in wage. First, when no other job characteristics are included, job satisfaction level increases by 0.31 with doubling wage. Its effect decreases to 0.19 as other job characteristics are included. The magnitude of the effect of doubling wage is about the same as that of an increase in health status by one category, for example, from good to very good.

*Other Job Characteristics:* In columns C and D, we included other job characteristics, such as sector, industry, occupation and skill, contract type and non-wage benefits. First, there is almost no difference in the levels of job satisfaction between the workers in the private sector and in the public sector. By industry, we find that workers in the primary sector (agriculture, forestry and fishery), education, health and social work declare higher levels of satisfaction, indicating a greater satisfaction felt among the workers with a job as a vocation.

The rank or status in work place appears to affect job satisfaction significantly. Those in a supervisory position declare substantially higher job satisfaction levels than others. The effect is almost as large as that of doubling wages. Job security is another job characteristic which affects workers' satisfaction with their jobs. Those with a permanent contract declare significantly higher job satisfaction levels than those with contract duration of less than a year. The workers without contract (usually in informal sector) suffer a substantial reduction in job satisfaction. Subsidies and benefits other than

wage, such as childcare, health care, vacation and housing, also improve significantly worker's job satisfaction. The magnitude of the effect is about the same as the 50% increase in wage.

*Job Match:* Those who consider that they are overqualified for their job declare substantially lower job satisfaction than others. The effect of job match is quite large. Those who has a job which is not related with their education or training declare job satisfaction level 0.29 lower than those who has a good match, equivalent to that of 75% wage drop.

*Unemployment Rate:* Local unemployment rate affects positively job satisfaction. This suggests that jobs are more appreciated in the regions or times of high unemployment. However, the effect is small in magnitude and only marginally significant.

In summary, job satisfaction is affected by both individual and job characteristics. More importantly, wage plays a relatively small role. Health and job match quality are much more important in determining workers' job satisfaction. However, it is important to recognize that the estimated effects of included variables so far are the averages across country as we included only country dummy variables without any interaction terms. It is reasonable to consider the possibility of cross-country differences in the effects of the included variables. In the following, we discuss the estimation results of each country. For the purpose of brevity, we report only the results of the most interesting variables.

**Table 3: Job satisfaction (very dissatisfied=1, ..., fully satisfied=6):  
ECHP 95-2001, OLS for Each Country (standard errors in parenthesis)**

	Log Wage		Non-wage Subsidy		Contract type (re: permanent)			
					Temp <6 months		Temp 6-11	
Germany	0.153	(0.051)	0.173	(0.041)	-1.032	(0.237)	-0.023	(0.163)
Denmark	0.015	(0.067)	0.180	(0.040)	0.077	(0.135)	-0.039	(0.114)
Netherlands	0.021	(0.023)	0.037	(0.017)	-0.297	(0.082)	-0.126	(0.083)
Belgium	0.199	(0.064)	0.178	(0.039)	-0.150	(0.160)	-0.052	(0.082)
France	0.123	(0.033)	-	-	-0.073	(0.098)	0.028	(0.081)
Ireland	0.175	(0.057)	-0.132	(0.042)	-0.006	(0.127)	-0.001	(0.140)
Italy	0.450	(0.069)	0.138	(0.031)	-0.447	(0.124)	-0.054	(0.103)
Greece	0.515	(0.063)	0.017	(0.035)	-0.502	(0.233)	-0.504	(0.082)
Spain	0.240	(0.042)	0.088	(0.027)	-0.295	(0.071)	-0.125	(0.049)
Portugal	0.282	(0.051)	0.131	(0.037)	-0.241	(0.223)	-0.209	(0.086)
Austria	0.077	(0.033)	0.111	(0.028)	-0.368	(0.122)	-0.041	(0.187)
Finland	0.267	(0.061)	0.166	(0.059)	0.090	(0.079)	0.209	(0.070)

	Industry (re: manufacturing)				Job status (re: supervisory)			
	Education		Health-Social work		Intermediary		Non-supervisory	
Germany	0.168	(0.084)	0.159	(0.072)	-0.145	(0.054)	-0.318	(0.054)
Denmark	0.163	(0.085)	0.044	(0.078)	-0.061	(0.054)	-0.046	(0.045)
Netherlands	0.094	(0.046)	0.062	(0.037)	-0.066	(0.028)	-0.115	(0.029)
Belgium	-0.048	(0.078)	-0.027	(0.066)	-0.061	(0.047)	-0.231	(0.050)
France	0.230	(0.064)	0.144	(0.057)	-0.114	(0.034)	-0.215	(0.035)
Ireland	0.147	(0.109)	0.073	(0.120)	-0.123	(0.057)	-0.090	(0.057)
Italy	0.273	(0.101)	0.179	(0.075)	-0.042	(0.046)	-0.286	(0.046)
Greece	0.269	(0.095)	0.071	(0.093)	0.005	(0.080)	-0.143	(0.074)
Spain	0.330	(0.068)	0.159	(0.075)	-0.119	(0.043)	-0.234	(0.044)
Portugal	0.230	(0.092)	0.288	(0.101)	-0.226	(0.075)	-0.205	(0.062)
Austria	0.154	(0.080)	0.076	(0.060)	-0.096	(0.039)	-0.147	(0.041)
Finland	0.051	(0.068)	0.058	(0.063)	-0.176	(0.043)	-0.276	(0.041)

	Skill Match		Job match (re: a lot)					
	Overqualified		Fair amount		Not very much		Not at all	
Germany	-0.142	(0.034)	-0.216	(0.032)	-0.390	(0.053)	-0.408	(0.168)
Denmark	-0.094	(0.032)	-0.191	(0.034)	-0.330	(0.063)	-0.407	(0.121)
Netherlands	-0.088	(0.016)	-0.131	(0.020)	-0.197	(0.045)	-0.078	(0.025)
Belgium	-0.133	(0.033)	-0.317	(0.030)	-0.529	(0.057)	-0.714	(0.181)
France	-0.095	(0.022)	-0.105	(0.023)	-0.215	(0.052)	-0.352	(0.103)
Ireland	-0.374	(0.039)	-0.124	(0.038)	-0.504	(0.091)	-0.914	(0.310)
Italy	-0.107	(0.032)	-0.268	(0.031)	-0.554	(0.062)	-0.525	(0.194)
Greece	-0.148	(0.035)	-0.063	(0.043)	-0.147	(0.132)	0.050	(0.251)
Spain	-0.197	(0.025)	-0.252	(0.027)	-0.417	(0.039)	-0.572	(0.055)
Portugal	-0.063	(0.036)	-0.295	(0.041)	-0.569	(0.112)	-0.365	(0.438)
Austria	-0.200	(0.023)	-0.209	(0.026)	-0.425	(0.039)	-0.289	(0.116)
Finland	-0.160	(0.027)	-0.210	(0.030)	-0.333	(0.044)	-0.202	(0.140)

Note: The regressions are run for each country separately including all the variables included in the column D in Table 2.

*Wage and Non-Wage Benefits:* The effects of wage on job satisfaction vary substantially across country. In Denmark and The Netherlands there are no effects while in all other countries the effects are significant. The effects are largest in Italy, Greece, Portugal, Finland and Spain. It seems to suggest that wage effects are larger in the countries where the wage level is lower. The effect of non-wage benefits is positive and significant in all countries except for Ireland where the effect is negative and for The Netherlands and Greece where the effect is small and not significant. Since it is difficult to believe that the effect could be negative, the negative effect for Ireland warns us a possible lack of data reliability.

*Contract Type:* The effects of contract type also vary widely across country. Except for Denmark, Belgium, France, Ireland and Finland, all countries show substantial negative effects of a contract of less than 6 months of duration compared to a permanent contract. The effect is largest in Germany and Southern Europe. However, it should be kept in mind that the proportion of workers with a contract shorter than 6 months is rare in many countries. For the contracts with the duration of 6-11 months the negative effect (relative to a permanent contract) is present only in Greece, Spain and Portugal.

*Industry and Job Status:* Those who work in education, health and social service sectors declare a higher satisfaction level in most countries, but the effect is largest in southern Europe. The effect of job status is substantial in most countries with an exception of Denmark.

*Job Match:* Skill match has significant effects in all countries but the magnitude varies substantially across country. The effect of over-qualification on satisfaction score ranges from -0.37 in Ireland, -0.20 in Spain to -0.06 in Portugal. Formation-job match quality is again important in all countries although with a large variation. For example, compared to those who consider the match between their formation and their job as good, those who consider it as bad declare much lower satisfaction levels ranging from over 0.5 in Belgium, Ireland, Italy and Portugal, to less than 0.2 in The Netherlands and Greece.

In summary, we observe that many variables show substantially different effects across country. Any results obtained from the sample including different countries should be interpreted with caution. In particular, those variables which are most often analyzed by economists, such as wage and contract type, exhibit widely different effects across country. On the other hand, some other variables exhibit very similar effects across country. Health status and job match are two of them.

#### 4. Job Domain Satisfaction

One of the advantages of the ECHP with respect to job satisfaction information is that the survey provides information on job domain satisfaction as well as overall job satisfaction. The survey provides satisfaction scores on seven job domains: pay, job security, work type, hours of work, work timing, working condition and distance from home. These job domains cover some of the most important aspects of work which determine overall job satisfaction<sup>7</sup>. The question and the responses are formulated in the same way as in overall job satisfaction. By examining the relation between the two and in combination with job and worker characteristics, we may understand better which job domains are important in overall job satisfaction and how each characteristics (job and worker) affects each domain satisfaction and ultimately overall job satisfaction.

At the outset, it is interesting to see that the correlation coefficient between any two job domains is positive and substantial with the minimum of 0.178 between pay and distance satisfaction (Table 4). This suggests that in general good jobs are good in all job domains, and there are no compensating (trade-off) characteristics between job domains<sup>8</sup>. Particularly strong correlation is observed between work type and overall job satisfaction, between work type and working condition satisfaction, and between timing and hour satisfaction. Although bivariate correlation is positive for all job domains, it is possible that some worker or job characteristics have a compensating nature. For example, higher wages for overtime work are likely to lead to a higher satisfaction with respect to pay but a lower satisfaction with respect to hours of work. Indeed, we will see some variables of this nature in the analysis of the determinants of job domain satisfaction.

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<sup>7</sup> Obviously, there are other aspects which are important in job satisfaction. For example, a special report on best workplaces by Financial Times (2004) lists respect and trust, work-life balance, chance to advance and develop skills, and pride as among the most important factors determining job satisfaction.

<sup>8</sup> Remember that this is bivariate correlation. It is likely that the correlation tends to be smaller or negative if other worker characteristics are controlled for. Another reason for the positive correlation between different job domains is personality or individual fixed effect in that one's personality affects similarly the satisfactions in all job domains.

**Table 4: Bivariate Correlation across Job Domain Satisfaction:  
Pooled cross-section ECHP 1994-2001**

	Overall	Pay	Security	Type	Hours	Timing	Condition
Pay	0.416						
Security	0.354	0.303					
Type	0.610	0.329	0.324				
Hours	0.350	0.293	0.253	0.336			
Timing	0.368	0.287	0.252	0.363	0.508		
Condition	0.448	0.297	0.282	0.458	0.315	0.398	
Distance	0.234	0.178	0.202	0.224	0.218	0.271	0.255

Note: The number of observations is close to 130,000 and all the coefficients are highly significant.

First, we examine the importance of each job domain in overall job satisfaction by regressing overall job satisfaction on job domain satisfaction. Table 5 presents the estimated coefficients. For brevity, we do not report standard errors or t-statistics but almost all of them are highly significant. Work type satisfaction contributes most to overall job satisfaction: one unit increase in work type satisfaction increases overall job satisfaction by 0.42. The second most important factor is pay satisfaction with the estimated coefficient of 0.18, followed by working condition and stability. The least important factor appears to be the distance from home followed by hours of work, each of them with the estimated coefficient smaller than 0.05.

Across country, the estimated coefficients are more or less similar although some differences exist. In all countries, work type comes out as the most important job domain, a signal of data reliability. Pay and job security satisfaction seems to contribute more in the Mediterranean countries than in central and northern Europe, while the opposite is the case with respect to working condition satisfaction. The smallest effect of pay satisfaction on overall satisfaction observed in Denmark and The Netherlands is consistent with the finding in the previous section that wage effect on job satisfaction is smallest in these two countries.

**Table 5: OLS Regressions of Overall job satisfaction on job domain satisfaction**

	Pay		Type	Timing	Distance		Constant	
	Security		Hours	Condition				
<b>Total</b>	0.182	0.093	0.421	0.033	0.059	0.105	0.020	0.458
<b>Germany</b>	0.146	0.075	0.372	0.060	0.030	0.175	0.006	0.656
<b>Denmark</b>	0.103	0.038	0.436	0.054	0.048	0.114	0.019	1.050
<b>Netherlands</b>	0.081	0.046	0.253	0.104	0.057	0.097	0.041	1.581
<b>Belgium</b>	0.153	0.036	0.422	0.056	0.001	0.159	0.011	0.781
<b>Luxembourg</b>	0.165	0.074	0.534	-0.032	0.054	0.124	0.029	0.314
<b>France</b>	0.141	0.086	0.359	0.000	0.120	0.186	0.014	0.535
<b>UK</b>	0.156	0.100	0.330	0.075	0.059	0.204	0.079	0.055
<b>Ireland</b>	0.165	0.057	0.397	0.072	0.016	0.098	0.024	0.772
<b>Italy</b>	0.212	0.111	0.483	0.037	0.023	0.056	0.015	0.320
<b>Greece</b>	0.283	0.176	0.347	0.036	0.018	0.079	0.021	0.239
<b>Spain</b>	0.178	0.088	0.477	0.042	0.046	0.072	0.024	0.471
<b>Portugal</b>	0.166	0.139	0.448	0.043	0.026	0.102	-0.024	0.400
<b>Austria</b>	0.174	0.078	0.343	0.066	0.055	0.172	0.006	0.559
<b>Finland</b>	0.160	0.042	0.417	0.038	0.042	0.121	0.019	0.884

### *Determinants of Job Domain Satisfaction*

Given that the information on job domain satisfaction reveals considerable reliability, we now ask “How does each job or worker characteristics affect each job domain satisfaction?” Some characteristics have obvious connections with particular job domains. For example, the effect of wage should be mainly on the satisfaction with pay, contract type on the satisfaction with job security, hours of work on the satisfaction with work hours, and job status and job match quality on the satisfaction with work type. Other variables, such as age, gender, education and health have no direct relationship with any job domains and may affect differently the satisfaction levels in different job domains. The results are highly consistent with above conjecture and furthermore provide some interesting findings.

*Age and Gender:* First, it stands out that elderly workers (66+) declare much higher satisfaction in all job domains. This may be due to selection bias as only few people over 65 (0.17% in our sample) still work. Among the workers younger than 66, those in ages 56-65 declare in general higher satisfaction than younger workers in all job domains, while those in ages 26-45 declare the lowest satisfaction in all job domains except for distance to work. Female workers declare higher satisfaction with pay but lower satisfaction with hours. As wage is also included in the regressions, the higher pay satisfaction among women is consistent with the hypothesis of lower aspiration among them. Lower satisfaction with hours of work (after controlling for hours of work) among women seems to suggest greater non-market responsibility among women.

*Education and Health:* Education affects negatively on the satisfaction with pay, job security and hours. This suggests that the more educated may have higher expectations in these job domains. On the other hand, health improves substantially the satisfaction levels in all job domains. Again, health is one single most important worker characteristic in determining job satisfaction by way of every job domain satisfaction.

*Wage:* Obviously, wage has the largest effect on the satisfaction with pay. It also affects other domain satisfaction, presumably capturing the effect of uncontrolled variables which are correlated with it. Its effect is positive and substantial on the satisfaction with job security and negative on the satisfaction with distance to work. The negative effect of wage on commuting distance satisfaction is consistent with the opportunity cost hypothesis, that is, the opportunity cost (in terms of satisfaction loss) of commuting time is higher the higher the wages are.

*Sector, Occupation and Industry:* Private sector workers enjoy much lower satisfaction in job security and hours of work, but somewhat higher satisfaction levels in pay and working condition. Workers in low occupation levels (service sector workers, craft workers, machine operators and elementary workers) suffer satisfaction reductions in work type and working condition with some compensation in the satisfaction with working hours. With respect to industry, we find primary sector workers declare higher satisfaction with pay, job security and work type compared to those working in manufacturing sector. Workers in education, health and social work sectors declare lower satisfaction with pay but they are compensated by higher satisfaction with respect to job security and work type. As overall job satisfaction is higher among the workers in these sectors (as found in previous section), the compensation in terms of satisfaction in job security and work type seems to outweigh the satisfaction loss due to lower pay.

*Job Status:* Those in supervisory positions enjoy higher satisfaction in job security and work type than others, while the opposite is true with respect to the satisfaction with hours of work.

*Contract Type:* As expected, workers with a temporary contract declare much lower levels of satisfaction with job security than those with a permanent contract. Temporary contract holders also declare lower satisfaction with respect to work type, work hours and distance to work. Workers without any formal contract suffer substantial satisfaction reductions in all job domains and, in particular, with respect to job security, work type and hours of work. This suggests that the workers in informal sectors are abused by employers probably due to their disadvantageous status, such as illegal immigrants.

*Job Match Quality:* Those who consider themselves overqualified for their job declare lower satisfaction in all job domains, but in particular with respect to pay, work type and working condition. Match quality between workers' formation and their jobs affect mostly the satisfaction with work type. Workers with a good match declare, furthermore, substantially higher satisfaction with pay and working condition than those with a bad match.

*Unemployment Rate:* Local (country and year specific) unemployment rate affects only the satisfaction with job security and work hours. As expected, workers in country or time of high unemployment declare much lower satisfaction with job security. A 100% increase in unemployment rate decreases the job security satisfaction by 0.3 points. On the other hand, local unemployment rate increases substantially the satisfaction with hours of work. This seems to suggest that those in higher unemployment regions or times appreciate more their employment (positive hours of work).

*Country Fixed Effect:* Even after controlling for many variables which are responsible, directly and indirectly, for each job domain satisfaction, there still remain large country fixed effects. Given the same observed worker and job characteristics, Austrian, Danish and Irish workers declare substantially higher satisfaction in all job domains than the workers in the Mediterranean countries.

**Table 6: Determinants of Job Domain Satisfaction (bold faced:  $|t|>2$ )**

	Pay	Stability	Type	Hours	Timing	Condition	Distance
<b>Age (re: 16-25)</b>							
26-35	<b>-0.191</b>	<b>-0.148</b>	<b>-0.051</b>	<b>-0.105</b>	<b>-0.055</b>	<b>-0.106</b>	0.013
36-45	<b>-0.256</b>	<b>-0.219</b>	<b>-0.036</b>	<b>-0.108</b>	0.004	<b>-0.104</b>	<b>0.129</b>
46-55	<b>-0.228</b>	<b>-0.179</b>	0.023	-0.028	<b>0.083</b>	-0.021	<b>0.218</b>
56-65	<b>-0.090</b>	<b>0.085</b>	<b>0.149</b>	<b>0.087</b>	<b>0.196</b>	<b>0.126</b>	<b>0.279</b>
66+	<b>0.431</b>	<b>0.394</b>	<b>0.509</b>	<b>0.414</b>	<b>0.462</b>	<b>0.540</b>	<b>0.387</b>
<b>Gender (re: male)</b>							
Female	<b>0.129</b>	<b>0.043</b>	<b>0.035</b>	<b>-0.052</b>	-0.023	0.000	<b>0.045</b>
<b>Education (re: low)</b>							
High	<b>-0.070</b>	<b>-0.081</b>	<b>-0.060</b>	<b>-0.122</b>	-0.013	-0.006	0.017
Middle	-0.022	<b>-0.062</b>	-0.006	<b>-0.094</b>	-0.026	-0.022	0.022
<b>Health (re: bad or very bad)</b>							
Very good	<b>0.460</b>	<b>0.408</b>	<b>0.539</b>	<b>0.439</b>	<b>0.449</b>	<b>0.646</b>	<b>0.303</b>
Good	<b>0.321</b>	<b>0.209</b>	<b>0.338</b>	<b>0.249</b>	<b>0.242</b>	<b>0.401</b>	<b>0.130</b>
Fair	<b>0.159</b>	0.067	<b>0.142</b>	<b>0.121</b>	<b>0.126</b>	<b>0.164</b>	0.057
<b>Wage</b>							
log hourly	<b>0.864</b>	<b>0.237</b>	<b>0.088</b>	<b>0.158</b>	0.027	-0.016	<b>-0.164</b>
<b>Hours of work (re: 40-44)</b>							
15-19	<b>-0.234</b>	-0.004	0.049	<b>0.394</b>	<b>0.300</b>	<b>0.238</b>	<b>0.203</b>
20-24	<b>-0.182</b>	<b>-0.054</b>	0.020	<b>0.316</b>	<b>0.253</b>	<b>0.156</b>	<b>0.185</b>
25-29	<b>-0.114</b>	-0.024	0.043	<b>0.317</b>	<b>0.227</b>	<b>0.107</b>	<b>0.203</b>
30-34	<b>-0.142</b>	-0.066	-0.010	<b>0.336</b>	<b>0.170</b>	0.031	<b>0.095</b>
35-39	<b>-0.063</b>	-0.034	<b>-0.025</b>	<b>0.189</b>	<b>0.107</b>	0.020	<b>0.075</b>
45-49	<b>0.040</b>	-0.013	0.005	<b>-0.376</b>	<b>-0.160</b>	<b>-0.056</b>	-0.006
50+	<b>0.213</b>	<b>0.064</b>	<b>0.084</b>	<b>-0.692</b>	<b>-0.380</b>	<b>-0.052</b>	-0.031
<b>Sector (re: public)</b>							
Private	<b>0.041</b>	<b>-0.257</b>	0.021	<b>-0.121</b>	-0.033	<b>0.084</b>	-0.009
<b>Occupation (re: manager)</b>							
Professionals	-0.040	-0.011	0.009	-0.032	-0.022	<b>-0.088</b>	<b>-0.093</b>
Technicians	-0.031	<b>0.051</b>	0.009	0.032	<b>-0.063</b>	<b>-0.086</b>	-0.030
Clerks	0.031	<b>0.072</b>	<b>-0.082</b>	<b>0.094</b>	0.040	-0.028	<b>0.067</b>
Service workers	0.006	<b>0.132</b>	0.004	0.001	<b>-0.232</b>	<b>-0.075</b>	<b>0.080</b>
Skilled agr.fisherly	-0.005	0.027	-0.027	0.105	-0.034	0.013	<b>0.188</b>
Craft.	-0.052	0.004	<b>-0.051</b>	<b>0.074</b>	<b>-0.093</b>	<b>-0.232</b>	-0.028
Machine op.	-0.035	0.052	<b>-0.071</b>	0.033	<b>-0.298</b>	<b>-0.216</b>	0.058
Elementary	0.055	0.057	<b>-0.219</b>	<b>0.084</b>	<b>-0.102</b>	<b>-0.083</b>	<b>0.134</b>
<b>Activity (re: manufacturing)</b>							
Agri. fish. fore	<b>0.119</b>	<b>0.192</b>	<b>0.143</b>	0.032	-0.010	0.041	0.032
Mining	<b>0.148</b>	<b>0.172</b>	0.031	0.020	0.020	<b>0.129</b>	-0.025
Construction	-0.009	-0.014	0.034	-0.008	0.003	-0.020	<b>-0.153</b>
Wholesale	<b>-0.056</b>	<b>0.132</b>	<b>0.055</b>	<b>-0.064</b>	<b>-0.145</b>	0.019	0.007
Hotel+rest	-0.006	<b>0.190</b>	0.024	<b>-0.121</b>	<b>-0.280</b>	-0.002	0.057
Transport	-0.017	0.047	0.007	<b>-0.075</b>	<b>-0.227</b>	<b>-0.066</b>	<b>-0.150</b>
Finance	<b>0.086</b>	<b>0.136</b>	-0.031	-0.031	<b>0.073</b>	<b>0.114</b>	0.024
Real estate	<b>-0.053</b>	<b>0.083</b>	0.033	<b>-0.083</b>	0.007	<b>0.069</b>	<b>-0.113</b>
Public admin	-0.013	<b>0.319</b>	<b>0.083</b>	<b>0.060</b>	<b>0.109</b>	<b>0.052</b>	0.032
Education	<b>-0.090</b>	<b>0.323</b>	<b>0.230</b>	<b>0.078</b>	<b>0.142</b>	<b>0.100</b>	<b>0.273</b>
Health. social	<b>-0.108</b>	<b>0.204</b>	<b>0.145</b>	-0.024	<b>-0.163</b>	<b>-0.071</b>	<b>0.102</b>
Others	-0.032	<b>0.112</b>	<b>0.167</b>	-0.013	<b>-0.064</b>	<b>0.077</b>	0.013

Table 6:

*(Continue)*

	Pay	Stability	Type	Hours	Timing	Condition	Distance
<b>Job status (re: non-supervisory)</b>							
Supervisor	<b>0.095</b>	<b>0.171</b>	<b>0.211</b>	<b>-0.071</b>	<b>0.078</b>	<b>0.191</b>	<b>0.139</b>
Intermediate	<b>-0.033</b>	<b>0.146</b>	<b>0.109</b>	<b>-0.033</b>	0.018	0.011	<b>0.049</b>
<b>Contract type (re: permanent)</b>							
<6 months	<b>0.132</b>	<b>-1.808</b>	<b>-0.283</b>	<b>-0.116</b>	<b>-0.153</b>	-0.048	<b>-0.236</b>
6-11 months	0.039	<b>-1.510</b>	<b>-0.064</b>	<b>-0.113</b>	-0.049	0.019	<b>-0.174</b>
12-23 months	-0.049	<b>-1.470</b>	<b>-0.074</b>	<b>-0.116</b>	-0.033	0.034	<b>-0.163</b>
24+ months	-0.057	<b>-1.150</b>	-0.007	<b>-0.111</b>	<b>-0.106</b>	-0.001	<b>-0.258</b>
no contract	<b>-0.088</b>	<b>-1.394</b>	<b>-0.238</b>	<b>-0.311</b>	<b>-0.088</b>	-0.064	<b>-0.182</b>
Others	0.020	<b>-0.910</b>	0.036	0.042	0.044	<b>0.145</b>	-0.078
<b>Subsidy (re: no)</b>							
yes	0.018	<b>0.107</b>	<b>0.027</b>	<b>0.027</b>	<b>0.038</b>	0.015	0.010
<b>Over-qualified (re: no)</b>							
yes	<b>-0.248</b>	<b>-0.089</b>	<b>-0.194</b>	<b>-0.084</b>	<b>-0.085</b>	<b>-0.133</b>	<b>-0.073</b>
<b>Job match (re: bad)</b>							
Good	<b>0.179</b>	<b>0.082</b>	<b>0.427</b>	<b>0.126</b>	<b>0.101</b>	<b>0.233</b>	0.030
Fair	<b>0.105</b>	0.000	<b>0.193</b>	0.016	0.021	<b>0.117</b>	-0.029
<b>Unemployment rate</b>	0.022	<b>-0.317</b>	-0.010	<b>0.805</b>	0.011	-0.017	-0.030
<b>Country (re: Germany)</b>							
Denmark	<b>0.234</b>	<b>0.161</b>	<b>0.151</b>	<b>0.434</b>	<b>0.232</b>	<b>0.232</b>	<b>0.241</b>
Netherlands	<b>0.496</b>	0.063	<b>0.161</b>	<b>0.451</b>	<b>0.160</b>	<b>-0.174</b>	<b>0.220</b>
Belgium	<b>0.325</b>	<b>0.168</b>	<b>0.147</b>	-0.029	<b>0.093</b>	0.025	<b>0.095</b>
Luxembourg	<b>0.141</b>	-0.069	<b>0.240</b>	<b>1.269</b>	<b>0.164</b>	<b>0.156</b>	<b>0.252</b>
France	<b>-0.177</b>	<b>0.095</b>	<b>0.153</b>	<b>-1.760</b>	<b>-0.295</b>	<b>-0.122</b>	-0.022
UK	0.068	-0.079	-0.060	<b>0.167</b>	<b>-0.161</b>	<b>0.154</b>	-0.145
Ireland	<b>0.084</b>	<b>0.389</b>	<b>0.261</b>	<b>0.157</b>	<b>0.226</b>	<b>0.297</b>	<b>0.280</b>
Italy	<b>-0.130</b>	<b>0.192</b>	<b>0.092</b>	<b>-0.614</b>	<b>-0.390</b>	<b>-0.192</b>	<b>-0.459</b>
Greece	<b>0.069</b>	<b>0.187</b>	<b>-0.129</b>	<b>-0.672</b>	<b>-0.522</b>	<b>-0.304</b>	<b>-0.571</b>
Spain	<b>-0.172</b>	<b>0.445</b>	<b>0.095</b>	<b>-0.852</b>	<b>-0.214</b>	<b>-0.077</b>	<b>-0.312</b>
Portugal	<b>0.112</b>	<b>-0.084</b>	-0.014	<b>-0.104</b>	<b>-0.347</b>	<b>-0.156</b>	<b>-0.573</b>
Austria	<b>0.506</b>	<b>0.304</b>	<b>0.520</b>	<b>0.875</b>	<b>0.471</b>	<b>0.534</b>	<b>0.226</b>
Finland	<b>0.307</b>	<b>0.283</b>	-0.032	<b>-0.401</b>	<b>0.161</b>	<b>0.087</b>	0.019
<b>Year (re: 2001)</b>							
1995	<b>-0.141</b>	<b>0.089</b>	<b>0.056</b>	<b>-0.720</b>	0.032	0.019	<b>0.073</b>
1996	<b>-0.120</b>	0.040	<b>0.045</b>	<b>-0.678</b>	0.008	0.018	<b>0.067</b>
1997	<b>-0.103</b>	<b>0.066</b>	0.028	<b>-0.322</b>	-0.017	0.004	0.006
1998	<b>-0.069</b>	<b>0.080</b>	0.027	<b>-0.260</b>	0.007	0.021	0.020
1999	<b>-0.053</b>	<b>0.065</b>	0.016	<b>-0.158</b>	-0.014	0.024	0.019
2000	<b>-0.048</b>	<b>0.064</b>	0.015	<b>-0.042</b>	0.010	<b>0.035</b>	-0.011
<b>Constant</b>	<b>1.948</b>	<b>4.485</b>	<b>3.751</b>	<b>2.858</b>	<b>4.355</b>	<b>4.025</b>	<b>4.613</b>
Observations	129,963	129,900	129,938	129,878	129,836	129,909	129,887
Number of clusters	45,738	45,729	45,738	45,732	45,721	45,739	45,737
Adjusted-R2	0.20	0.21	0.12	0.23	0.13	0.09	0.07

## 5. Cross-country Differences in Wage Effect

As we have seen in Table 3, wage has no effect on overall job satisfaction in Denmark and the Netherlands while it has large effects in the Mediterranean countries. To explore the issue further, we examine the wage effect on each job domain satisfaction across country. Table 7 shows the wage effect on each domain satisfaction for each country. First, wage affects pay satisfaction in all countries (including Denmark and the Netherlands) by a similar magnitude. Therefore, we reject the hypothesis that wage is not important in these countries. On the other hand, in Denmark and the Netherlands, wage has no effect on the satisfaction in other job domains except for the distance to job, while it has significant positive effects in other countries. With respect to the satisfaction with the distance to job, wage has substantial and negative effect in Denmark, the Netherlands, Austria and Finland while in other countries the effect is much smaller.

Now, combining the effect of wage on each job domain satisfaction which jointly explain a major part of overall job satisfaction, we suggest that the lack of wage effect on overall job satisfaction in Denmark and the Netherlands is due to following three factors: (i) the lack of wage effect on the satisfaction in job domains other than pay, (ii) compensating negative wage effect on distance to job satisfaction in these two countries, and (iii) the effect of pay satisfaction on overall job satisfaction (Table 5) is smaller in these two countries than in others. The question why wage affects each job domain satisfaction differently in different countries remains to be explored. Our conjecture at this point is that it seems that the degree of wage capturing the effect of uncontrolled job characteristics which affect the satisfaction in other job domains is weaker in Denmark and the Netherlands than in other countries. On the other hand, the link between higher wage and higher opportunity cost (therefore, less satisfaction with distance to work) seems to be stronger in these two countries than others.

**Table 7: Wage Effect on Each Job Domain Satisfaction**  
(First number: coefficient; second number: standard errors)

	Pay	Security	Type	Hours	Timing	Condition	Distance	Overall
<b>Austria</b>	<b>0,986</b>	<b>0,134</b>	<b>0,058</b>	<b>0,134</b>	<b>0,106</b>	<b>-0,103</b>	<b>-0,355</b>	<b>0,077</b>
	0,074	0,059	0,044	0,057	0,052	0,051	0,073	0,033
<b>Denmark</b>	<b>0,980</b>	<b>-0,090</b>	<b>0,002</b>	<b>0,040</b>	<b>0,120</b>	<b>-0,012</b>	<b>-0,659</b>	<b>0,015</b>
	0,095	0,097	0,067	0,091	0,104	0,073	0,108	0,067
<b>Netherlands</b>	<b>0,674</b>	<b>0,039</b>	<b>-0,040</b>	<b>0,085</b>	<b>0,003</b>	<b>-0,092</b>	<b>-0,265</b>	<b>0,021</b>
	0,036	0,036	0,028	0,030	0,030	0,032	0,038	0,023
<b>Finland</b>	<b>1,139</b>	<b>0,451</b>	<b>0,208</b>	<b>0,041</b>	<b>-0,115</b>	<b>-0,011</b>	<b>-0,247</b>	<b>0,267</b>
	0,088	0,082	0,057	0,081	0,083	0,063	0,087	0,061
<b>Belgium</b>	<b>1,122</b>	<b>0,280</b>	<b>0,075</b>	<b>0,204</b>	<b>0,095</b>	<b>0,005</b>	<b>-0,134</b>	<b>0,199</b>
	0,084	0,090	0,070	0,079	0,084	0,078	0,095	0,064
<b>France</b>	<b>0,738</b>	<b>0,119</b>	<b>0,062</b>	<b>0,076</b>	<b>0,068</b>	<b>0,099</b>	<b>-0,204</b>	<b>0,123</b>
	0,044	0,045	0,036	0,032	0,040	0,040	0,058	0,033
<b>Ireland</b>	<b>1,010</b>	<b>0,420</b>	<b>0,133</b>	<b>0,090</b>	<b>-0,050</b>	<b>0,043</b>	<b>-0,085</b>	<b>0,175</b>
	0,077	0,065	0,054	0,063	0,062	0,058	0,067	0,057
<b>Germany</b>	<b>0,851</b>	<b>0,292</b>	<b>-0,010</b>	<b>0,201</b>	<b>0,008</b>	<b>-0,063</b>	<b>-0,187</b>	<b>0,153</b>
	0,060	0,070	0,050	0,058	0,057	0,053	0,072	0,051
<b>Italy</b>	<b>1,281</b>	<b>0,528</b>	<b>0,332</b>	<b>0,128</b>	<b>-0,033</b>	<b>0,047</b>	<b>-0,160</b>	<b>0,450</b>
	0,077	0,078	0,066	0,076	0,077	0,074	0,099	0,069
<b>Greece</b>	<b>1,158</b>	<b>0,460</b>	<b>0,168</b>	<b>0,223</b>	<b>0,038</b>	<b>0,028</b>	<b>-0,004</b>	<b>0,515</b>
	0,060	0,068	0,062	0,066	0,077	0,077	0,087	0,063
<b>Spain</b>	<b>1,098</b>	<b>0,351</b>	<b>0,086</b>	<b>0,194</b>	<b>0,057</b>	<b>0,013</b>	<b>-0,036</b>	<b>0,240</b>
	0,049	0,050	0,041	0,047	0,046	0,047	0,055	0,042
<b>Portugal</b>	<b>0,846</b>	<b>0,323</b>	<b>0,147</b>	<b>0,023</b>	<b>-0,072</b>	<b>0,063</b>	<b>-0,037</b>	<b>0,282</b>
	0,064	0,073	0,055	0,058	0,060	0,059	0,082	0,051

Note: Other included variables are the same as in Table 6.

## 6. Conclusions

Job satisfaction is an important part of overall life satisfaction among the working age population. We examined Western Europeans' overall job satisfaction and the satisfaction levels in several job domains using the European Community Household Panel Survey (1994-2001) for those who worked more than 15 hours a week. Several interesting results have emerged.

First, there are substantial differences in average job satisfaction across country: Danish and Austrians declare more than one full point (in 1 to 6 scale) higher job satisfaction levels than Greeks and Portuguese. This difference remains even after controlling for important worker and job characteristics, which suggests some intrinsic differences across country, such as culture or preferences.

Second, with respect to overall job satisfaction, wage is important. Yet, some other factors show equally or more important effects. For example, health turns out to be the single most important determinant of overall job satisfaction. Job match quality, contract type, job status are also important. Some cross-

country differences are observed. For example, wage has no effects among Danish and Dutch workers, while it is very important in the Mediterranean countries. Similar results are observed with respect to contract type. The lack of the wage effect in these two countries appears to be due to the compensating negative effect on the satisfaction in other job domains, such as distance to job.

Third, the analysis of job domain satisfaction adds some interesting findings. In determining overall job satisfaction, work type stands out as the most important job domain in all countries, followed by pay, working condition and job security. In analyzing the determinants of each job domain satisfaction, we find, as expected, wage as predominant factor in pay satisfaction, contract type in job security satisfaction, hours or work in work hour satisfaction.

There are some other interesting findings. Female workers declare higher pay satisfaction but lower work hour satisfaction, which is consistent with the hypothesis of lower labor market aspiration and greater non-market responsibility among women. Good job matches increase the satisfaction levels in all job domains, but in particular with respect to pay and work type. As expected, those in a country or times of high unemployment declare much lower satisfaction with job security. On the other hand, local unemployment rate increases substantially the satisfaction with hours of work. This seems to suggest that those in higher unemployment regions or times appreciate more their employment (or amount of work). Even after controlling many variables which are responsible, directly and indirectly, for each job domain satisfaction, there still remain large country fixed effects. Given the same observed worker and job characteristics, Austrian, Danish and Irish workers declare substantially higher satisfaction in all job domains than the workers in the Mediterranean countries. This remains as a future research agenda.

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## APPENDIX

Table A.1: Sample Means

Variable	Mean	Variable	Mean	Variable	Mean
<i>Job satisfaction</i>		<i>Wage</i>		<i>Job status</i>	
Overall	4.625	Hourly (log)	2.015	Supervisor	0.133
Pay	3.976	<i>Hours of work</i>		Intermediate	0.202
Job security	4.622	15-19	0.028	Non-supervisor	0.665
Work type	4.748	20-24	0.057	<i>Contract type</i>	
Hours	4.383	25-29	0.030	Permanent	0.878
Timing	4.653	30-34	0.065	<6 months	0.016
Condition	4.471	35-39	0.321	6-11 months	0.030
Distance	4.595	40-44	0.315	12-23 months	0.018
<i>Age</i>		45-49	0.072	24+ months	0.012
16-25	0.110	50+	0.111	No contract	0.013
26-35	0.303	<i>Occupation</i>		Others	0.024
36-45	0.303	Manager	0.068	<i>Fringe benefit</i>	
46-55	0.226	Profesionals	0.216	Yes	0.684
56-65	0.056	Technicians	0.217	No	0.316
66+	0.002	Clerks	0.163	<i>Overqualified</i>	
<i>Education</i>		Service workers	0.108	Yes	0.556
low	0.332	Skilled agr.fisherly	0.009	No	0.444
High	0.386	Craft.	0.124	<i>Job match</i>	
Middle	0.272	Machine op.	0.059	Good match	0.584
<i>Gender</i>		Elementary	0.037	Fair match	0.292
Male	0.559	<i>Industry</i>		Bad match	0.124
Female	0.441	Agri. fish. fore	0.014	<i>Unemp. rate</i>	
<i>Health</i>		Mining	0.018	Year	1.992
Very good	0.299	Manufacturing	0.179	<i>Year</i>	
Good	0.534	Construction	0.057	97.734	
Fair	0.150	Wholesale	0.099		
Bad/very bad	0.017	Hotel+rest	0.023		
		Trasport	0.062		
		Finance	0.050		
		Real estate	0.074		
		Public admin.	0.105		
		Education	0.128		
		Health. social	0.144		
		Others	0.046		

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