Unionization and Job Quality Nexus: Multi-Country Empirical Evidence from Objectivist Approach

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ABSTRACT

Adopting an objectivist approach and using a 9-year (2005-2013) unbalanced panel data set of 34 OECD countries, this paper investigates what affect the job quality dimensions, namely earnings (salary, wage) quality, labor market security and quality of working environment with a specific focus on the contribution of unionization density of employees. The other variables expected to affect job quality are employment in services, overall unemployment rate, and education-based human capital proxies. Results from analysis of variance and t-test together reveal that three dimensions of job quality significantly vary over age, occupational level, and gender that together affirm demographics matter for job quality. Panel regression analysis results indicate that trade union density is positively associated with labor market security and working environment quality, whereas earning returns of unionization is found insignificant. Other evidence found in the study are contributions of services sectors and human capital and considerable threat effect of overall unemployment towards job quality.

Keywords: Union density, job quality, demographics, objectivist approach

JEL Codes: C33, J51, J80

1. INTRODUCTION

Since employees spend a considerable amount of their time at work, their working conditions and more specifically job quality, along with its determinants, permanently remain in the focus of many scholars' attention (Tangian, 2007). One question is what trade unions, that seem to have been weakened since the 1970s in many countries do for improving the overall job quality in countries.

Trade unions are groups of employees who come together to maintain and/or improve their terms and conditions, through collective bargaining with employers or with representatives of other parties like governmental institutions. Unions develop positive externalities for the overall working environment by negotiating for not only their members but also for the non-members, even for unemployed people. In practice, main bargains and negotiation processes between union and employers or other interest groups are about national minimum wage, worker safety, shorter working hours, paid parental/maternity leave, reduction in exploitation, minimum holiday and excuse entitlements, the absence of gender discrimination, unemployment insurance, *etc.* Moreover, unions make many local agreements and organize activities on issues affecting general workplaces in societies (Freeman & Medoff, 1984; Verma, 2005; Coats & Lekhi,

2008; Dawkins, 2010; Isles, 2010; Visser, 2015). Beyond these benefits, union protection becomes more important especially in crises times, where employees can lose many interests, even their jobs (Leschke *et al*., 2012). Consequently, it is expected that dense union activities in a country somehow improve employees' conditions regardless of they are the member or not protecting and benefiting them in many ways keeping employers controlled by a collective voice.

The longstanding interest in the literature exploring the determinants of job quality seems to have failed to explain the persistent cross-country differences in job quality because they are commonly based on the subjective perceptions of employees on how good their jobs are (Green, 2007; Holman, 2011). The subjectivity is questionable that makes it hard to find globally comparable measurements and evaluations of job quality. Moreover, the subjectivist approach is confined to a very limited size of the sample and thus, the results based on the subjectivist approach are seen controversial.

Adopting an objectivist approach and using a sample covering a 9-year (2005-2013) unbalanced panel data set of 34 OECD member countries[1], this paper seeks answers to two questions: do demographic characteristics matter for job quality? (micro-level) and does trade union density improve job quality? (macro-level). Therefore, the study has two stages that first it tests whether the objective job quality measures that the OECD (2017) arranges into three main groups as earnings quality, labor market security and quality of the working environment change over gender, age, and occupational level. In the second part, to explore the effect of trade union density, the study estimates a panel regression model in which the other variables expected to affect the job quality are employment share of services, overall unemployment rate, and education-based human capital proxies are also added.

In the remainder of the study, the next section summarizes the conceptual framework and the evidence in the existing empirical literature on the topic. Then, the following section briefly explains hypotheses and introduces variables, and data. After the analysis procedures and the results of micro-level and macro-level techniques are presented respectively, the study concludes with some discussion of the estimated results in the final section.

2. CONCEPTUAL FRAMEWORK AND RELATED LITERATURE

One of the main indicators of working environment is job quality that contains many aspects within the hiring and firing processes of employees. In the interdisciplinary literature on the factors affecting the job quality, there are two main strands that some micro-level studies investigate individual factors based on employee differences and organizational characteristics. Main interests include the demographics, health, employment status, working time duration and learning and training, physical and psychosocial risk factors, health and safety, work-life balance, job security, worker participation, earnings, and financial security, as well as discrimination across gender,

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[1] The OECD countries included in the sample are *Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.* Country selection is based on data availability.

age, and experiences. Consistently, several foundations also provide some indices for these indicators (Tangian, 2007; ETUI, 2017; Eurofound, 2017; OECD, 2017).

On the other hand, the second strand generally consists of multi-country studies and underlines the country-specific factors aggregated from individual indicators (Simões *et al.,* 2015). The vast literature exploring the determinants of job quality, however, seems to have has failed to explain the persistent cross-country differences in job quality. The main reason for this lack is that the concept of job quality has both subjective and objective perceptions by definition. The subjectivist side is the extent to which jobs meet employees' expectations. Therefore, in the subjectivist approach, job quality is entirely based on an employees' subjective evaluations of their jobs and therefore job satisfaction represents a measure of the utility they receive from work (Holman, 2011). The subjectivity is questionable because if makes it hard to find globally comparable measurements of job quality.

The objectivist perspective points out that the subjectivist approach overestimates the importance of employee preferences and evaluations that are generally obtained through surveys. The objectivist approach considers observable and measurable indicators like wages and payment system, security and flexibility, skill development and work organization (Green, 2007). One of the objective indicators of job quality is the ability of collective representation and voice which can be efficiently accomplished through trade union agreements (Vidal & Kusnet, 2009; Holman, 2011). Consistently, the decline in the union power has been accompanied by increased productivity and thus higher competitiveness in many developed countries. More specifically, it has been observed that minimum wage declined as the unionization has been weakened in many countries especially in the 1980s and 1990s (Millward *et al.*, 2001; Green, 2007). In more specific cases, it is also indicated that deregulation and de-unionization drive down job quality and therefore, national union agreements improved wages and working conditions by raising standards for skills and wages, cleaning up dangerous conditions and bringing fairness and stability in miscellaneous jobs (Vidal & Kusnet, 2009).

Related to the job quality indicators, both employees and employers, especially in the developed countries as most OECD-members are, adhere to prescribed labor standards that are regulated either by law or collective bargaining agreements. Admittedly, the unions have important functions in these benefits depending on their negotiation powers. Therefore, the theoretical frameworks established by some empirical studies point to the premise that the density of union leads to a higher job quality proxied by various indicators (Verma, 2005; Simms, 2017). However, the evidence in the related literature that unionization can cause dissatisfaction with job and therefore lower organizational commitment (Borjas, 1979; Hammer & Avgar, 2005; Bryson *et al*., 2010) points to members' higher expectations of union premium and underlines the importance of exploring the linkages between unionization and job quality.

Unionization theories indicate two possible adverse effects that even union activities can bring tensions and conflicts at the workplace, on the other hand, unions may also benefit both employees and employers by improving information flows, offering workers 'voice', tackling problems in the workplace, and promoting more efficient management (Bryson & Forth, 2010). Studies investigating the job quality-unionization nexus focus on these two impacts within objectivist and subjectivist approaches. Studies with subjective

approach usually use survey-based data collected by different organizations among both employees and employers.

Analyzing the data from Workplace Employment Relations Surveys collected in 2004, Bryson and Forth (2010), concluded that strong workplace unionization is associated with poorer employee perceptions of climate, confirming that unionized workplaces are less harmonious than non-union ones. They also note that this effect can vary depending on the sector ownership, *i.e.* public or private sectors, that in the private sector at least, strong unions can deliver benefits to both employees and employers in terms of quality of employment relations. On the debate about whether unions are necessary, Charlwood and Terry (2007) analyzed a survey data similar to that of Bryson and Forth (2010), and found that notwithstanding the continuing decline in the diffusion of the traditional union-based model of workplace representation, union presence is still a prerequisite for effective representation, while pure non-union forms serve neither employee nor employer interests. Likewise, using a survey-based data of union members in the United Kingdom's finance sector, Hoque *et al.*, (2014) found that employee perceptions of several dimensions of job quality are better where an onsite representative is present.

There are studies using both objective (administrative) and subjective (survey-based) data, that Blanchflower (1996) compared the role of trade unions in the United States with those of in 18 other OECD countries and found that the declines in union density experienced in the United States since 1970s were higher than those in other OECD countries. However, who belong to unions had many similarities across countries. Moreover, the author found that the union-nonunion wage differential in the United States was approximately 15%, which had remained roughly constant over time. Unions in most other countries appeared to raise wages by less and in general, unions reduced total hours of work. Similarly, Blanchflower and Bryson (2004), estimated trends in the union wage premium over the post-1970s period in the United Kingdom and the United Sates and they identified a decline in the union membership wage premium in these countries.

Within the context of demographics, based on a micro-level and using data from the European Working Conditions Survey, covering 27 countries, Simões *et al.,* (2015) analyzed the determinants of job quality. They found that variables related to age, education, dimensions of the firm, and economic sector are those in which more heterogeneity is found among countries. As their results revealed, country homogeneity is an important challenge that multi-country studies confront with. In our case, however, the variable of employment share of services sector that countries are expected to have higher values as their development level increases can control for the possible heterogeneity in terms of job quality between OECD countries. This study purposes to contribute to the literature, empirically testing the influences of trade union density together with the demographics, employment structure, and education based human capital with both micro-level and macro-level analyses. Because of the limitations of the subjectivist approach, this study adopts an objectivist approach using globally generalizable country-level composite indicators.

3. HYPOTHESES, VARIABLES, AND DATA

The term of job quality has many aspects that can be grouped into three as i) earnings quality, ii) labor market security, and iii) quality of the working environment. This study aims to explore the extent to which these quality indicators vary over demographics in

country-level. Accordingly, the first hypothesis establishes relationships between job quality dimensions and country-level demographics and therefore, the results can be interpreted as the demographic determinants of job quality but in an objective view. In macro-approach, the second hypothesis tests whether overall indicators affect job quality. Therefore, the hypotheses are established as follows:

H_1 : *The level of job quality distinguished between earnings quality, labor market*

   security, and quality of working environment vary over demographics.   (1)

H_2 : *The density of trade union improves job quality measured by earnings quality,*

   labor market security, and quality of the working environment.

Measuring and assessing job quality is a hard challenge for business scholars. Moreover, evaluating the contribution of unionization on job quality is more difficult since there is no consensus and internationally comparable and objective data. Recently, some organizations like OECD provide internationally comparable data sets for the topic to fill the gap. OECD (2017)'s data sets on the job quality and the trade union have enabled researchers to examine the nexus empirically. The variables used in the study, their descriptions and sources are shown in Table 1.

Table 1. Variables, Descriptions, and Sources

Variable	*Description*	*Source*
earnq	*Earnings quality.* Hourly average earnings measured by wages and salaries. In constant prices and at constant purchasing power parities. ***Higher values correspond a better earning quality.***	
labminsec	*Labor market insecurity.* Expected earnings loss associated with unemployment. Percentage. This loss depends on the risk of becoming unemployed, the expected duration of unemployment and the degree of mitigation against these losses provided by government transfers to the unemployed (effective insurance). ***Higher values indicate more insecurity.***	OECD, 2017
pqworken	*Poor quality of working environment.* The incidence of job strain among workers. Percentage. Job strain consists of i) high level of work demands (time pressure, physical health risk factors) and ii) low level of job resources (work autonomy and learning opportunities, social support at work). ***Higher values mean a poorer quality of working environment.***	
tudens	*Trade union density.* The ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners.	
seremp	Employment in services. Employment share of the services sector. Percentage of total employment. Employment is defined as persons of working age who were engaged in any activity to produce goods or provide services for getting payment or profit. The services sector consists of i) wholesale and retail trade and restaurants and hotels, ii) transport, storage, and communications, iii) financing, insurance, real estate, and business services; and iv) community, social, and personal services.	WB WDI, 2017

unemp	Unemployment rate. Percentage of total labor force. Unemployment refers to the share of the labor force that is currently jobless but available for and seeking works.	
hc	Human capital index. Based on years of schooling and returns to education.	Feenstra *et al.*, 2015

Note: All the variables are expressed in the natural logarithmic form (*ln*).

Beside the unionization, the other observation in both objective and subjective views is the diversification of job quality over sectors. New service sector workplaces, mostly untouched by unionism, has been seemingly replacing older workplaces, often in manufacturing, where unions had been well established (Millward *et al.*, 2001). Survey based research show that recently, the increase in the number of jobs has been largely confined to the service sector. The growth of service sectors is subsequently accompanied by a decline in traditional agricultural and industrial sectors. Moreover, this trend is valid in not only developed countries that recently some developing countries have a path to service sector-intensive employment structure in their business environments (Holman, 2011). Even some studies have explored the sectoral differences in job quality, they have not considered the employment share of specifically service sectors where most of the new workers are employed.

The other variable is the overall unemployment rates. Intuitively, the crowd of jobless people is seen a threat to the insiders (currently employed people) to be replaced by outsiders (unemployed people). In this threat effect of unemployment, an important factor is the easiness of firing employees depending on the turnover costs that can also be increased by union activities.

Another determinant of employees' job qualities is how much they are skilled. Skill level can be obtained by education and training based human capital indicators. Education and training represent a key element in improving better matching between skill demand and supply, and in enlarging young people's labor market opportunities. Education and on-the-job training is also one of the most important domains that trade unions bargain in a social context (ETUC, 2012). Most part of the studies uses education like average years of schooling or educational attainment at different levels, namely primary, secondary, and tertiary schooling. However, these indicators consider just the quantity and ignore the quality of education. Whereas, today's worldwide-accepted suggestion underlines that quality education is necessary for quality jobs. Considering this premise, the human capital index is aimed to embody both the average years of schooling and rates of return on education as calculated by Feenstra *et al.* (2015). The latter one is a good proxy for the quality of education and it can capture transitions from school to work. Since we focus on the education, the other indicators of human capital like health, skill, professional knowledge, technology adaptation, creativeness *etc.* are ignored.

4.   MICRO-LEVEL   ANALYSIS   (HYPOTHESIS-I):   DIFFERENCES   IN DEMOGRAPHICS

In this section, the variations among demographics, namely age, occupational level, and gender, are tested statistically in the independent-samples *t-test* and analysis of variance (ANOVA) *F-test* procedures. The *t-test* is used determine whether the means of two

unrelated groups, women and men in our case, are significantly different while the latter one, the *F-test*, can determine whether the means of three or more groups are different (Field, 2009). The *t-test* is a very versatile statistic that it can be used to test whether the coefficients of a correlation and regression are different from zero. Moreover, it can also be conducted to test whether two group means are different as we do in our case. The *t-tests* (both independent and dependent) are parametric tests based on the normal distribution. Therefore, they assume i) the sampling distribution is normally distributed and ii) data are measured at least at the interval level. The independent *t-test,* because it is used to test different groups of units also assumes i) variances in these populations are roughly equal (homogeneity of variance) and ii) scores are independent (because they come from different units) (Field, 2009: 326). The units are the countries in our sample with aggregated data.

When the number of groups is three or more, ANOVA F-test is used to test whether the means of three or more groups are different. However, it cannot capture in which pairs of groups the differences are. There are several multiple comparison procedures that have been specially designed for the situations where population variances differ as in our case. *Dunnett's T3* tightly controls for type-1 error (the incorrect rejection of a true null hypothesis) (Field, 2009: 79, 349, 353, 374). The *F* and the *t* statistics test the null hypothesis that the variances in different groups are equal or not.

The demographics are gender, age, and the occupational levels. In OECD (2017)'s calculations, occupational level is used as a proxy for skill and education levels and thus, education-based skill level and occupational level are used interchangeably in the study. Consequently, following OECD (2017)'s conceptual framework, results obtained from the *t-test* and the *F-test* for occupational levels can also be interpreted within the education and skill level contexts. The *t* and *F-tests* results followed by *Dunnett T3* affirmations are reported in following tables.

Table 2. Differences in Gender: *t-test* Results, *(Education and Age=All)*

Dimension	*Gender*	*Mean*	*Standard deviation*	*t*	*Probability (p)*	*N*
Earnings quality (earnq)	Male	21.97	8.403	2.139	0.033**	222
	Female	18.72	7.456			
Labor market insecurity (labminsec)	Male	6.683	6.478	0.621	0.535	214
	Female	6.417	7.171			
Poor quality of the working environment (pqworken)	Male	45.795	12.858	2.443	0.015**	55
	Female	40.624	12.916			

Notes: *, ** and *** indicate statistical significance at the levels of 10% (p<0.10), 5% (p<0.05), and 1% (p<0.01), respectively. The number of observations (N) is *n*x*T*, where *n* and *T* are the numbers of countries and years, respectively in unbalanced panel data.

The significant *t*-statistics in Table 2 infer a gender discrimination against women in earnings quality, whereas women work in a better working environment compared to the men. Notwithstanding, it seems that there is no significant gender disparity in labor market security. Results from the *F-test* identifying the differences in age groups are presented in Table 3.

Table 3. Differences in Age: *F-test* Results, *(Education and Gender=All)*

Dimension	Age	Mean	Standard deviation	F	p	N
Earnings quality *(earnq)*	15-29	14.919	5.242			
	30-49	21.615	8.377	2.978	0.052*	222
	50-64	22.536	9.061			
Labor market insecurity *(labminsec)*	15-29	12.550	12.513			
	30-49	5.202	5.062	5.773	0.000***	214
	50-64	4.435	4.062			
Poor quality of the working environment *(pqworken)*	15-29	45.701	11.900			
	30-49	42.833	12.152	1.094	0.342	55
	50-64	41.552	12.199			

Notes: *, ** and *** indicate statistical significance at the levels of 10% ($p<0.10$), 5% ($p<0.05$), and 1% ($p<0.01$), respectively. The number of observations (N) is nxT, where n and T are the numbers of countries and years, respectively in unbalanced panel data.

F-test results in Table 3 demonstrate that there are significant differences within age groups in two aspects: First, the youngest age group has the lowest earnings and as the age groups get older, the earning quality increases. Second, as the age interval goes up, the insecurity steps down. However, the *F-test* cannot capture which age groups really cause these differences. In order to determine pairwise differences, the *Dunnett T3* test is employed and the results are presented in Table 4.

Table 4. Pairwise Comparison of Differences in Age Groups: *Dunnett T3* Test Results

Dimension	A (age)	B (age)	Mean differences (A-B)	Standard error	p	N
Earnings quality *(earnq)*	15-29	30-49	-6.696	0.059	0.017**	
		50-64	-7.617	0.193	0.000***	222
	30-49	50-64	-0.921	0.316	0.256	
Labor market insecurity *(labminsec)*	15-29	30-49	7.348	0.146	0.052*	
		50-64	8.115	0.053	0.020**	214
	30-49	50-64	0.767	0.007	0.717	

Notes: *, ** and *** indicate statistical significance at the levels of 10% ($p<0.10$), 5% ($p<0.05$), and 1% ($p<0.01$), respectively. The number of observations (N) is nxT, where n and T are the numbers of countries and years, respectively in unbalanced panel data.

The *Dunnett T3* test results in the table affirm the *F-test* results that the youngest age group, 15-29, has the lowest earnings quality compared to the other groups. The difference between the age groups of 30-49 and 50-64 found in the *F-test* is not statistically significant. Considering together with the *F-test* results, it is revealed that the youngest group has a relatively insecure labor market compared to the other groups. Again, the difference of the labor market insecurity between 30-49 and 50-64 age groups is not statistically significant.

The *F-test* results seen in Table 5 reveal that there are significant differences in all three dimensions of job quality over occupational levels. In this regard, earning quality

increases while labor market insecurity and the proxy for poor quality of the working environment (job strain) decreases as occupational levels ascend.

Table 5. Differences in Occupational Levels: *F-test* Results, *(Age and Gender=All)*

Dimension	Occupational level	Mean	Standard deviation	F	p	N
Earnings quality (*earnq*)	Low	15.328	6.572			
	Medium	18.635	7.337	2.784	0.064*	222
	High	26.260	8.956			
Labor market insecurity (*labminsec*)	Low	12.010	11.954			
	Medium	6.525	6.698	4.817	0.009***	214
	High	3.903	3.691			
Poor quality of the working environment (*pqworken*)	Low	62.221	11.357			
	Medium	40.734	11.177	3.681	0.032**	55
	High	29.911	10.930			

Notes: *, ** and *** indicate statistical significance at the levels of 10% ($p<0.10$), 5% ($p<0.05$), and 1% ($p<0.01$), respectively. The number of observations (N) is nxT, where n and T are the numbers of countries and years, respectively in unbalanced panel data.

Again, for identifying which group(s) causes this difference, *the Dunnett T3* test is conducted and the results reported in Table 6.

Table 6. Pairwise Comparison of Differences in Occupational Levels: *Dunnett T3* Test Results

Dimension	A (Occupational level)	B (Occupational level)	Mean differences (A-B)	St. error	p	N
Earnings quality (*earnq*)	low	Medium	-3.307	0.018	0.020**	
		High	-10.932	0.004	0.000***	234
	Medium	High	-7.625	0.509	0.016**	
Labor market insecurity (*labminsec*)	low	Medium	5.485	0.011	0.008***	
		High	8.107	0.042	0.000***	225
	Medium	High	2.622	0.006	0.027**	
Poor quality of the working environment (*pqworken*)	low	Medium	21.487	0.118	0.000***	
		High	32.310	0.003	0.000***	55
	Medium	High	10.823	0.131	0.093*	

Notes: *, ** and *** indicate statistical significance at the levels of 10% ($p<0.10$), 5% ($p<0.05$), and 1% ($p<0.01$), respectively. The number of observations (N) is nxT, where n and T are the numbers of countries and years, respectively, in unbalanced panel data.

As seen in Table 6, all the statistics are statistically significant at levels ranging from 1% to 10%. Thus, it is confirmed that earning quality increases, labor market insecurity decreases and poor quality of the working environment proxied by job strain improves as the occupational levels (proxies of education and skill levels) ascend. This finding underlines the education-based skill premium. The overall results from micro-level analyses support the hypothesis-I that there are significant changes in job quality

measurements across individual demographics. For testing the hypothesis-II, the procedure of macro-level panel regression analysis is followed.

5. MACRO-LEVEL ANALYSIS (HYPOTHESIS-II): PANEL REGRESSION ESTIMATION

The hypothesis-II tests the macro-level determinants of job quality. As previously explained, unionization theories indicate union activities can make the employees both better-off or worse-off from several intra-organizations reasons. Despite this two-way internal effects in business organizations, unionization density, added in the model as the main explanatory variable, is expected to be contributing, or neutral at worst, to overall job quality in countries. Establishing the hypothesis-II in panel data framework, we have three regression models as follows:

$$1)\ ln(earnq)_{it} = a_0 + a_1 ln(tudens)_{it} + a_2 ln(seremp)_{it} + a_3 ln(unemp)_{it} + a_4 ln(hc)_{it} + u_{it}$$

$$2)\ ln(labminsec)_{it} = b_0 + b_1 ln(tudens)_{it} + b_2 ln(seremp)_{it} + b_3 ln(unemp)_{it} + b_4 ln(hc)_{it} + e_{it} \qquad (2)$$

$$3)\ ln(pqworken)_{it} = q_0 + q_1 ln(tudens)_{it} + q_2 ln(seremp)_{it} + q_3 ln(unemp)_{it} + q_4 ln(hc)_{it} + e_{3it}$$

$$(i = 1,...,34; \quad t = 2005,...,2013)$$

Where all variables are as previously defined in Table 1. The series were transformed into the natural logarithmic forms (*ln*) and *earnq*, *labminsec* and *pqworken* are earnings quality, labor market insecurity, and poor quality of the working environment, respectively; *i* and *t* denote the countries and years, while α_0, β_0, and θ_0 are country-specific intercepts. The error terms, u_{it}, e_{it}, and ε_{it} comprise cross-sectional and temporal influences of all other factors not included in the model. Finally, α_k, β_k, and θ_k (k=1,2,3,4) are the parameters to be estimated.

Some studies show that recently, the increase in the number of jobs has been largely confined to the service sector. Even several studies have explored the sectoral differences in job quality, they have not considered the employment share of specifically service sectors where most of new workers are supposed to be employed. Therefore, the employment share of services (*seremp*) is added to the model for controlling whether it matters for job quality. To know this enables us to predict the future of the global working environment. However, since some employees can prefer better working conditions to the wage and other benefits or *vice versa*, the directions the relationships are subject to change over the job quality dimensions.

The other variable in the model is the overall unemployment rates (*unemp*) that higher unemployment rates are expected to make the employees forced to accept lower quality jobs in the apprehension of replacement by unemployed people with similar skills.

The last variable in the model is a proxy for human capital to identify the education-based job quality premium of skills, which is defined as the ratio of the job quality indicators of skilled to unskilled workers. Previous results from the micro-level analysis in general, reveal that those demographic characteristics, especially occupational level matters for job quality. Since the occupational level is skill-based premium and it is strongly correlated with the education, the human capital index *(hc)* based on both the years of schooling and the returns to education is added in the model. Because quality education is required for a quality job, the contribution of human capital to the three measurements of job quality is expected to be strong in the model.

Consequently, as the hypothesis-II predicts that the trade union density is to improve the job quality is all three dimensions, the sign of estimated α_1 is expected to be positive while β_1, and θ_0 are expected to have negative signs. Same expectations are valid for human capital (*hc*) and service employment (*seremp*) coefficients. However, these expectations are reversed for overall employment (*unemp*) coefficients.

In the analysis procedure followed, we first present the descriptive statistics and correlation matrices of the variables in Table 7.

Table 7. Descriptive Statistics and Correlation Matrix

	earnq	*labminsec*	*pqworken*	*tudens*	*seremp*	*unemp*	*hc*
Mean	2.904	1.427	3.729	3.130	4.222	1.909	1.168
Median	3.110	1.392	3.816	3.023	4.243	1.960	1.193
Maximum	3.575	3.628	4.364	4.448	4.433	3.303	1.315
Minimum	1.608	-0.442	3.147	1.732	3.773	0.833	0.743
Std. Dev.	0.479	0.744	0.300	0.637	0.128	0.455	0.123
Skewness	-0.877	0.255	-0.165	0.314	-1.070	0.285	-1.400
Kurtosis	2.859	3.152	2.237	2.546	4.072	3.101	4.865
Jarque-Bera	30.939*	2.768	1.584	7.540*	72.043*	4.268	144.292*
Observations	240	234	55	301	302	306	306
earnq	1						
labminsec	-0.725*	1					
pqworken	-0.477*	0.394	1				
tudens	0.612*	-0.484*	-0.566*	1			
seremp	0.845*	-0.480*	-0.606**	0.605*	1		
unemp	-0.589*	0.924*	0.348	-0.438*	-0.351	1	
hc	0.277	-0.399	-0.525*	0.256	0.332	-0.351	1

Note: * indicates possible autocorrelation problems at 5% level.

For having robust the estimation and reliable coefficients; first, we checked each series for normality through kurtosis and skewness values. For the desired normal distribution, the values of skewness and kurtosis are required to be *zero* that refers to a perfect symmetry. Less stringent criteria in the literature suggest that the data with a skew above an absolute value of 2 and kurtosis above an absolute value of 7 are considered to be deviating severely from normality (Stevens, 2009: 563). In Kline's (2011: 62-63) study, these thresholds values are also loosened to 3 and 10 for skewness and kurtosis, respectively. In our sample, as shown in Table 7, the skewness values are ranging from -*1.400* to *0.314* while kurtosis values differ between *2.237* and *4.865* that mean there are no serious deviations from the normality. The correlation matrix seen in Table 7 demonstrate relatively higher coefficients between (*tudens*) and job quality indicators (*earnq, labminsec, pqworken*) and the signs also comport with the expectations for the regression coefficients.

In the choosing the best-fitting estimation model from pooled, fixed effect and random effect regression alternatives, we perform various tests such as the effects *F*-test,

Lagrange multiplier tests and *Hausman* test. The redundant fixed effects tests (the *F*-test) compare fixed effect to pooled regressions. *Lagrange multiplier tests (Breusch-Pagan* and *Honda tests)* explore whether one-sided or two-sided affect is appropriate. On comparing fixed and random effects, *Hausman* test is commonly applied (Frees, 2004; Andreß *et al.*, 2013). We found *F*-test and *Hausman* test statistics verifying fixed effects, random effects and pooled models are the most appropriate methods to estimate model the 1, 2, and 3 specifications, respectively. Due to a large number of years with missing values in poor quality of the working environment (the model 3), data are pooled across years as also affirmed by fixed effects *F*-test at the expense of ignoring the panel structure of the data. Because of the short period, the estimation is based on one-way cross-section (countries) model disregarding the time effects. While checking for robustness, *Durbin-Watson* statistics and residual test statistics detected the autocorrelation and heteroscedasticity, respectively. For hindering possible biases that the autocorrelation and heteroscedasticity can cause, we estimate linear regression models with panel-corrected standard errors (*PCSE*) for a better inference as suggested by Bailey and Katz (2011). Finally, the results are reported in Table 8.

Table 8. Results of Panel Least Square Estimation

Variables	Estimated coefficients		
	Model 1	*Model 2*	*Model 3*
	Dependent variable: ln(earnq)	*Dependent variable: ln(labminsec)*	*Dependent variable: ln(pqworken)*
ln(tudens)	0.049 [0.045] (0.280)	-0.286 [0.106] (0.007)***	-0.135 [0.065] (0.043)**
ln(seremp)	0.653 [0.164] (0.000)***	-0.168 [0.409] (0.682)	-0.714 [0.233] (0.004)***
ln(unemp)	-0.055 [0.016] (0.001)***	1.190 [0.078] (0.000)***	0.170 [0.070] (0.019)**
ln(hc)	0.944 [0.333] (0.005)***	-0.899 [0.401] 0.0261**	-0.558 [0.205] (0.009)**
Constant	-1.018 [0.635] (0.111)	1.797 [1.390] 0.197	7.466 [0.875] (0.000)***
R^2	0.994	0.740	0.551
Adjusted R^2	0.993	0.735	0.516
F-statistic	978.045 (0.000)***	156.431 (0.000)***	15.366 (0.000)***
Effects (F) test	380.404 (0.000)***	14.652 (0.000)***	2.241 (0.141)
Hausman x^2	23.667 (0.000)***	7.536 (0.110)	2.143 (0.709)
Estimated model	Cross-section fixed effects	Cross-section random effects	Pooled ordinary least square
Observations	234	225	55

Notes: ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively. Panel corrected standard errors (*PCSE*) are in [brackets] and probabilities are in (parentheses). Because of the short period, the estimation is based on one-way cross-section model. R^2 coefficients are not comparable between models because they have quite different observations and they are interpreted only within models since they were estimated through different models.

Estimated coefficients shown in Table 8 indicate that trade union density *(tudens)* is negatively associated with labor market insecurity *(labminsec)* and the poor quality of working environment *(pqworken)* while earning quality *(earnq)* returns of unionization is found insignificant. There is a partial support for the premise suggesting that growing employment share of service sectors *(seremp)* offer higher quality jobs. The finding that its effects are not significant for the labor market insecurity, keeps the door open to the debates on the future directions and expectations of the job quality especially in developed countries.

In general, the crowd of unemployed people is seen a threat to the employed ones to be replaced by. This suggestion is strongly supported by the study that unemployment rate *(unemp)*, is found deteriorating the earning quality, increasing the labor market insecurity, and worsening the working environment quality. To ease this threat, labor turnover costs of replacement need to be increased where trade unions are traditionally expected to take important responsibilities. The last factor expected to improve the job quality in the model is education-based human capital *(hc)* which is found as an important way to have a better job. Human capital is found contributing to all dimensions of job quality significantly that supports the evidence of quality education is required for quality jobs.

6. CONCLUSION

Employees spend a considerable share of their time at workplaces by not only working by also getting interactions with colleagues and other people who are somehow associated with their organizations. Therefore, beyond just having a job, what kind of jobs that employees have matters for their job satisfaction which is also strongly related to their life satisfaction. Given the premise that high-quality job will have more positive effects on employee and thus on the labor market and overall economy, there is a vast literature on the determinants of job quality.

Starting from the importance of what affect the job quality, this study tried to explore the determinants of job quality dimensions, namely earnings quality, labor market security and quality of working environment with a specific focus on the contribution of unionization density of employees. Unlike the related studies, we adopted the objectivist approach and used 34 OECD countries' unbalanced panel data set collected from administrative institutions, not from surveys, for the period of 2005-2013. The data used in the study have some distinguishing characteristics: It is observed that job quality and trade union density levels in OECD countries remain highly diverse and there are significant changes in time, countries, and employees' demographics (gender, age, and occupational level). In general, the trade union density has decreased in OECD average. Meanwhile, historical trends also indicate that even the employees have not been worse off in general, they seem to have faced some losses in labor market insecurity and quality of working environment. This tendency implies a possible interchange between job quantity and job quality.

The study has two empirical parts testing two hypotheses separately that first it identified whether job quality measurements, distinguished between earnings (salary, wage) quality, labor market security and quality of working environment, vary over the demographics, namely gender, age and occupational level following the *t-test* and *ANOVA F-test* procedures together with the *Dunnett T3* affirmation (Hypothesis-I). After this micro-level analysis strategy, secondly, a macro-level panel regression analysis is applied to

estimate the impacts of trade union density, employment share of services sectors, overall unemployment rate and human capital proxies on the overall job quality measurements presented by three different regression models (Hypothesis II).

Noteworthy findings obtained from these two analyses can be summarized as follows: i) *t*-test results infer there is a gender discrimination against women in earnings quality whereas, women work in a relatively better working environment compared to that of men. That means women employees are less paid and less strained in their workplaces. ii) *Dunnett T3* test results affirm that the youngest age group, 15-29, has the lowest earnings quality compared to the other groups, *i.e.* 30-49 and 50-64. Considering together with the *F*-test results, it is revealed that the youngest group has an insecure labor market compared to the other age groups. iii) It is confirmed that earning quality increases, labor market insecurity decreases and poor quality of the working environment proxied by job strain gets better as the occupational level increases. This finding underlines the education-based skill premium. iv) Panel regression analysis results indicate that trade union density is positively associated with labor market security and working environment quality while earning returns of unionization defined as the ratio of the job quality indicators of skilled to unskilled workers are found insignificant. v) Findings support the evidence suggesting that growing service sectors offer higher quality jobs. The nexus is not that strong because its effect is found insignificant for labor market insecurity that keeps the door open to the debates on the future directions and expectations of job quality especially in developed countries where service sectors grow much faster than other sectors and traditional manufacturing sectors have declined. vi) In the literature, the crowd of jobless people is seen a threat to the insiders (currently employed people) to be replaced by outsiders (currently unemployed people who seek for jobs). This suggestion is strongly supported by the study that employment rate, a proxy for the crowd of outsiders, is found deteriorating the earning quality, the labor market security, working environment quality. In order to ease this threat, labor turnover costs of replacement insiders with outsiders need to be increased where trade unions are traditionally expected to take important responsibilities. vii) Finally, human capital is found contributing to the all dimensions of job quality that support the evidence of 'quality education is crucial for the quality job and education-based human capital is an important way to have a better job. Again, this strong nexus among human capital and job quality assigns education and training tasks to unions for not only their members but also for everyone regardless they have a job or not.

Overall results of the study contribute to the discussions about the politicization of unions, real benefits of union membership and union premiums together with what the unions can do for a better employment in a global context. All these have new directions and motivations for future studies on human resource management, organizational behavior, and employee relations in the business literature.

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