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27. August 2014

Online at <http://mpra.ub.uni-muenchen.de/58148/>

MPRA Paper No. 58148, posted 29. August 2014 07:07 UTC

JOB QUALITY IN EUROPE IN THE FIRST DECADE OF THE 21ST CENTURY

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ABSTRACT

This article presents an analysis of the evolution of job quality from 2000 to 2010 in the European Union 15, using a newly developed composite measure of job quality that is applied to the *European Working Conditions Survey*. After a careful study of the evolution of job quality across the different dimensions and components of our index, and a differentiation between changes in the composition and changes in the means, we do not detect any major decline during the period, even during the economic crisis. The most significant change is a small increase in job quality in peripheral European countries, suggesting some convergence. We discuss several hypotheses for explaining the remarkable stability of job quality during such turbulent times.

KEYWORDS: job quality, working conditions, measurement, economic crisis, transformation of work, Europe.

JEL CLASSIFICATION: J00, J81, J82.

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1. INTRODUCTION¹

Job quality has become a key issue in developed countries. Discussions about the characteristics of jobs created and destroyed in high-income economies are increasingly frequent, not only in popular press or queries raised by trade unions but also in the academic field and as part of governments' concerns. Recent examples include, for instance, the heated and unfinished debate about the mini-jobs and minimum wages in Germany or the ongoing debate about the progress of the European Union (EU) economic and employment goals of promoting “more and better jobs” and “improving the quality of jobs and ensuring better working conditions”, as reflected in the Lisbon 2000 and Europe 2020 frameworks, respectively.²

The aim of this paper is to study the evolution of job quality in Europe in the first decade of the 21st century using an aggregate indicator job quality (the Job Quality Index, JQI) –an improved version of the one presented in Muñoz de Bustillo *et al.* (2011)- and the last three waves of the *European Working Conditions Survey* (EWCS). The evolution of job quality represents an interesting issue in itself, both from a theoretical and economic policy perspective (Muñoz de Bustillo *et al.*, 2011a, Holman, 2012, Holman and McClelland, 2011, Green and Mostafa, 2012, ILO, 2012). Such interest has been boosted by concerns about the impact on job quality of the double-dip European recession of 2009-2011 and the sluggish recovery (if any) of most European Union (EU) economies since then.

From a theoretical perspective there are reasons to believe that a deep and prolonged economic turmoil might lead to a deterioration of job quality. For instance, taking into account the market power of the different economic actors in the world of work, it could be argued that the increase of unemployment, the deregulation and supply-side policies followed by many countries to fight joblessness and the rising international competition from newly industrialized nations has reduced the power of labour to improve working conditions or even defend the status quo. From a different

¹ José-Ignacio Antón gratefully acknowledges funding from the Spanish Ministry of Economy and Competitiveness (research project CSO2010-16413).

² Regarding the mass media, see, for instance, the pieces of Warrell and Bryan (2010) in the *Financial Times* (2012), *The Economist* (2011a and 2011b) or Chang (2013) in *The Guardian*, among many others. Good examples of the relevance of job quality in the academic literature are given by the special issues of *Human Relations* and *Industrial and Labor Relations Review* devoted to job quality in 2013 (see the introduction of Findlay, Kalleberg and Warhurst, 2013, and Osterman, 2013, respectively) or recent articles of Goos and Manning (2007), Goos, Manning and Salomons (2009) or Bonhomme and Jolivet (2009), among many others, in top journals of Economics.

angle, the reduction of the demand for goods and services and the growing competition associated to the crisis -and the continuing globalization process- might increase pressure on firms to lower costs in order to maintain their market shares. Such process of cost reduction does not have to be circumscribed to wages, but it might also affect other dimensions of jobs, such as working time, work-life balance or work intensity, related directly or indirectly to labour costs. From both perspectives, a deterioration of job quality would be an unsurprising outcome. Anecdotal evidence on reduced wages to new entrants to the labour market and growing demands of firms in terms of working time or work intensity seems to confirm such expectations.³

In any case, it is important to stress, from the very beginning, that the impact of the crisis on job quality might not be as straightforward as one could expect for several reasons. Firstly, at least in the first stages of the crisis, employment destruction might concentrate on low-wage/low-quality jobs (Hurley, Fernández-Macías and Storrie, 2013). In that case, we might even observe a rise in average job quality as result of the change in employment composition. Furthermore, many components of job quality, such as most of those related with the intrinsic job quality and the physical environment of the job are relatively fixed in the short run or, alternatively, are part of labour contracts or collective agreements and, therefore, fixed until the revision of such agreements.

Using a recently developed aggregate indicator of job quality and three waves of the *European Survey of Working Conditions* (2000, 2005 and 2010), in this paper we explore the evolution of job quality in the EU15 during the first decade of the 21st century, including the first part of the Great Recession. The analysis pays particular attention to those countries afflicted by larger labour market shocks. With this purpose, the rest of the paper unfolds as follows. After this introduction, section 2 outlines the measure of job quality to be used (an improved version of the JQI developed by Muñoz de Bustillo *et al.*, 2011) and describes the main characteristics of the database. The third section presents and discusses the results obtained for 2000, 2005 and 2010, in terms of both the aggregate index of job quality and its main components. We compare the results obtained with those yielded by other analysis performed for a similar period with alternative indicators (Leschke, Watts and Finn, 2012, Erhel *et al.* 2012; Green *et al.*

³ See, for instance, Conefrey and Smith (2014) on the entry wages of new graduates in Ireland.

2013). Finally, the conclusion section discusses the main outcomes of our analyses and their wider implications.

2. MEASURING JOB QUALITY: DATA, MODEL AND PROPOSAL FOR MEASUREMENT

2.1. THE JOB QUALITY INDEX.

The growing debate on the quality of employment created and destroyed across national economies has come jointly with a growing academic interest in defining and measuring job quality in the last decade. As a result, around twenty indicators have been proposed with that aim from different theoretical perspectives and involving dissimilar levels of complexity and data requirements (for a review, see Muñoz de Bustillo *et al.*, 2011b). Drawing on such proposals and after a detailed discussion of the methodological alternatives and decisions required for constructing a sound index of job quality, Muñoz de Bustillo *et al.* (2011a) developed a Job Quality Index (JQI) composed of five different dimensions: (1) pay, (2) intrinsic quality of work, (3) employment quality, (4) health and safety, (5) work-life balance. In the baseline formulation of the JQI, each dimension receives the same weight (20%) and the aggregation is carried out using a weighted geometric average. Figure 1 reproduces the dimensions included in the index.⁴ The score in each dimension is computed using an arithmetic average of the values in each of the elements part of it. Formally, for a certain individual i , the JQI responds to the following formula:

$$JQI_i = \prod_{j=1}^5 X_{ij}^{1/5} \quad [1]$$

where X_{ij} denotes the score received by dimension j for the individual i . Each dimension takes a value between 0 and 100.⁵

From our perspective, the JQI exhibits two advantages worth highlighting.⁶ In the first place, its tree-like design allows having an aggregate final single job quality

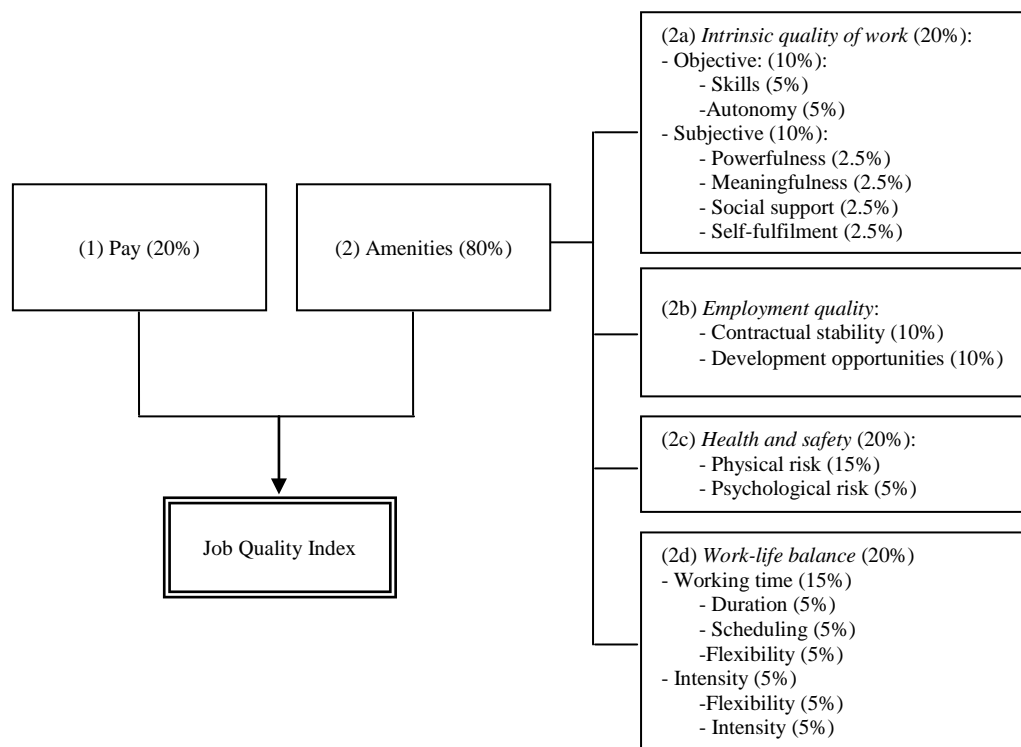
⁴ In Muñoz de Bustillo *et al.* (2011a), the authors assess the sensitivity of this weighting scheme, finding that the rank correlation of country results obtained using alternative systems of weights is remarkably high, with few changes in the ordering of the countries according to indexes assigning 40% to a certain dimension and 15% to the each of the others.

⁵ In the original version of the index, which includes wages in power purchasing parity, we apply additional procedures of normalization to a 0-100 scale (Muñoz de Bustillo *et al.*, 2011a), using the highest and the lowest wages available in the database in 2005.

⁶ Other key features of the JQI are the emphasis on results (rather than procedures), the focus on objective (rather than subjective) elements (when possible) and the grounding of the model in a detailed discussion

indicator without jeopardizing the possibility of studying the role played by the different dimensions, components and sub-components of the index in its overall value. Secondly, the JQI is constructed at the level of the individual worker, which allows evaluating the complementarily or substitution of attributes in the same job and computing the JQI for any group of specific workers (women, youth, etc.) or, in general, measures of dispersion of job quality. This proposal is discussed in detailed and tested using the EWCS 2005 in Muñoz de Bustillo *et al.* (2011a).

Figure 1. The structure of the Job Quality Index



Source: Muñoz de Bustillo *et al.* (2011a: 152).

The analysis of job quality carried out in this paper is based on the above-mentioned index, but we introduce some changes with a double purpose. First, we slightly simplify the JQI to adapt it to the differences in the three waves of the EWCS (2000-2005-2010) used in the analysis and, second, we introduce some corrections in the original index to solve few minor problems detected since its development. The major change is the removal of the pay component of the index. Although pay is

of the specialized literature in the traditions of Social and Health Sciences (for more details, see Muñoz de Bustillo *et al.* 2011a).

obviously an important aspect of job quality, unfortunately the earnings variable of the EWCS has suffered so many changes in the different waves of the survey that it has been impossible to build a consistent series.⁷ This is a major drawback that forces us to limit our analysis to the non-pecuniary aspects of job quality. The other four components, reviewed below, are largely consistent with the original version of the index, though in many cases less comprehensive (based on fewer variables), aiming to get consistency of the variables across time. We only describe in detail the changes with respect to the original version proposed in Muñoz de Bustillo *et al.* (2011a).

Regarding the dimension devoted to the *intrinsic quality of work*, the current version of the JQI eliminates the subjective component -derived from Blauner's (1964) model-, because, firstly, it did not work very well in practical terms (this component showed a very small variability, being the dimension exhibiting the lowest dispersion) and on the other hand it was somewhat inconsistent with the underlying model (which emphasizes an objective perspective of job quality).⁸ As a result, this dimension is now based in three equally-weighted components:

- Skills: four broad skill levels of the International Standard Classification of Occupations (ISCO) and an index of cognitive requirements of jobs (identical to the previous version of the index).
- Autonomy: four variables measuring autonomy in methods, scheduling and criteria. Identical to the previous version, except for one variable that is now missing (how are working time arrangements set, which unfortunately is inconsistent over time).
- Social support: just one dichotomous variable, for consistency.

The dimension of *employment quality* maintains its original design with two components: contractual stability and development opportunities:

- Contractual stability: employment status and type of contract, plus an index based on seniority (0 if less than a year, 100 if more than six, intermediate

⁷ Particularly, whereas in the 2010 the variable is continuous and in 2005 is recoded in intervals roughly corresponding to earnings deciles, in 2000 the labour income variable is codified according to bands which are the same for all countries and are apparently arbitrarily designed. This means that the percentage of workers in each interval varies significantly across countries and, unfortunately, this prevents us from reliably estimating even average values. For instance, in many countries, attributing to each individual in 2000 and 2005 the class mark of the interval he or she belongs, the average wage significantly decreases, which is absolutely at odds with external and more reliable sources of earnings information.

⁸ In the earlier version of the index, the inclusion of this component led to use of the same question across different dimensions, which is also undesirable.

values in between). We cannot not include the variable on whether the respondent is afraid of losing the current job, since this information was not included in 2000.

- Development opportunities: unfortunately, it is only possible to consider one of the two original variables (training), as a dummy. The other variable used in our original index (prospects for career advancement) was not included in the 2000 survey.

The dimension of *workplace risks* (health and safety) is different in terms of both the items included and the logic of aggregation. Regarding the former, it has been impossible to construct a consistent time series of psychosocial risk because of the change in the formulation of questions. Concerning the latter, the system of aggregation of the original index considered the worst score of the eight variables dealing with workplace risks. This approach gives a too negative account of workplace risks. On the contrary, other authors (Green and Mostafa, 2011) take the average of all exposures, which tends to yield excessively positive results (since it is physically impossible to be exposed all the time to all the risks listed in the questionnaire, it is extremely difficult to get an even moderate score with this method of aggregation). In the current version of the JQI we have opted for an intermediate approach: the arithmetic average between the maximum level of exposure and the average of the 6 worst scores (for more details, see Hurley, Fernández-Macías and Storrie, 2013: 46).

Finally, concerning the *working time and work-life balance* dimension, three components are identical to the previous version of the index -duration, scheduling and intensity-, while the component of flexibility is entirely missing, as it was not included in the 2000 survey. This produces a more “traditional” measure of the quality of working time, which does not take into account the potential compensating effect between flexibility and scheduling, and is likely to produce more negative results for some long-hours, high autonomy work schedules (typical of managerial positions, for instance). Table 1 summarizes the structure of the updated JQI.

Table 1. Structure of the updated JQI

Dimension	Variables and questions
1. Intrinsic quality of work (25%)	- Skills (8.3%) [ISCO, q49d, q49e, q49f] - Autonomy (8.3%) [q25a, q50b, q50c, q49b] - Social support (8.3%) q51a]
2. Employment quality (25%)	- Contractual stability (12.5%) [q6 q7 q12] - Development opportunities (12.5%) [q61a, q77c]
3. Workplace risks (25%)	- Physical risks (25%); [q23a-g, 24a, q24c, q24e]
4. Working time and work-life balance (25%)	- Duration (8.3%); [q18] - Scheduling (8.3%); [q32, q33, q34, q35] - Intensity (8.3%); [q45a, q45b]

Note: Between brackets the weights of the item and the question number of the EWCS dealing with the item are showed.

Source: Authors' elaboration from EWCS.

2.2. THE EUROPEAN WORKING CONDITIONS SURVEY.

The European Working Condition Survey (EWCS) is the most important and detailed source of information about the conditions of work at the European level. The EWCS is funded, designed and coordinated by the European Foundation for the Improvement of Living and Working Conditions (Eurofound), an EU agency based in Dublin whose mandate is to gather knowledge to contribute to the planning and design of policies to improve the conditions of life and work of Europeans. The questionnaire is designed by a group of experts and policy makers on the area of work and employment, together with the Foundation research staff. The Foundation also prepares the principles for the sampling and fieldwork methodology, which are then part of the technical conditions of a tender.

One of the key advantages of the EWCS with respect to other surveys (especially, to Eurostat's) is the fact that the whole endeavour is funded, designed and coordinated centrally. This ensures a level of comparability which is much higher than other European labour market surveys. Another very important advantage of the EWCS with respect to the other surveys is the high degree of transparency and documentation of the whole research process. The sample of the EWCS is representative of all persons

in employment in private households of all EU member states (and some European non-Member States, such as Turkey, the Former Yugoslavian Republic of Macedonia, Norway, Albania, Kosovo and Montenegro). The fieldwork procedures also strictly follow the same principles across Europe: in all countries, the sample is stratified by region and size of settlement, and the interviews are clustered by geographic proximity. The actual selection of households is done by the random-walk method, and within the selected household one employed individual is randomly selected.

The size of the sample for the latest EWCS for most countries was 1,000 cases per country.⁹ This, in fact, is the main problem of the EWCS. This sample size allows for the production of good estimates of the overall incidence of the phenomena captured in the survey at the national level, but if ones wants to go deeper and break down the results within countries by gender, sectors, occupations or whatever other variables, the number of cases used for specific estimations very quickly becomes too small and therefore the estimation is unreliable. Another potentially problematic characteristic of EWCS for monitoring job quality in the EU is its periodicity, since is only carried out every five years. Finally, as we have seen, there are problems with the reliability of some variables across time, notably income, and with the time consistency of some of the questions. In this occasion, for reasons of space, the analysis is limited to the EU15, which allows for a reasonable manageability and interpretation of the results.¹⁰

3. RESULTS: JOB QUALITY BEFORE AND AFTER THE CRISIS.

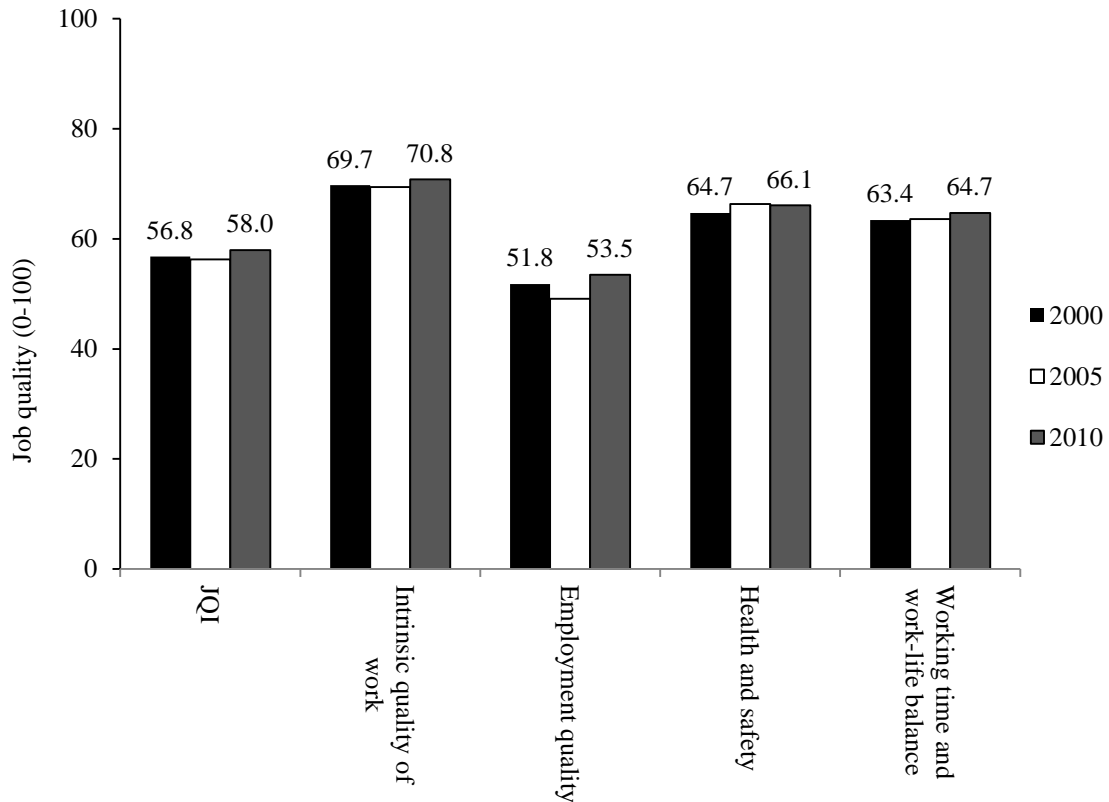
3.1 THE EVOLUTION OF THE JQI 2000-2010.

In order to get an overall impression of the changes of job quality, Figure 2 reproduces the evolution of the JQI and each of its dimensions from 2000 to 2010 in the EU15 as a whole. The graph suggests a remarkable stable job quality, with minor increases in all four dimensions when we consider the period as a whole.

⁹ Exceptions were Germany and Turkey (target sample size of 2,000) and Italy, Poland and the United Kingdom (target sample size 1,500). Three other countries decided to finance bigger national samples resulting in a target sample size of 4,000 in Belgium, 3,000 in France and 1,400 in Slovenia. The total number of interviews in 2010 was 43,816.

¹⁰ More details on the methodology and characteristics of the EWCS can be found at the Eurofound's website (<http://www.eurofound.europa.eu/surveys/ewcs/index.htm>), while the databases are freely available through the mentioned database and the United Kingdom Data Service in Essex (<http://ukdataservice.ac.uk/>).

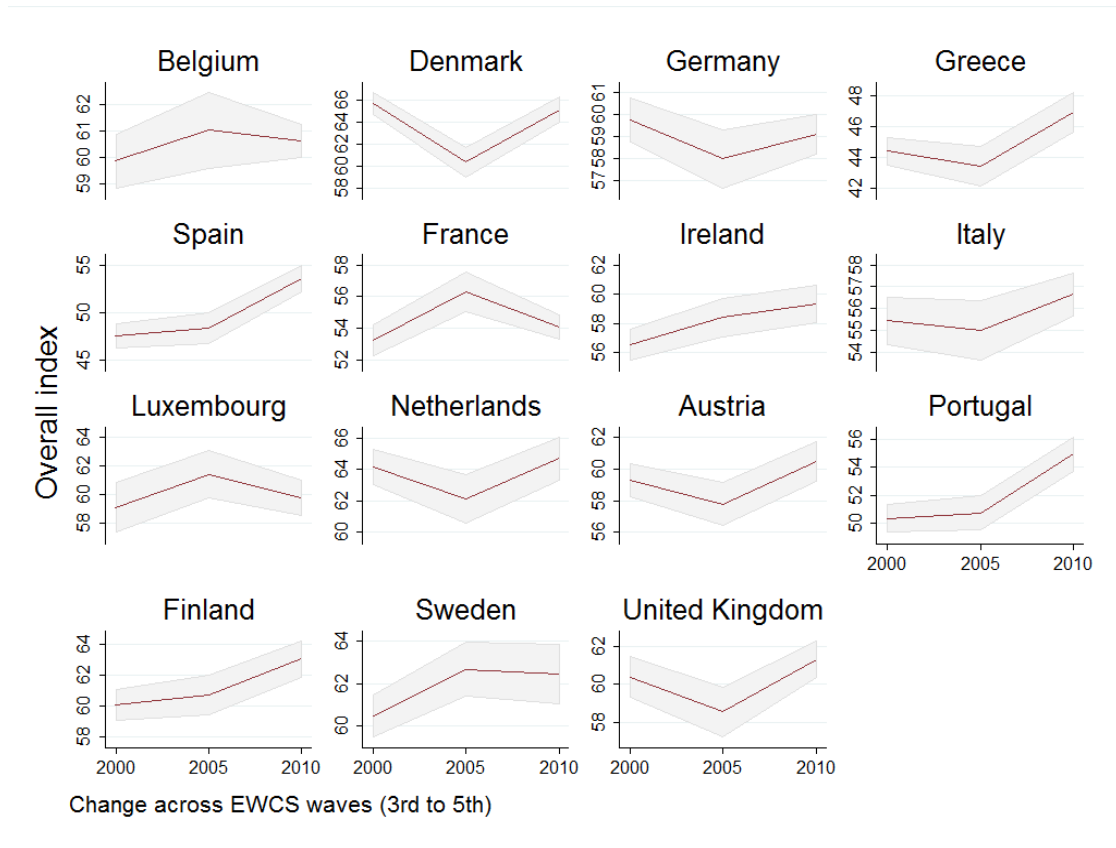
Figure 2. The evolution of job quality in the EU15 as a whole (2000 to 2010)



Source: Authors' analysis on EWCS micro-data.

Obviously, the aggregate result for the whole EU15 is of limited interest, so the following natural step is to go into detail and to see what happened in each of the fifteen countries. Particularly, it is interesting to assess whether this picture of stability masks relevant changes of job quality across countries. Figure 3 presents the evolution of average job quality (with a 95% interval confidence) in the 15 countries of interest. The first conclusion evident from the graph is that changes in job quality through the period 2000-2010 are generally small and mostly either not statistically significant at 5% level or follow an inconsistent trend (first, up and, then, down or vice versa). Also, keeping in mind the scale of the vertical axis, movements in average job quality -even when statistically significant- are of a very small magnitude.

Figure 3. Changes in the average JQI across the EU15 (2000-2010)



Note: 95% confidence intervals showed in the figure as shadowed.

Source: Authors' analysis from EWCS micro-data.

Table 2 systematises the trends that can be drawn from the figure and that can be summarised as follows:

- a) There are no consistent cases of overall deterioration of job quality; in all the countries the JQI corresponding to 2010 is higher than the JQI of 2000.
- b) There is a significant and consistent improvement in the peripheral countries and Finland.
- c) There is an inconsistent and/or not significant trend 2000-2010 in the rest of the countries.

Table 2. Trends in the average JQI (2000-2010)

Consistent trend 2000-2010		Inconsistent trend 2000-2010	
Up	Down	Down, then up	Up, then down
ES*, IE*, PT*, FI*	---	DK*, DE, GR*(up), IT, NL, AT, AT, UK	BE, FR*, LU, SE

* Statistically significant change at the 5% level.

Source: Authors' analysis from EWCS micro-data.

Overall, there is no evidence of a deterioration of working conditions (excluding wages) in the first few years of the crisis (until 2010). Although in a few cases, notably France, there is a significant decline in the JQI from 2005 to 2010, most countries experience an increase in their JQI in the last period. The relatively minor changes experienced by the JQI throughout the period means that there are no major changes in the country ranking in terms of JQI: the top of ranking is taken by the Scandinavian countries plus the Netherlands and UK, and the bottom, by the Mediterranean countries plus France.¹¹

Could this result be explained by the absence of the pay dimension from the JQI? It is not likely. According to real wage data compiled by the annual macro-economic database of the European Commission (AMECO), in our period of analysis real wages grew in all EU15 countries but Germany, although at very different rates. Taking the decade as a whole, only in Germany there was a drop in real wages, explained by a fall of 2.9% in the first part of the decade (2000-2005). The same is valid for the period 2005-10, where only Greece experienced a fall in real wages (by 3.7%). Of course, as it is the spirit of our index, there could be interactions among wages and the rest of dimensions that hypothetically resulted in a lower job quality. Nevertheless, taking into account the extensive regulation of European labour markets and the absence

¹¹ The only countries that experience a sizable increase in their JQI in the period are Spain (11%), Greece (5.6%) and Ireland (5.0%).

of radical changes in them in the period studied here –apart from labour market reforms diminishing firing costs-, it does not seem like a plausible hypothesis.¹²

In order to see to what extent the overall increase of the JQI experienced during 2000-2010 hides different behaviours of its components, Table 3 summarizes the evolution of the four components of the JQI. Of all the dimensions of the JQI, the area of intrinsic job quality is the one that presents more consistent and significant changes. In more than half the cases we can see a consistent general upward trend. In some countries, such as Greece, Portugal or Spain (in the second period) the observed increase is quite noticeable. The dimension related to employment quality shows important shifts, often significant, but nearly always inconsistent over time. This dimension is the most sensitive to the crisis, and the change in trend from 2005 to 2010 probably captures the destruction of contingent employment with the crisis, being temporary workers the first to go. In this case, the improvement after 2005 would be explained by a compositional effect. That is certainly the case for Spain, where, from 2007 to 2009, temporary employment fell by 1.34 million workers, while open-ended employment increase by 0.1 million, pushing down the temporary employment rate from 32% to 26% (Muñoz de Bustillo and Antón, 2011). The dimension of health and safety risks generally exhibits small changes, often inconsistent. Again, there are significant improvements in Spain, Ireland, Greece and Portugal, but also in UK. Concerning this item, it is important to notice that quite often the economic crisis and the corresponding decrease in economic activities have a positive impact of accidents at work.¹³ Considering the whole period, only Austria shows a significant deterioration of the dimension. Finally, the dimension devoted to time and working-life balance shows important, but highly inconsistent, changes during the period. The most frequent pattern is countercyclical: deterioration during the boom years and improvement with the crisis. This is probably explained by the reduction in working hours and unsocial hours resulting from the recession and the increase in part-time work. The opposite pattern can be found in France, UK, and Ireland; in the former case, such rise is probably explained by the change of working time regulation approved in July 2009.

¹² The most radical changes in labour market regulation, including wage setting mechanisms, took place after 2010 and mostly in peripheral economies. It is possible that in the next edition of the survey, intended for 2015, such changes and the general impact of the continuing crisis may be finally reflected in our index.

¹³ For example, according to European Statistics on Accidents at Work (from Eurostat), the standardized fatal accident rate in the EU15 fell from 3.25 per 100,000 workers in 2008 to 2.35 in 2010.

Table 3. Trends in average job quality by dimensions across the EU15 (2000-2010)

Intrinsic job quality			
Consistent trend 2000-2010		Inconsistent trend 2000-2010	
Up	Down	Down, then up	Up, then down
BE*, DK*, GR*, IE*, PT*, FI*	NL	DE, ES*(up), UK*	FR, IT, LU*(up), AT, SE*
Employment quality			
Consistent trend 2000-2010		Inconsistent trend 2000-2010	
Up	Down	Down, then up	Up, then down
PT*		DK*, DE*, GR, ES*(up), IE, IT*, NL*, AT, UK*	BE*, FR, LU, FI, SE
Health and safety risks			
Consistent trend 2000-2010		Inconsistent trend 2000-2010	
Up	Down	Down, then up	Up, then down
ES*, NL, FI	LU	DK, DE, GR*(up), AT*(down), PT*	BE, FR, IE*(up), IT, SE, UK*(up)
Time and work-life balance			
Consistent trend 2000-2010		Inconsistent trend 2000-2010	
Up	Down	Down, then up	Up, then down
LU, NL, FI*		BE, DK*, DE*(down), GR*(down), ES*(up), IT*(up), AT*(up), PT*, SE*(up)	FR*(up), IE*, UK

* Statistically significant change at the 5% level.

Source: Authors' analysis from EWCS micro-data.

Table 4 presents a further breakdown of the change in the index into all of its components, at all levels, and in all countries. It contains a wealth of information, and although it does not contradict the general trends we have discussed so far, a detailed

inspection of the changes at the level of individual indicators reveals some patterns which are concealed at the level of the index and the 4 higher-level dimensions. It is particularly interesting to note that the indicators of monotony, repetitive movements and work intensity follow a negative evolution in nearly all countries, despite the overall positive trend. Since such indicators are scattered across different dimensions and they are nearly always compensated by positive developments in other indicators of the same dimension (for instance, high intensity by shorter working time; or monotony by occupational skills upgrading), they are not visible at neither the level of the index nor the dimensions. Still, they are in many countries statistically significant and consistent, and it could be argued that they are associated with a particular vector of change in the nature of employment, towards the taylorization of services (Vidal, 2011). This suggests another possible explanation of the contrast between the anecdotal perception of falling job quality and the remarkably consistent values of the index: the idea of building a multidimensional index presupposes that different attributes of work can compensate each other and indeed that is what our results suggest; but perhaps in the actual perception of workers such compensation can never be perfect, and the negative developments receive a larger subjective "weight" than the positive. In any case, Table 4 shows that using a composite index for monitoring job quality requires paying attention both to the aggregated results (at the index or dimensions level) and to the level of the individual indicators. The aggregation of different pieces of information is a very powerful way to synthesize a complex phenomenon such as job quality, but it can conceal important lower-level developments: both aspects must always be analysed together. This debate is inherent to the construction and use of any composite indicator of measurement.

Table 4. Evolution of the average value of the four components of the IJQ (% change 2000-2010).

	BE	DK	DE	EL	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	Total
JQI	0.8	-0.6	-0.7	2.5	6.0	0.8	2.8	1.2	0.6	0.6	1.2	4.6	3.0	2.0	0.9	1.2
(1) Intrinsic job quality	2.7	2.8	-0.4	10.2	5.1	-0.4	3.4	1.4	4.0	-1.4	1.7	7.6	3.6	0.7	-0.4	1.1
a. Skills	0.1	2.0	-0.5	4.4	1.6	-0.8	3.7	-0.4	4.0	-0.3	1.8	1.3	0.5	2.5	-0.9	-0.1
i. Occup. Level	3.4	3.2	2.1	2.3	2.6	3.2	2.6	2.5	9.2	1.0	1.2	2.9	1.9	2.5	0.3	2.0
ii. Monotonous	-15.1	-5.3	-7.4	4.5	3.2	-9.5	-1.1	-8.8	-17.0	3.6	-0.7	-16.0	-0.2	-6.0	-3.2	-5.5
iii. Complex	7.9	5.4	-0.2	12.7	-2.0	2.3	7.1	3.1	13.3	-6.1	3.2	9.0	-3.0	7.9	-0.6	1.1
iv. Learning	-2.9	2.4	-1.6	2.2	-0.5	-7.7	7.8	-4.7	-0.2	-2.4	3.0	5.8	0.1	6.0	-2.4	-2.3
b. Autonomy	2.8	3.5	-2.1	4.8	1.4	-6.2	2.8	2.9	7.4	-2.6	-2.5	5.0	5.3	-1.6	-1.0	-0.8
i. Order tasks	3.3	4.6	-1.7	4.0	4.1	-0.8	4.8	11.2	10.9	0.7	5.3	5.7	5.8	-2.7	0.2	2.0
ii. Methods	4.1	4.6	-6.0	4.6	2.8	-2.7	-3.0	-0.2	5.5	-10.7	-4.3	8.6	5.5	-4.5	-3.8	-2.4
iii. Speed	5.2	4.8	-4.4	4.3	1.8	-4.4	1.3	2.6	3.7	-2.9	-15.0	6.9	16.4	-4.3	-2.4	-1.4
iv. Unforeseen	-1.3	-0.1	3.6	6.7	-2.7	-16.7	5.5	-1.3	9.5	2.6	5.3	-2.0	-6.8	4.5	2.6	-1.3
c. Social	7.4	3.0	2.6	27.0	17.5	9.8	6.9	3.5	2.3	0.1	8.1	23.9	5.8	1.7	3.4	6.9
(2) Employment quality	1.9	-2.3	2.8	0.9	7.3	1.5	0.4	1.8	2.3	-1.3	3.0	7.0	0.0	3.2	-1.9	1.7
a. Contract	-1.5	1.4	-0.6	-0.1	1.2	0.5	-5.9	-1.7	-2.1	-4.4	-2.1	-3.7	2.1	0.9	-1.0	-0.9
i. Contr. Status	-1.4	2.5	-2.9	2.0	2.6	-0.4	-14.9	-3.1	-2.3	-7.0	-2.0	-3.4	3.2	-0.2	-1.7	-1.9
ii. Tenure	-1.6	0.4	3.7	-2.1	-0.3	1.5	2.9	-0.2	-1.8	-1.8	-2.2	-3.9	1.2	2.1	-0.3	0.6
b. Development	5.8	-4.8	6.2	1.7	13.2	2.3	6.6	5.1	6.4	2.4	8.2	18.2	-1.8	5.3	-2.8	4.3

Note: See the main text and Muñoz de Bustillo *et al.* (2011a) for detailed definitions of each variable. Values in bold indicate changes statistically significant at 95%.

Source: Authors' analysis from EWCS micro-data.

Table 4. Evolution of the four components of the IJQ (% increase 2000-2010) (continued)

	BE	DK	DE	EL	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	Total
(3) Health and safety	-0.1	0.9	-0.9	4.5	4.8	-0.5	5.9	-0.6	-3.2	3.4	-3.4	-0.9	1.8	1.4	6.4	1.4
i. Vibrations	-1.0	-1.5	0.0	1.3	7.1	-1.0	5.05	0.4	-1.7	-0.7	1.9	-2.0	4.6	0.2	2.1	0.9
ii. Noise	-0.3	-0.1	-0.9	-0.9	4.0	-1.4	6.62	0.4	1.5	3.6	1.7	3.3	2.7	-1.7	3.6	1.0
iii. High temp.	-0.7	-0.7	-0.3	-0.2	1.3	-0.5	3.81	1.7	-4.1	2.3	-0.4	-2.2	3.2	1.4	4.6	1.0
iv. Low temp.	-0.3	-3.4	-0.6	-1.9	-0.7	-1.6	0.39	-0.5	-2.5	0.5	-0.1	-3.6	0.9	-2.6	0.6	-0.7
v. Smoke	-0.5	2.0	-1.5	11.9	9.2	-1.1	5.42	0.6	0.9	1.0	1.3	6.9	1.9	4.5	6.8	2.4
vi. Chemical	-0.6	0.4	-3.6	6.0	3.8	-3.0	0.86	-0.3	-4.0	2.9	-3.4	1.9	-3.2	-1.9	2.8	-0.3
vii. Tiring positions	-2.1	1.1	-1.3	5.7	4.9	-1.5	6.67	-2.9	-4.0	4.0	-6.4	-6.1	2.4	3.6	7.2	0.9
viii. Heavy loads	0.4	2.4	3.7	0.0	7.9	3.1	1.91	0.3	-0.1	2.8	0.8	6.5	-0.6	2.1	5.2	3.4
ix. Repetitive mov.	-16.3	-0.71	-7.2	3.4	3.9	-4.0	-8.9	-12.0	-15.4	6.2	-6.1	-10.9	-4.2	-9.4	-5.3	-5.4
(4) Working time and work-life balance	-0.5	-2.4	-2.4	-3.4	3.7	3.8	1.75	2.8	0.4	2.1	2.3	1.3	5.0	1.7	1.9	1.3
a. Duration	1.0	-0.7	-0.9	-12.5	6.8	9.5	10	5.1	1.7	-0.0	5.6	3.8	9.2	0.1	3.1	3.2
b. Schedule	2.1	-5.3	-1.4	7.8	9.4	5.9	0.96	4.6	2.3	-0.6	2.2	-1.5	3.1	0.8	-0.2	2.3
i. Night	0.6	-3.8	-1.9	2.1	5.7	2.4	-2.26	1.4	-0.5	1.1	0.6	-1.5	1.7	0.3	-1.0	0.5
ii. Evening	3.1	-10.3	-3.2	13.6	22.7	9.7	2.65	5.5	-2.8	0.0	-1.5	-1.9	2.7	0.02	-1.4	3.5
iii. Sundays	1.0	-4.9	-0.1	7.6	2.2	4.6	-2.32	13	3.4	-2.4	2.3	-3.9	2.8	1.2	-1.2	0.9
iv. Sundays	3.9	-2.4	0.1	8.4	7.3	7.3	5.92	10.4	9.1	-1.5	5.8	1.9	5.1	1.6	2.7	4.2
c. Intensity	-4.8	-1.3	-4.4	-6.2	-5.3	-3.6	-5.68	-2.2	-3.3	6.7	0.0	1.4	2.9	4.1	2.7	-1.6
i. High speed	-2.3	-4.5	-8.3	-6.8	-6.1	-3.5	-6.53	-4.4	-0.9	12.6	-4.4	8.3	3.1	4.1	3.1	-2.5
ii. Tight deadline	-6.0	2.0	-0.5	-5.6	-4.7	-3.8	-4.76	-0.4	-5.3	0.7	4.5	-5.1	2.6	4.3	2.2	-0.9

Note: See the main text and Muñoz de Bustillo *et al.* (2011a) for detailed definitions of each variable. Values in bold indicate changes statistically significant at 95%.

Source: Authors' analysis from EWCS micro-data.

Summing up, taking the period 2000-2010 as a whole, the JQI shows a remarkable stability regardless the economic cycle, especially in its intrinsic and health and safety dimensions. In contrast, the employment dimension show higher variation during the period, although this time with a countercyclical pattern, improving during the crisis (at least the first part of it) because of the higher casualty rates among temporary low-quality jobs. By countries, the periphery has witnessed the clearest improvement over the period. In the second half of the decade, the rise is in some cases even stronger (Spain, Greece) partly because of composition effects.

3.2. DISCUSSION AND SOME FURTHER EXPLORATIONS

According to the analysis presented above, the first decade of the 21st century cannot be characterized as a decade of deterioration of job quality in Europe (as measured by the JQI). That is also valid for the second lustrum (2005-2010) where we find, regardless of the economic crisis, no significant consistent change of the average job quality in most countries.

This conclusion is coherent with results obtained by other authors using different indicators and methodologies. For example, Erhel *et al.* (2012: 8), using a composite job quality index from aggregate data conclude that there has been a “*marginal overall decline in job quality*” of -0.03 for the EU15 during the period 2005-2010. Improvements are detected in areas such as working conditions, working-time and work-life balance, along with a pronounced deterioration in areas such as non-standard employment or wages. Such conclusion is shared by Green *et al.* (2013) in their analysis of changes of non-wage aspects of job quality in the EU15 using also de EWCS (from 1995 to 2010). In their own words: “*there is a strong pool of continuity in both the level and the inequality of job quality in these countries*” (Green *et al.*, 2013: 15). Last, Lesche, Watts and Finn (2012): “see a decline in measured job quality even if is rather small” (p.40)

Should this result come as a surprise? There are several elements that can help to reconcile these results and the widespread public perception than there is a process of general deterioration of job quality, which are discussed below. In principle, these elements are not mutually exclusive and they could perfectly reinforce each other, explaining the so far relative stickiness of the JQI during the crisis.

Firstly, the last year used in the analysis corresponds to 2010, and most interviews were done during the first quarter of the year. As, in most cases, the bulk of the economic crisis started in the previous year, it can be argued that there was no material time for the crisis to affect the conditions of work and employment. In fact, that is what has happened with the pay dimension of job quality, as in those EU countries that have experienced decreases in real wages it is not until the period 2010-2013 where such dynamics became visible. The existence of regulations and institutional arrangements that might delay adjustments –or even prevent them- (as discussed below in more detail) reinforces this argument.

In the second place, one should keep in mind that we compare the actual working conditions of 2010 with those of 2005, but if working conditions are subject, for different reasons (social, technological, etc.), to an underlying upward trend, it is possible that the actual level of working conditions of 2010, while being higher than in 2005, would be lower than the level reached in an alternative counterfactual scenario of no crisis. A reasonable counterfactual is hard to figure out and to build it is complex from the existing data and out of the scope of the paper.

Thirdly, in the short run, the crisis could even have a positive impact on job quality because of the associated reduction of economic activity; for instance, through a decrease in working time, in speed and work intensity or health and safety hazards. This might apply especially if the short-term response of employment to a reduction in demands for goods and services is relatively rigid (short-term low elasticity of employment to GDP).

The fourth argument, probably the most compelling, appeals to the extensive theoretical and empirical literature related to downward wage rigidity, a fact largely debated since Keynes' times. Drawing in the literature and empirical works of, among many others, Campbell III and Kamlani (1997), Agell (1999), Franz and Pfeiffer (2006), Bewley (2007) and Babecký *et al.* (2009), there are several reasons for which wages are relatively sticky. These reasons can be reasonably extended to most of working conditions included in our index. The first reason has to do with labour market institutions, particularly, regulations, collective agreements and unions. Apart from the standards and regulations set by the government (fixing the standards or the floors in some elements of working conditions), in many European countries unions play a strong

role in determining both wages and working conditions, being traditionally very reluctant to concede cuts in these elements. This argument also applies when, even if unions are not strong, collective bargaining is widespread. In many cases, even if workers and employers do not agree about new working conditions when labour union contracts or collective agreements expire, firms cannot unilaterally deteriorate some working conditions. The second reason is associated to efficiency-wage theory, comprising purely economic and noneconomic motives. Workers' productivity can be severely undermined by reductions in wage or working conditions, because of both fairness reasons (employees become demoralised and firms might reject hiring under-bidders since they want to keep an equitable structure) and more technical arguments, such as the desire of reducing turnover (associated to search, recruitment and training costs).

Finally, we speculate with other two possible reasons for the slow rate of change in job quality that can be partially tested with our database. Firstly, the evolution of average job quality might hide changes in the levels of job quality of different groups of workers. Specifically, it could be argued that the working conditions of new hired workers might deteriorate faster in relation to employees with more seniority, for instance, because of the mentioned institutional reasons for rigidity. In order to test this hypothesis, we look at the evolution of job quality by seniority level. Our results suggest that there is no significant difference in the trend experienced by low-tenured workers (less than 5 months or 10 months, alternatively) in any of the dimensions apart from, as expected, employment quality (associated to employment stability and development opportunities, obviously smaller for those who have just arrived to the firm). The gap in this dimension fully explains the lower JQI of just-hired workers.¹ In the second place, the stability might be the result of changes in the composition of employment. Crisis might hit with different intensity “good” and “bad” jobs, changing the composition of the employment structure. If “bad” jobs are destroyed at a higher pace, the average JQI might rise, even if working conditions deteriorate. This possibility is explored below in more detail.

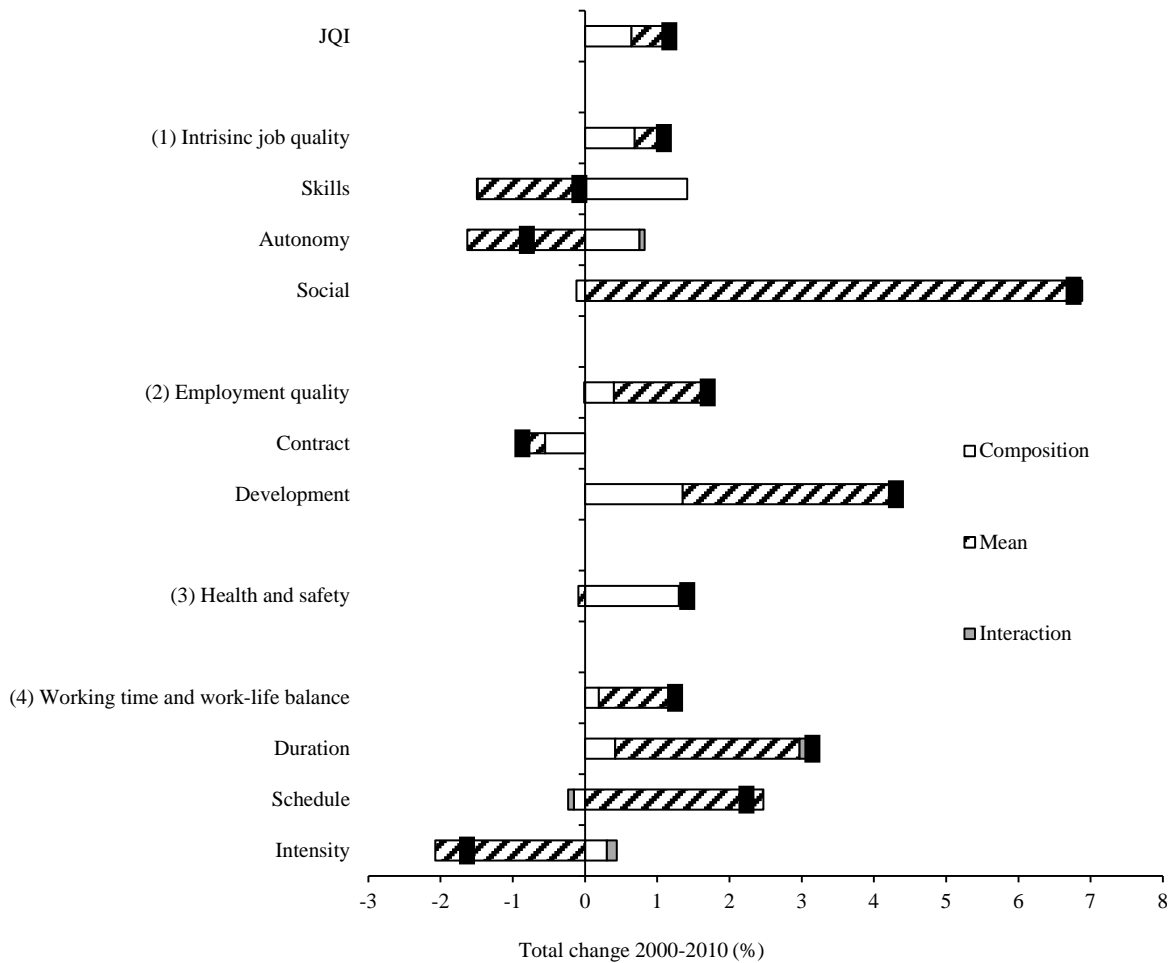
In order to test the impact of changes in the employment composition on the JQI, we performed a shift-share analysis comparing the actual JQI (and its components) with

¹ These results are not shown here because of reasons of space but they are available from the authors upon request.

a counterfactual hypothetical JQI built under the assumption of a stable productive structure. By “stable productive structure”, we mean that the composition of employment by occupation and sector does not change.² This methodology allows presenting the total observed change of the JQI as the sum of changes in the mean (i.e., “true” changes in the variable), changes in the structure (that can be interpreted as “spurious” changes of the aggregate JQI), and the interaction of both changes (with no direct interpretation). The exercise is particularly interesting because, although most of aggregate changes are small, it is possible that the above-mentioned elements operate in different directions. For instance, it could be perfectly possible that, because of the purge of low-quality jobs, aggregate job quality exhibits a constant path during the crisis, while the quality of each job in the economy is declining. The results of this quantitative exercise are summarized in Figure 4 and are revealing with respect to the above posed question about the role of compositional changes in explaining the detected stability of the JQI during the crisis. According to them, although the composition effect (i.e., the changes in the structure of production) contributes positively in all cases but one (type of contract) to the JQI, the overall effect is far from being a statistical-compositional artefact. In fact the changes in the means are positive in 3 out of 4 dimensions and only marginal negative in the remaining dimension (health and safety). Nevertheless, it is worth mentioning the considerable decrease in value detected in the areas of autonomy, skills and intensity. At the country level, the results (not showed here because reasons of space), the composition and mean effects follow the same positive direction in all cases but the Netherlands (the only country with a negative composition effect) and France, Luxemburg, Germany and Denmark, with comparative large negative changes in the mean (although small in terms of values: one percentage point in the case of Germany and Denmark and slightly under two in the case of Luxemburg). In sum, both the changes in composition and changes in means are relevant in explaining the (small) detected change in the JQI. While composition plays a similar and positive role almost everywhere, the latter element differs more across countries and dimensions and exhibit negative contributions to job quality in certain cases.

² Particularly, the assumption is constant ISCO at one digit and constant Statistical Classification of Economic Activities in the European Community (commonly referred as NACE) at one digit but with the industrial sector divided in two subsectors according to the technological level and the service sector divided in two subsectors according the level of knowledge implied in the production.

Figure 4. Role of changes in the composition and changes in the means in total JQI change across the EU15 (2000-2010)



Note: the black line represents the overall change of the variable.

Source: Authors' analysis from EWCS micro-data.

A final way of approaching the question of stability versus change in job quality is to look at it from the point of view of the different types of jobs existing in the economy (and not the workers, as we have done until now). From this perspective, the aim is to quantify the number of jobs -defined by crossing the sector of activity (following 2-digit NACE) and the occupational category (according to 2-digit ISCO)- that have experienced increases in their quality -as measured by the JQI- and the number of jobs whose JQI has been stagnant or decreasing. Table 5 presents the results of such exercise, which points out that most of the jobs (82%) show no statistically significant change in their JQI (the average score in these jobs goes from 56.7 to 57.1). In contrast, only 4% of the jobs show a significant decrease in their JQI (from 61.5 to 54.4). Sales and services elementary occupations in real estate activities or office clerks

in the post and telecommunication sectors, with a decrease in their JQI of 10%, are two examples of such jobs.

Table 5. Evolution of the JQI from the perspective of the jobs in the EU15 as a whole (2000-2010)

	Number of jobs	Share of total jobs (%)	Share of total employment in 2010 (%)	Average JQI	
				2000	2010
Jobs significantly worse in 2010 than in 2000	13	2	4	61.5	54.4
Jobs with no significant change	312	47.5	81.6	56.7	57.1
Jobs significantly better in 2010 than in 2000	31	4.7	12	58.8	65
Too small to tell	301	45.8	2.3	---	---

Note: The level of significance used is 95.5% (the change between two consecutive years should be above two standard errors to be classified as significant). Only jobs with 15 or more workers in all the surveys were included in the estimation (those jobs with less than 15 workers in the any EWCS sample account for 2.3% of total employment).

Source: Authors' analysis from EWCS micro-data.

A different, but related question is to what extent the above described behaviour of job quality hides changes in its distribution among individual workers, an issue that we can also test thanks to the individual-based approach of the JQI. In order to do so, first, we compute the Gini index of the EU15 for the JQI and its integrating dimensions and, second, we compute the average JQI (and the subsequent dimensions) by quintile categories. Regarding the former approach, there have not been any major changes in the distribution of job quality among workers. The Gini Index of the JQI remains reasonably constant during the period (around 0.18, with no statistically significant change) with significant reductions in inequality in the dimension of intrinsic job quality (from 0.17 in 2000 to 0.162 in 2010) and health and safety (from 0.262 in 2000 to 0.246 in 2010) and non-significant work-life balance (from 0.169 in 2000 to 0.165 in 2010). On the other side, we detect a significant increase in the dispersion of employment quality (from 0.302 in 2000 to 0.313 in 2010).

But the picture changes when we look at national level. Focusing on the JQI for the sake of brevity, for the period as a whole there is a large number of countries with relevant increases in inequality in terms of job quality (Denmark, Greece, Spain, Ireland, Luxemburg, Netherlands, Austria, Finland and Sweden). This increase in inequality is even larger when we look at the first period of analysis, as in most of the

mentioned countries the distribution of the IJQ follows a pro-cyclical pattern: i.e. the crisis has an equalizing effect, probably related to the destruction of low quality job during the first part of it.³

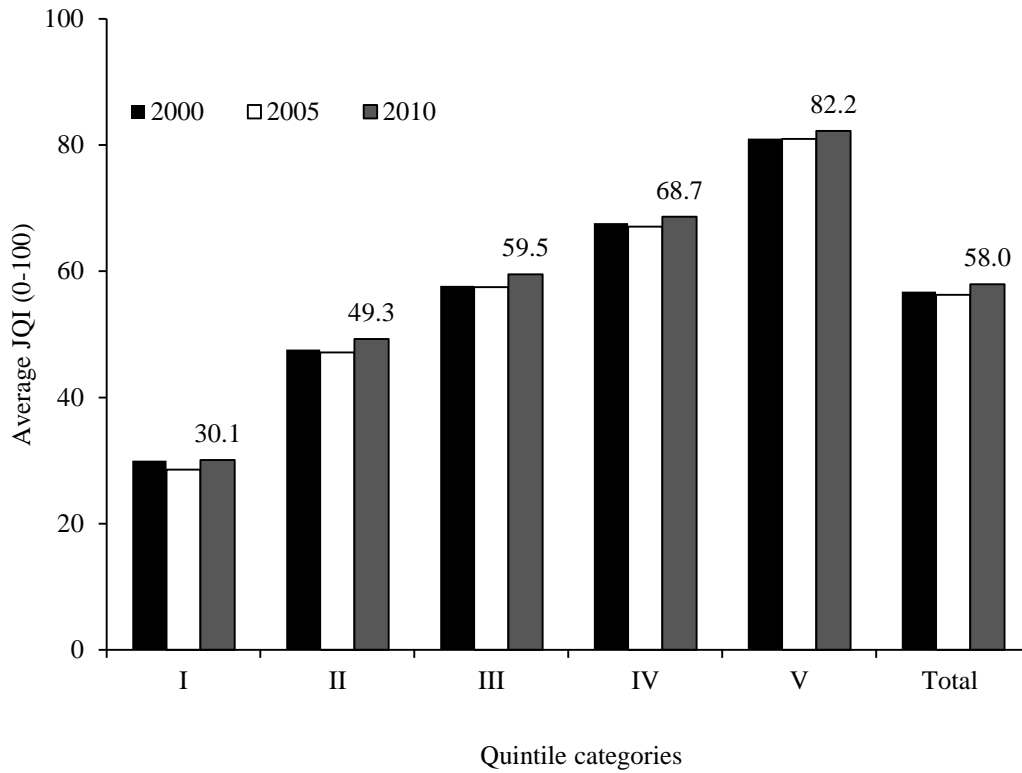
Regarding the quintile approach, whose results are depicted in Figure 5, two conclusions arise. The first one is the existence of a sizeable job quality gap between the top and bottom quintiles. This difference is higher than the difference in IJQ among many EU15 member states, which means that most of the job quality differences among workers in the EU15 is explained by differences within countries, and not so much by differences in job quality between countries. This conclusion is formally backed by the results obtained from the decomposition of the Theil Index of the JQI for 2010, which shows that inequality of job quality between countries explained only 4% of the overall inequality in the JQI.⁴ It is worth mentioning that the difference in job quality is narrower than the existing difference in net disposable income, where, according to data from the European Union Statistics on Living Conditions, the share of national equivalised income of the top quintile was as high as 7 times higher in Spain than in the lowest quintile in 2010. The second element to highlight is the remarkable stability of the quintiles throughout the period.⁵ It seems that so far the dynamics of polarization of employment that has been previously detected during the crisis (Hurley, Fernández-Macías and Storrie, 2013) is absent in terms of job quality, at least for the period studied here. Once again, that means that the process of adjustment of the European labour market has relied more on employment than on changes in the quality of jobs.

³ The results with respect to the evolution of Gini indices for job quality and its components are available on request.

⁴ For details on this very well-known decomposition, see, for instance, Cowell (2011).

⁵ This conclusion also applies to the four dimensions of the JQI, although we do not show the results in the main text for brevity. Detailed results on the evolution of average job quality by quintiles in each dimension are available from the authors upon request.

Figure 5. The evolution of the average JQI in the EU15 as a whole by quintile (2000-2010)



Source: Authors' analysis from EWCS micro-data.

4. CONCLUSIONS

The aim of this article has been to address the evolution of job quality during first decade of this century, with special focus on the events surrounding the recent financial and economic crisis. In order to do so, we have explored the evolution of a measure of job quality, the JQI, constructed from individual data for non-monetary dimensions of working conditions using the last three waves of the EWCS. The main message to convey is the remarkable stability of job quality both before and during the first part of the crisis. Taking the period as a whole, only Denmark and Germany have shown minor negative changes in the JQI, in both cases explained by a deterioration of JQI before the crisis (2000-2005). In relation to the second part of the period of interest (2005-2010), only France and Luxembourg have experienced how a relevant reduction in the JQI (4% and 2.7% respectively). In contrast, the JQI has seen consistent and significant improvements in Spain, Ireland, Greece, Portugal and Finland during the

same lapse, probably related, at least in the first 4 countries, to the existence of a process of convergence in job quality within the EU.

We have discussed in detail the possible causes behind these developments, particularly, the lack of response of job quality to the crisis until 2010. Using shift share analysis, we have ruled out that such lack of response has been a product of compositional employment changes. Although this element has played a positive part in explaining the increase in the JQI during the period, they are far from being the overwhelming force behind it. In fact, changes in the means and composition are responsible for the overall change on a roughly 50/50 basis. In most cases, the changes in the means and in the composition reinforce each other. Only in Luxemburg, Denmark and France the composition (positive) and means effects (negative) follow different directions. Therefore, we have resorted to other plausible explanations for our findings, paying particular attention to explanations for downward wage rigidity, which are also likely to play a role in the determination and variation of non-monetary working conditions.

In terms of the distribution of job quality, the analysis performed using different indices of inequality, has shown very minor changes at the aggregate EU15 level, although the picture changes when we have gone down to the country level. Taking the complete period, almost two thirds of the countries experienced an increase in inequality in the JQI. This increase is even larger when we look at the period 2000-2005. As the distribution of job quality seems to follow a pro-cyclical pattern, the impact of the crisis was equalizing in terms of job quality in the period studied.

The results obtained here do not preclude that in the near future (or even now) the increase in unemployment related to the double-dip recession and the policies of deregulation of the labour market pursued across the EU might lead to a deterioration of job quality; but so far, there is quite compelling evidence to say that such deterioration was not yet visible in 2010. The 6th wave of the EWCS, to be conducted in 2015, might shed more light on this issue.

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