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

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ABSTRACT

Using a recently developed aggregate indicator of job quality and three waves of the *European Survey of Working Conditions* (2000, 2005 and 2010) this paper explores the evolution job quality in the EU15 during the first decade of the 21st century, including the initial impact of the Great Recession. After a careful study of the evolution of job quality across the different dimensions and components of the proposed job quality index, differentiating between changes in the composition and changes in the means, we do not detect any major decline in job quality during the period, even during the early years of the economic crisis. The most significant change is a small increase in job quality in peripheral European countries, suggesting some convergence which may be undone in later years. We compare our findings with the conclusions of other authors and 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.

1. INTRODUCTION

Job quality has become a policy 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 controversy about mini-jobs in Germany (*Financial Times*, 2012) or the ongoing debate about the progress of the European Union (EU) in promoting "more and better jobs", as reflected in the Lisbon 2000 and Europe 2020 frameworks. 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 Economics journals. The interest on the issue of job quality by the mass media is well represented, among many others, by recent pieces of *The Economist* (2011a and 2011b) or Chang (2013) in *The Guardian*.

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 (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 study of the evolution of job quality represents an interesting issue in itself, both from a theoretical (Muñoz de Bustillo et al. 2011a; Holman 2012; Holman and McClelland 2011; Green and Mostafa 2012; ILO 2012) and an economic-policy perspective (Bothfeld and Leschke, 2012). Such interest has been recently boosted by concerns about the impact of the double-dip European recession of 2008 on job quality and the sluggish recovery of most EU economies since then. The objective of this paper is primarily descriptive, trying to offer new empirical evidence on the evolution of the quality of jobs in Europe recent years.

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 (McGovern,

Smeaton and Hill 2004) and the rising international competition from newly industrialised nations has reduced the power of labour to improve working conditions or even defend the status quo (Appelbaum 2012; Carré et al. 2012). From a different angle, the reduction of the demand for goods and services and the growing competition associated to the crisis 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, workplace risks or work intensity, related directly or indirectly to labour costs (Kalleberg 2011). From both perspectives, a deterioration of job quality would be an unsurprising outcome. The cuts in the remuneration of public sector workers or 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 would confirm such expectations.¹

Nevertheless, a recession might also exert the opposite influences on job quality. 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 a result of the change in employment composition. In this respect, is important to distinguish between different paths of change of job quality, with different implications: changes in the stocks of jobs *versus* changes of the quality of the existing jobs themselves (Carré et al. 2012). Secondly, many components of job quality -such as most of those related with the physical environment of the job, intrinsic job quality or even wages- 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. The existence of these opposing forces leaves the direction and intensity of the final impact of recession on job quality indeterminate.

There is an important caveat, however, with respect to our discussion of the impact of the crisis on job quality in the following pages. We use three waves of the European Working Conditions Survey in our analysis, the latter of which was conducted in 2010. Although at that point most European countries had suffered a significant drop in GDP as well as increases in unemployment, 2010 may be too early for the crisis to be

¹ See, for instance, Vaughan-Whitehead (2011 and 2013) for an elaborate list of austerity measures with a potential effect on job quality across Europe and Conefrey and Smith (2014) on the entry wages of new graduates in Ireland.

yet reflected in the conditions of work and employment. On top of that, the 5-year periodicity of the EWCS means that the period covering the first impact of the crisis (2005-2010) includes also the last few years of economic growth of the previous upswing (2005-2007). A lack of change between 2005 and 2010 may conceal an increase until 2007 and a similar decrease later. What this means is that with the data we currently have, we cannot make a complete and definitive evaluation of the impact on the crisis job quality. What we can do, however, is study whether the initial impact of the crisis, which was indeed significant in terms of GDP and employment in most European countries, had a significant effect on job quality, and try to explore why.

With this purpose, the rest of the paper unfolds as follows. Section 2 outlines the measure of job quality to be used (an improved version of the JQI developed by Muñoz de Bustillo et al., 2011a) 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 analyses performed for a similar period with alternative indicators (Leschke, Watts and Finn 2012; Erhel et al. 2012; Green et al. 2013), and discuss possible explanations for the observed patterns of change. 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, many indicators have been proposed with that aim from different theoretical perspectives and involving dissimilar levels of complexity and data requirements. In a detailed review of these existing indicators, Muñoz de Bustillo et al. (2011b) propose a number of desirable properties that any job quality indicator should fulfil. The measure presented in this paper fits those properties: it is multidimensional, it is built on objective and outcome variables (rather than subjective and procedural ones), it includes dynamic variables (measuring advancement opportunities) to complement the static ones, it aggregates the variables and dimensions in a transparent and testable way and it is constructed from individual-level data and

provides individual-level results (allowing for the analysis of distributional issues or compensation mechanisms between different attributes of job quality). We elaborate more on these issues below.

The measure of job quality presented in this paper heavily draws on the model developed by Muñoz de Bustillo et al. (2011a). Such Job Quality Index (JQI) is 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. The sensitivity of the weighting scheme is assessed in Muñoz de Bustillo et al. (2011a), finding that the rank correlation of country results obtained using alternative systems of weights is remarkably high, with very few changes in the ordering of the countries when the weights are adjusted assigning 40% to a certain dimension and 15% to the each of the others. This assessment provides evidence of the robustness of the JQI for international comparisons. The score of each of the five dimensions is computed using an arithmetic average of the values of its lower-level components, weighted according to the values shown in figure 1. Formally, for a certain individual i , the JQI can be expressed according to the following formula:

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

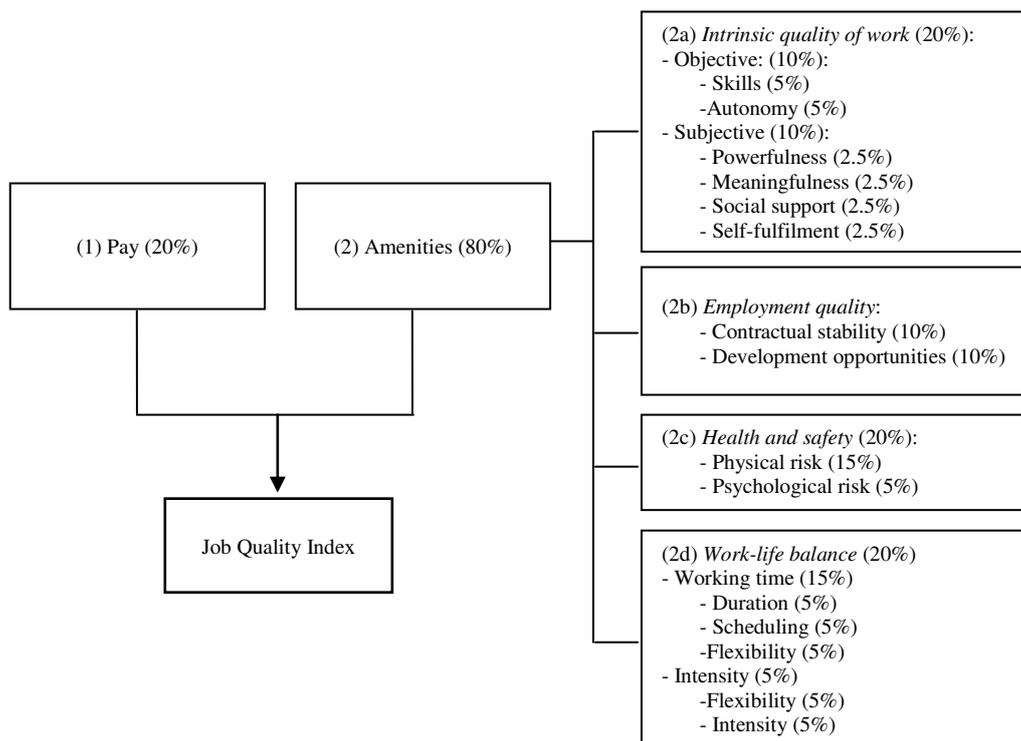
where X_{ij} denotes the score received by dimension j for the individual i . Each dimension takes a value between 0 and 100.²

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

² The standardization of the original variables to a 0-100 scale was carried out according to a normative logic, as explained in Muñoz de Bustillo et al. (2011a: 153-154). The wage dimension has been subject to further procedures for normalization. First, the values were adjusted for purchasing power parities, relative to the EU15 average. Second, all the values were adjusted for the real increase in purchasing power over time (indexed to the EU15 value for 2000). Third, in each wave, the values were rescaled to 0-100 with 0 corresponding to the lower decile in the lowest paid country and 100 to the highest one. It is important to note that the pay variable has suffered very significant changes in the three waves used in this paper (in 2000, it used *ad-hoc* intervals; in 2005, intervals linked to wage deciles in each country; in 2010, it was measured as a continuous variable).

evaluating the complementarity 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. Other key features of the JQI are the emphasis on results (rather than procedures), the grounding of the model on a detailed discussion of the specialised literature in the traditions of Social and Health Sciences and the focus on objective (rather than subjective) elements. In relation to the last item, although there is a vast literature exploring job quality from the subjective perspective of the worker, or work satisfaction, whenever possible, the JQI focuses in the objective elements of the job in order to be able to have a single metric of job quality independent of workers' preferences and characteristics.³ In this respect, although the recent proposal of Knox et al. (2015) is a step forward in the reconciliation of the objective/subjective dichotomy, its methodological characteristics make it unsuitable for large scale comparative analysis.

Figure 1. The structure of the Job Quality Index



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

³ For a critical appraisal of the use of job satisfaction as an indicator of job quality see, among others, Muñoz de Bustillo and Fernandez Macías (2005).

The analysis of job quality carried out in this paper is based on the above-mentioned index, but we have introduced some changes with a two purposes. First, we slightly simplify the JQI to adapt it to the differences in the three waves of the EWCS (2000-2005-2010); second, we introduce some corrections in the original index to solve few minor problems detected since its original development. The pay component has to be adapted to reflect the change in the real purchasing power of wages between 2000 and 2010, as well as the relative position of each country with respect to the rest (for more details, see footnote 2). The other four components, reviewed below, are largely consistent with the original version of the index, although in many cases less comprehensive (based on fewer variables) to ensure consistency in our measurement across different waves of the EWCS. In what follows, we 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 removes 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).⁴ As a result, this dimension is now based on 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 (the variable on how are working time arrangements set, which unfortunately changed across waves of the EWCS). The assumption is that the higher the autonomy, the higher the job quality.
- Social support: just one dichotomous variable, for consistency.⁵

⁴ In the earlier version of the index, the inclusion of this component implied the inclusion of the same variable in two different dimensions of the index, which is also undesirable.

⁵ This indicator was part of the previous version of the index, as one of the components of the "subjective" intrinsic quality of work, following Blauner (1964). Because it is arguably less "subjective" than other components of such model (such as meaningfulness and self-fulfilment) and it displays better statistical properties for the index (in terms of its variability), we decided to keep it.

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 values in between). We cannot 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 binary indicator. 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 with respect to Muñoz de Bustillo et al. (2011a). It has been impossible to construct a consistent time series of psychosocial risks because of the change in the formulation of questions: so in this paper, only physical risks are taken into account. With respect to the logic of aggregation of information from individual variables, the original index took the worst score of eight variables measuring workplace risks. This approach gives a too negative account of workplace risks. Other authors (Green and Mostafa 2011) take the average exposure of to all risks, 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). In the current version of the JQI we choose 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, therefore, it can produce more negative results for some long-hours and high-autonomy work schedules (typical of managerial positions, for instance). Table 1 summarizes the structure of the updated JQI.⁶

⁶ A table with the differences between the original (Muñoz de Bustillo et al. 2011a) and the updated JQI can be found in Appendix 1 (Table 5).

Table 1. Structure of the updated JQI

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

Note: The weights of the item and the question number of the EWCS dealing with the item are shown between brackets.

Source: Authors' elaboration from EWCS.

Before finishing this section, we highlight the main advantages of using the proposed JQI in the analysis of the changes of job quality during the first decade of the new millennium. First, the index allows for full coverage of the dimensions considered in the literature as relevant to the analysis of job quality. Second, the use of individual data allows fully accounting for the possible interactions between the different dimensions and its concentration in specific groups of workers. Third, the JQI, the base model of job quality and the data has been fully proven (including robustness and stability) in previous comparative analysis of job quality in the EU (Muñoz de Bustillo et al. 2011a). Lastly, having an overall index of job quality allows going beyond the realm of specific country and sectorial analysis and anecdotal evidence, contributing to a better understanding of the dynamics of the labour market in times of change.

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).⁷

⁷ The Eurofound is 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 EWCS 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 higher than in other European labour market surveys. Another important advantage of the EWCS is a 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 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 based on 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.⁸ 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 one 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 the estimation is unreliable. Another potentially problematic characteristic of EWCS for monitoring job quality in the EU is its periodicity, since it is only carried out every five years. Finally, as we have seen, there are problems with the consistency of some variables and questions over time.

The analysis of this paper is limited to the EU15, which comprises those countries present in the survey since 2000 (the first wave considered here). Also, this focus on the EU15 states allows for a reasonable manageability and interpretation of the results.⁹

⁸ 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.

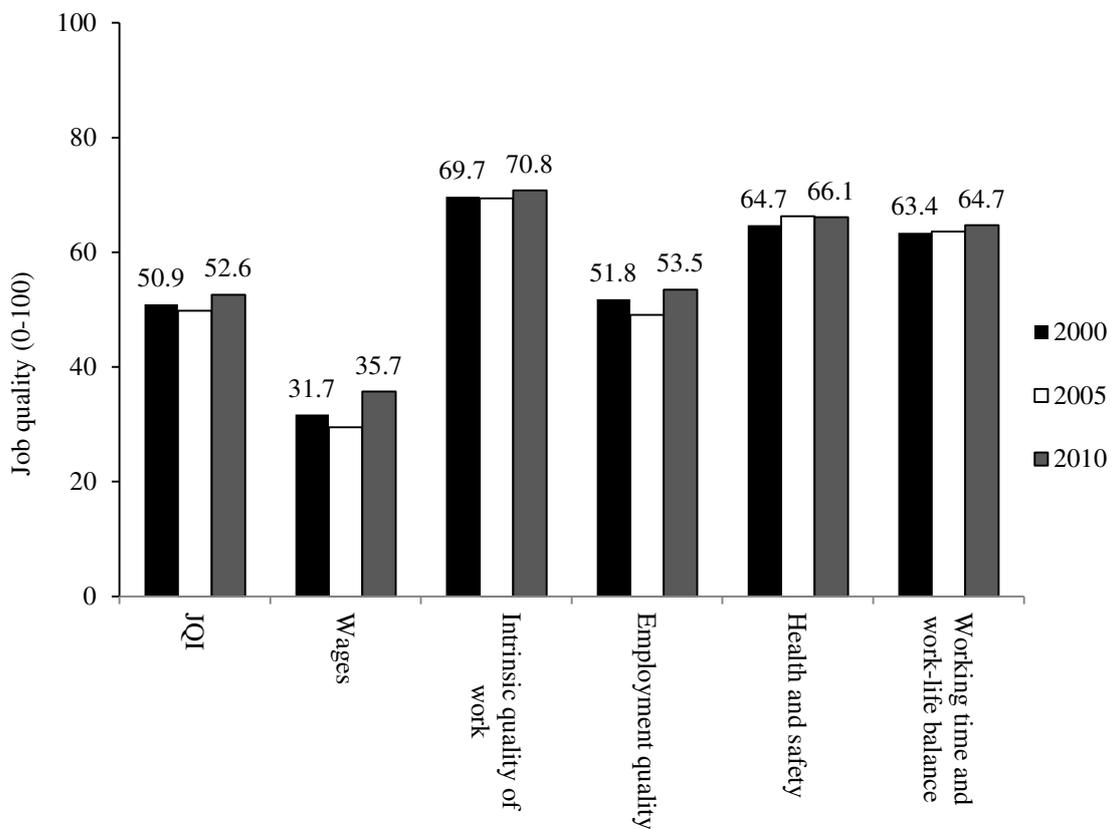
⁹ More details on the methodology and characteristics of the EWCS can be found at the Eurofound's website (<http://www.eurofound.europa.eu/surveys/ewcs/index.htm>), while the databases are freely available through the United Kingdom Data Service in Essex (<http://ukdataservice.ac.uk/>).

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 in 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 remarkably stable job quality, with minor increases in all five dimensions when we consider the period as a whole.

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



Source: Authors' analysis on EWCS micro-data.

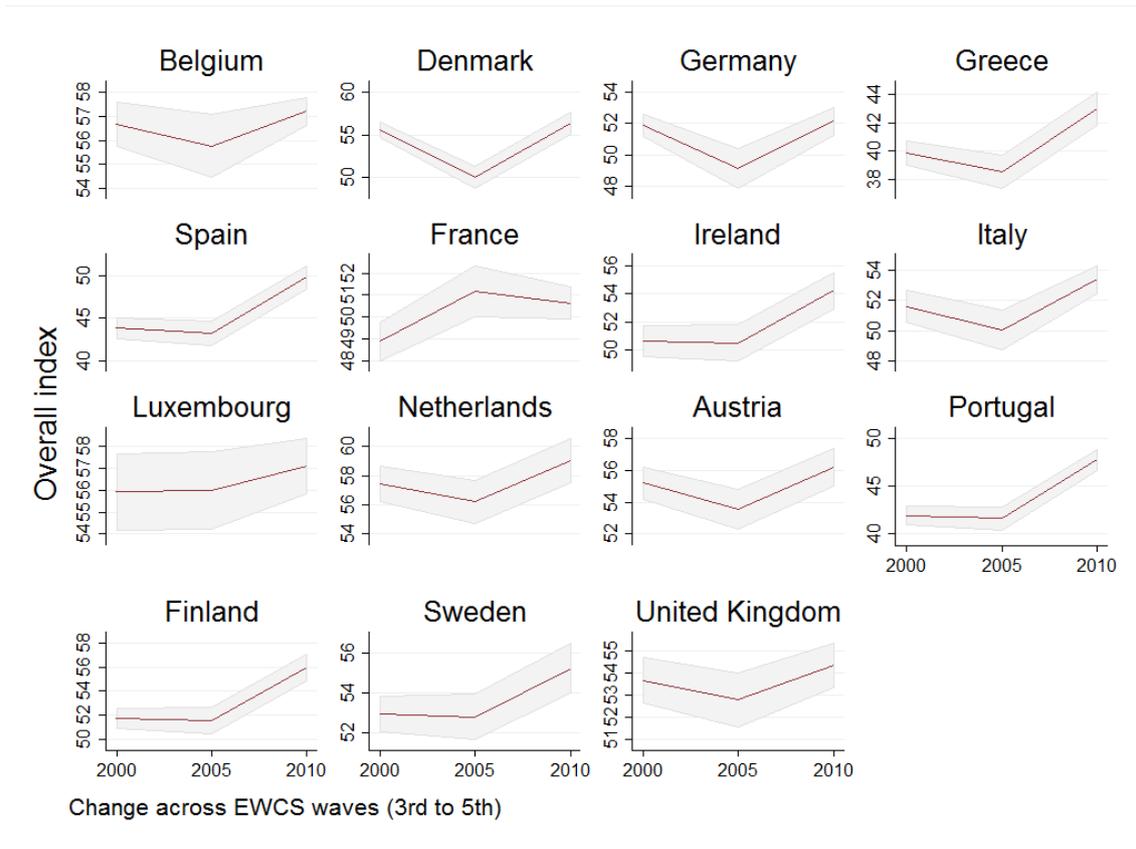
Obviously, the aggregate result for the whole EU15 is of limited interest, so the following natural step is to go into detail and to see what happens in each of the fifteen countries. Particularly, it is interesting to assess whether this picture of relative stability at the EU level masks relevant changes of job quality across countries. Figure 3 presents the evolution of average job quality (showing 95% confidence intervals) in the 15 countries of interest. The most frequent pattern is one of initially declining and later

increasing job quality, which would therefore go entirely against the economic cycle (although we must emphasize that the period 2005-2010 contains as many good as bad years). However, taking the intensity and statistical significance of those changes into account (indicated by the confidence intervals around the lines), we can split the countries in two groups:

- 1) Countries where the changes are statistically non-significant throughout the whole period (indicated by overlapping confidence intervals in the charts): Belgium, Luxembourg, Netherlands, Austria and the UK. Germany and Denmark also belong to this group, although there is an important difference with the rest: the decrease in job quality in the first half of the period is statistically significant, even if in the second half overall job quality increases significantly again to a level very similar to the one in 2000 (so that in the end, there is no change between the beginning and end of the period in these two countries either).
- 2) Countries where the (small) worsening in the early half of the period is statistically non-significant, but the improvement in the second half was strongly significant: Greece, Spain, Ireland, Italy, Portugal, Finland and Sweden. In other words, in these countries job quality increase significantly over the period, an increase which is concentrated in the last five years. It is interesting to note that this group includes the entire EU15 periphery, as well as two Nordic countries (also geographically periphery but normally not included in the same group).

France does not fit in any of these two categories, with a sui generis evolution marked by a significant improvement in the first 5 years of the period (not seen elsewhere in EU15) and no significant change afterwards.

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.

So overall, there is no evidence of a deterioration of job quality in the first few years of the crisis (until 2010). The results actually suggest the opposite, even if in many cases it is not statistically significant. Nevertheless, there are a few cases, including most of the EU15 periphery, in which job quality increases between 2005 and 2010 and such a change is statistically different from zero. Only in France does job quality marginally decrease between 2005 and 2010, a change which is not statistically significant.

The relatively minor changes experienced by the JQI throughout the period means that there are few significant 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. However, there are some exceptions in this respect: most notably, Germany goes down significantly in the first half of the period (from a middling position to the 4th lowest), without recovering in the

second half of the period (its scores improve, but most countries do so as well); Ireland experiences a slight improvement (climbing two positions); and Denmark and France shift in the first half of the period (upwards and downwards, respectively), only to recover the initial position in the end.

In order to evaluate to what extent the overall increase of the JQI over the period 2000-2010 hides different behaviours of its components, Table 2 summarizes the evolution of the five components of the JQI. Pay is the dimension that shows a clearest countercyclical behaviour, similar to the one discussed earlier for the overall index: only in Spain and Ireland there is a consistent trend of improvement; in Belgium, Denmark, Germany and Sweden, a significant decrease followed by a significant increase in the scores of this component is observed; in most other countries, the only change consists in a significant increase in the second half of the period, with some countries showing no significant change at all. Therefore, the first period of the crisis either trigger or coincides with a significant increase in pay levels in many European countries. Of all the dimensions of the JQI, the area of *intrinsic job quality* is the one that presents more consistent and significant increases. In more than half the cases we can see a consistent general upward trend throughout the whole decade. 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. In most countries, the pattern is a countercyclical one similar to the one already observed for pay: since this dimension measures the quality of employment contracts, this is likely to reflect the destruction of contingent employment that typically takes place in the beginning of a crisis, leading to a compositional improvement in the average quality of employment contracts. That is certainly the case for Spain, where, from 2007 to 2009, temporary employment fell by 1.34 million workers, while open-ended employment increased by 0.1 million, pushing down the temporary employment rate from 32 to 26% (Muñoz de Bustillo and Antón, 2011). The role of compositional effects in overall job quality will be discussed in more detail in subsection 3.2. 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

activity have a positive impact on accidents at work.¹⁰ Considering the whole period, only Austria shows a significant deterioration of the dimension. Finally, the dimension devoted to *working time and work-life balance* shows important, but highly inconsistent, changes during the period. The most frequent pattern is again 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 (perhaps related to the change in working time regulation approved in July 2009), UK, and Ireland.

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

1. Pay			
Consistent trend 2000-2010		Inconsistent trend 2000-2010	
Up	Down	Down, then up	Up, then down
ES*, IE*		BE*, DK*, DE*†, SE*, GR*(up), FR*(up), IT*(up), PT*(up), FI*(up)	LU, NL, UK, AT
2. 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*
3. 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
4. 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)
5. Working 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. † Not available in 2000

Source: Authors' analysis from EWCS micro-data.

Table 3 presents a further breakdown of 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 5 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 the level of the index or the dimensions. Still, they are statistically significant and consistent in many countries, 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 popular in the media and the remarkably consistent or even increases overall 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 ones. 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 3. Evolution of the average value of all components of the JQI (change in points in each index, 2000-2010).

	BE	DK	DE	EL	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	Total
JQI	0.6	0.7	0.3	3.1	5.9	1.8	3.6	1.8	1.2	1.6	1.0	5.8	4.2	2.3	0.7	1.8
(1) Pay	2.3	6.3	2.1	3.9	10.2	4.6	11.3	6.3	4.1	4.2	2.8	5.6	6.1	3.0	0.2	4.0
(2) 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
(3) 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. Bold figures indicate that changes are statistically significant from zero at the 5% level.

Source: Authors' analysis from EWCS micro-data.

Table 3. Evolution of the average value of all components of the JQI (change in points in each index, 2000-2010) (continued)

	BE	DK	DE	EL	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	Total
(4) 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	5.1	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	6.6	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	3.8	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	0.4	-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	5.4	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	0.9	-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	6.7	-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	1.9	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
(5) Working time and WLB	-0.5	-2.4	-2.4	-3.4	3.7	3.8	1.8	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	10.0	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	1.0	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	-2.3	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	2.7	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	-2.3	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	5.9	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	-5.7	-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	-6.5	-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	-4.8	-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. Bold figures indicate that changes are statistically significant from zero at the 5% level.

Source: Authors' analysis from EWCS micro-data.

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 change of the average job quality in most countries and a significant improvement in a few. In the following pages, after comparing our results to those reported by recent studies relevant in the field, we discuss the main possible explanatory reasons for the pattern found. Then, we explore the relevance of composition effects using a shift-share analysis and finish the section assessing changes of job quality across jobs and at different points of the job quality distribution.

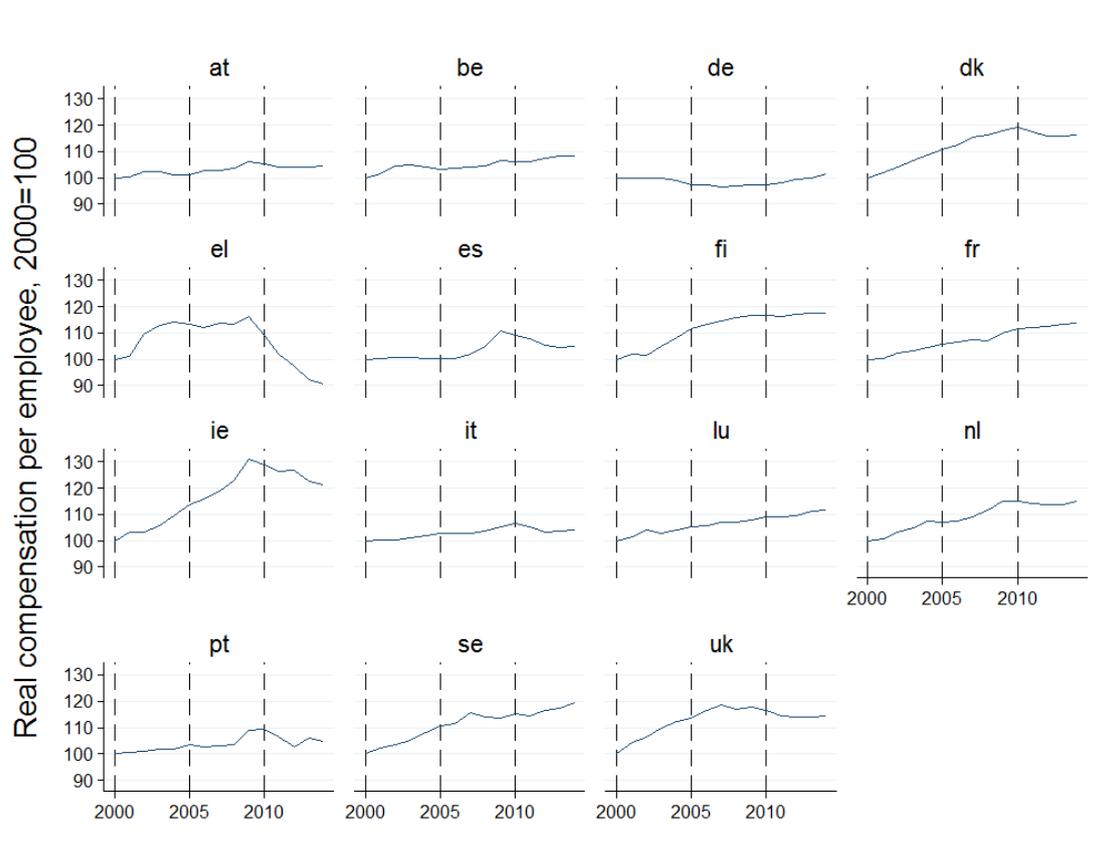
Most recent studies on this issue find very small or insignificant changes in job quality over a similar period, although some of them hint at a very small negative effect which would be contrary to our findings in previous pages. For example, Erhel et al. (2012: 8), using a composite job quality index 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. However, the wage index used by these authors compares 2007 and 2010, so it is not really comparable; while developments in non-standard employment differ considerably across countries, with marked improvements in countries such as Spain for compositional reasons along the lines of our earlier findings. Similar results are reported by Leschke and Watt (2014), following a very similar approach as Erhel et al 2012. Finally, in their analysis of non-wage aspects of job quality in the EU15 between 1995 and 2010, Green et al. (2013: 15) find that “*there is a strong pool of continuity in both the level and the inequality of job quality in these countries*”, even in the last period despite the impact of the crisis. The longer-term pattern, they suggest, is one of slowly increasing levels of job quality, particularly in the working time dimension (similar to our work-life balance component).

Beyond some small differences in the direction of the tiny and often insignificant changes (related to the periodization and specific variables used), what seems clear comparing different studies is that job quality is remarkably stable over time, even in the first few years of the Great Recession, during a period in which GDP

and employment fell very significantly in many European countries. How can we reconcile such a contradiction?

First of all, there is a problem in the periodization of our analysis (which is unfortunately imposed by the available data). On the one hand, since the last point of our data is 2010, there is no material time for the crisis to have affected yet employment and working conditions. On the other hand, the five years passed between the last two points of data 2005 and 2010 include both the peak of the good years and the first couple of very bad years: if the direction of change followed the cycle in any way, both trends might have cancelled each other out to some extent.

Figure 4. Development in real wages between 2000 and 2014, EU15



Source: Authors' analysis from AMECO database.

To illustrate this point, Figure 4 uses yearly AMECO data on real wage developments between 2000 and 2014. There is indeed a change in the trend associated with the crisis, but in most cases it took place around 2009. Furthermore, in most cases real wages increasesignificantly in the period 2005-2009, even faster than in the previous five years. So overall, the period 2005-2010 captures more growth than decline

in wages. Not only wages accounts for one fifth of our job quality index, but it seems reasonable to think that similar developments may have affected other dimensions of job quality, probably even at a slower pace.

What these results suggest is that job quality is subject to a significant level of inertia, which explains that real changes only take place over relatively long periods of time. The literature on downward wage rigidity provides some possible reasons of such inertia (Campbell III and Kamlani 1997; Agell 1999; Franz and Pfeiffer 2006; Bewley 2007; Babecký et al. 2009). 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 and covers workers not directly involved in unions or the negotiation process itself. 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 worsen some working conditions. The second reason is associated to efficiency-wage theories, comprising both economic and noneconomic motives.¹¹ 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).

We can speculate about two further possible reasons for the counterintuitive change in job quality that can be partially tested with our data, linked to changes in the composition of employment during a crisis. Firstly, the evolution of average job quality might hide changes in the levels of job quality for different groups of workers. Specifically, it could be argued that the working conditions of new hired workers might deteriorate faster than those of senior employees, for instance, because of the mentioned

¹¹ These sorts of models suggest that higher remunerations can increase productivity through several channels. For instance, they can discourage workers' shirking as, with equilibrium wages are above the market-clearing level, the arising involuntary employment act as a disciplinary device. Also, and probably much more applicable to the context discussed here, employers can be reluctant to cut nominal wages because of sociological norms due to notions of fairness and reciprocity. See, among others, Akerlof and Yellen (1984), Fehr and Gächter (2008) and Borjas (2013) for a theoretical and empirical review on efficiency-wage theories.

institutional reasons for rigidity. In other words, one could believe that, although workers already in the labour market could be relatively protected from the effects of the crisis, the new cohorts that join the labour market might be immediately damaged by the economic turmoil. In order to test this hypothesis, we have looked 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) and the rest between 2005 and 2010.¹² In the second place, the stability might be the result of changes in the structural composition of employment. The crisis hit quite differently across different sectors and occupational categories: if employment destruction is concentrated on sectors and occupations with worse working conditions, the average JQI may rise even if within each sector and occupation working conditions actually deteriorates. This possibility is explored below in more detail.

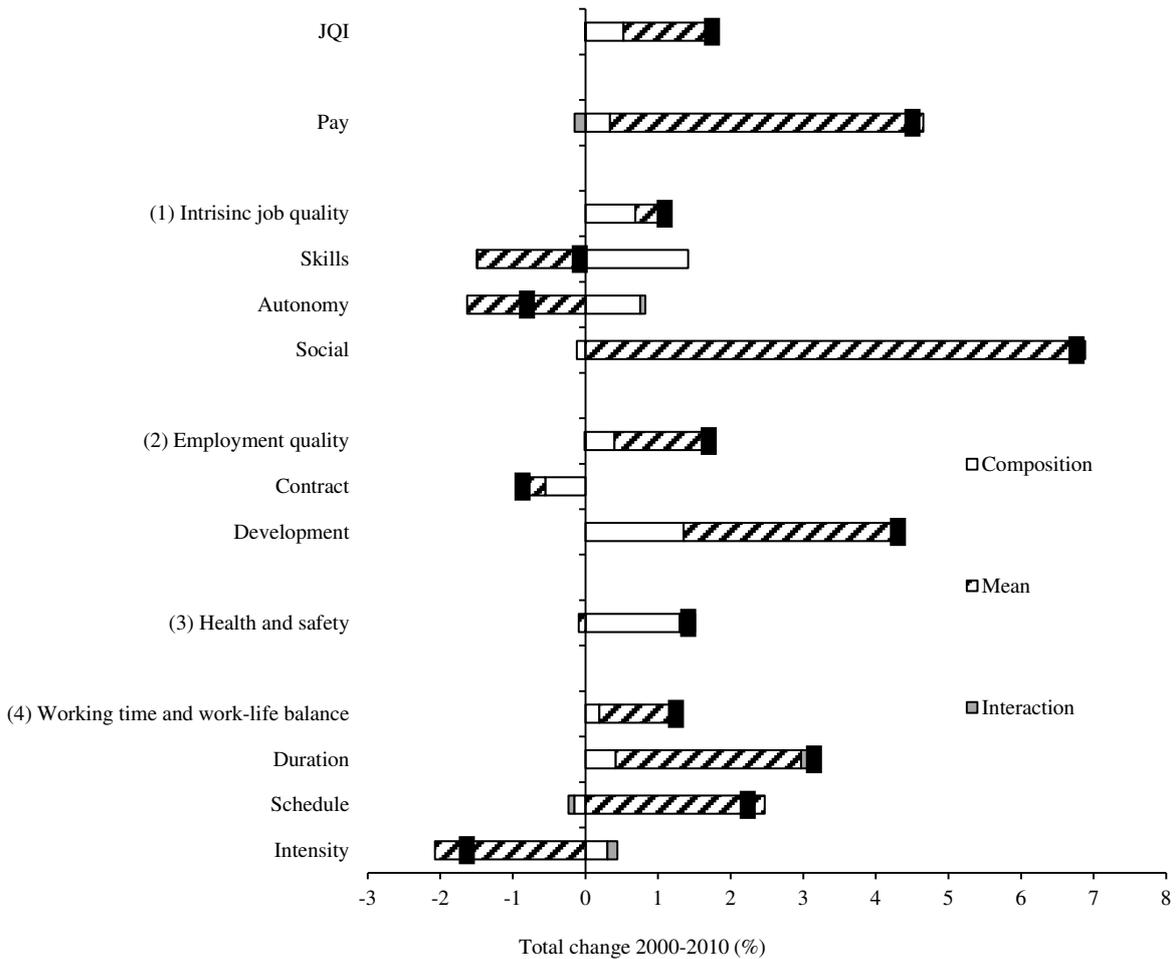
In order to test the impact of changes in the employment composition on the JQI, we performed a shift-share analysis comparing the actual JQI (and its components) with a counterfactual hypothetical JQI built under the assumption of a stable productive structure. By “stable productive structure”, we mean that the composition of employment by occupation and sector does not change.¹³ 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 (which can be interpreted as “spurious” changes of the aggregate JQI) and the interaction of both changes (a marginal term with no direct interpretation). The exercise is particularly interesting because, although most aggregate changes are small, it is possible that the above-mentioned elements operate in different directions. For instance, it could be 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 by Figure 5. 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, as showed by the graph, the overall effect is far from being a statistical-compositional artefact. In fact, the changes in the means are positive in 4 out of 5 dimensions and only marginally negative in the remaining

¹² These results are not shown here because of reasons of space but they are available from the authors upon request.

¹³ 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, with the industrial sector divided in two subsectors according to the technological level and the service sector divided in two subsectors according to the level of knowledge implied in the production.

dimension (health and safety). In overall terms, the change in the means clearly explains most of the observed increases in job quality and its components. Nevertheless, it is worth mentioning the considerable negative effect of the change in the means in the areas of autonomy, skills and intensity. At the country level (not shown here because reasons of space but available on request from the authors), 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 comparatively large negative changes in the mean (although these variations are small in terms of absolute 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, although change in the means is the dominant factor overall. While composition change plays a similar and positive role almost everywhere (i.e., structural change is biased towards relatively good jobs), it differs more across countries and dimensions and exhibits negative contributions to job quality in certain cases.

Figure 5. 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 further way of trying to understand better the surprising stability of 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 (2-digit NACE) and the occupational classification (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 4 presents the results of such exercise, which shows that most of the jobs (48%, but accounting for 75% of total employment) show no statistically significant change in their JQI (the average score in these jobs goes from 51.5 to 52.6). In contrast, only 2% of the jobs (accounting for 7%

of employment) show a significant decrease in their JQI (with the average going from 49.1 to 43.8). Sales and services elementary occupations in real estate activities or office clerks in the post and telecommunication sectors are two examples of these jobs. Around 4% of jobs (accounting for nearly 16% of employment), finally, experience a significant increase in job quality, from 51 to 57 on average. Among those jobs that exhibit significantly better outcomes, we can highlight managers in wholesale and retail trade and professionals in health and social work, financial intermediation and wholesale and retail trade.

Table 4. 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	12	1.8	6.9	49.1	43.8
Jobs with no significant change	315	48	75.2	51.5	52.6
Jobs significantly better in 2010 than in 2000	29	4.4	15.6	50.9	56.7
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.¹⁴ Regarding the former approach, there have not been any major changes in the distribution of job quality among workers.¹⁵ 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

¹⁴ That is, we rank employed population by our measure of job quality, allocate it into 5 groups, each one containing 20% of workers, and we compute the simple mean of JQI by category.

¹⁵ Because of changes in the coding of the pay variable that affect the distribution making it not strictly comparable across waves, we excluded it from the index in all the Gini calculations.

to 0.246 in 2010) and non-significant in work-life balance (from 0.169 in 2000 to 0.165 in 2010). On the other side, we detect a significant increase in the distribution of employment quality (from 0.302 in 2000 to 0.313 in 2010).

The picture changes when we look at the 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 is even larger when we look at the first period of analysis, as in most of the mentioned countries the distribution of the JQI follows a pro-cyclical pattern: i.e., the crisis has an equalizing effect, probably related to the destruction of low quality jobs during the first part of it.¹⁶

Regarding the quintile approach, whose results are depicted in Figure 6, 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 JQI among EU15 member states, which means that most of the job quality differences among workers in the EU15 are 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 a decomposition of the Theil Index of the JQI for 2010, which shows that inequality of job quality between countries explained only 3% of the overall inequality in the JQI.¹⁷ 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, for example, than in the lowest quintile in 2010.¹⁸ The second element to highlight is the remarkable stability of the quintiles throughout the period.¹⁹ 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

¹⁶ The results with respect to the evolution of Gini indices for job quality and its components are available from the authors upon request.

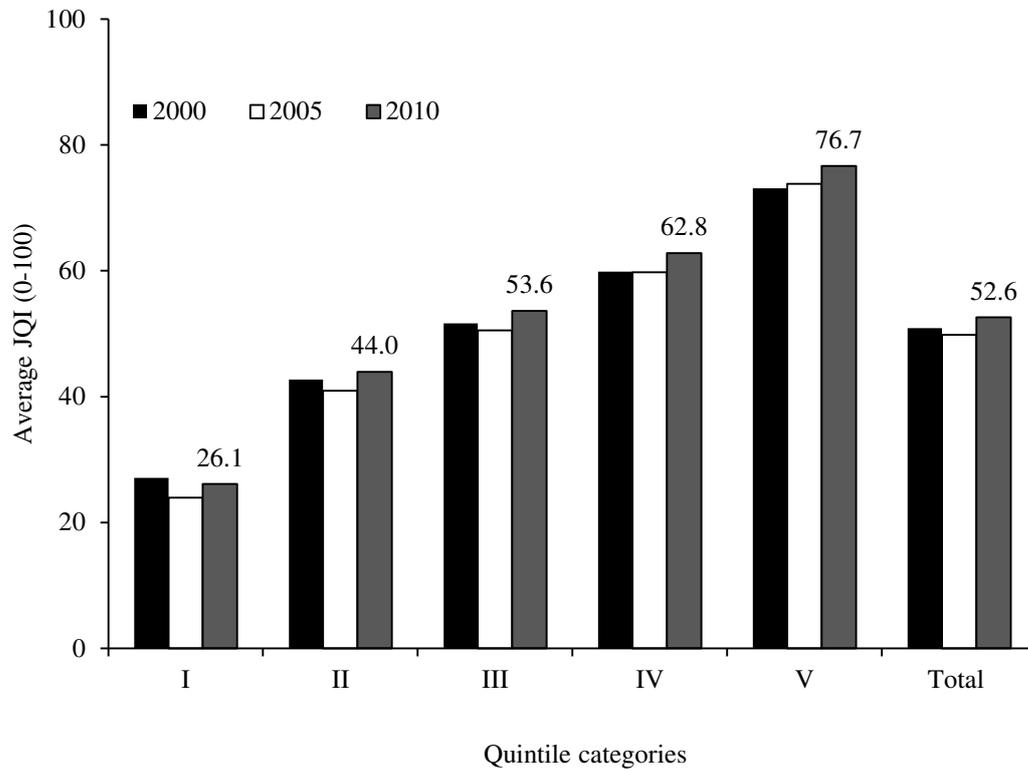
¹⁷ The Theil index is a well-known measure of inequality widely used in Social Sciences. Conversely to the Gini coefficient, the Theil index is perfectly decomposable by population groups and can be split into a component associated to within-group inequality and a factor capturing between-group inequality. For details on this very well-known decomposition, see, for instance, Cowell (2011).

¹⁸ The Spanish example at hand is in line with recent literature that finds that the dispersion of job quality, for instance, measured, for example, by the Gini index, is much lower than the inequality in terms of income or earnings (Muñoz de Bustillo et al. 2011a; Green et al. 2013).

¹⁹ 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.

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.

Figure 6. 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 discuss the evolution of job quality during first decade of this century, including the initial impact of 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 five 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. Perhaps surprisingly, job quality has tended to decrease between 2000 and 2005 and increase in the following five years in most countries, although often these changes were not significant. The most clear development was a significant increase in job quality overall

(particularly strong in the second half of the period) in Spain, Ireland, Greece, Portugal and Italy, as well as in Sweden and Finland.

We have discussed in detail the possible causes behind these developments, particularly, the apparent lack of response of job quality to the crisis until 2010. Using a shift-share analysis, we have ruled out that such lack of response has been exclusively a product of compositional employment changes. Although this element has played a positive part in explaining the increase in the JQI during the period, it is far from being the main force behind it. In fact, changes in the means account for a larger share of overall change in our job quality index than changes in the composition of employment, particularly in the dimensions of pay and employment quality. In most cases, the changes in the means and in the composition act 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. These factors would explain a certain degree of inertia in job quality developments, and therefore the lack of any obvious impact of the crisis in this respect. Longer-term effects such as a process of economic convergence between the periphery and the core of Europe, might explain the positive developments in recent years. The periodization of our analysis, constrained by the available sources, could also conceal any negative development near 2010 by averaging it with changes in the last few years of the boom.

In terms of 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 have 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 have followed a pro-cyclical pattern, the impact of the crisis has been equalizing in terms of job quality in the period studied, with composition effects playing a very minor role.

The results obtained here do not preclude that after 2010, 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; however, 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, will allow researchers to shed more light on this issue.

REFERENCES

- Agell, J. (1999). On the benefits of rigid labour markets. Norms, market failures, and social insurance. *Economic Journal*, 109(453), 143-164.
- Akerlof, G. A. & Yellen, J. L. (Eds.) (1986). *Efficiency Wage Models of the Labor Market*. Cambridge: Cambridge University Press.
- Appelbaum, E. (2012). Reducing Inequality and Insecurity: Rethinking Labor and Employment Policy for the 21st Century. *Work and Occupations*, 39(4), 311-320.
- Babecký, J., Du Caju, P., Kosma, T., Lawless, M., Messina, J., & Rõõm, T. (2009). Downward nominal and real wage rigidity. Survey evidence from European firms. *European Central Bank Working Paper*, 1105.
- Bewley, T. F. (2007). Fairness, reciprocity, and wage rigidity, in P. Diamond & H. Vartiainen (Eds.), *Behavioral Economics and its applications* (pp. 157-188). Princeton, New Jersey: Princeton University Press.
- Blauner, R. (1964). *Alienation and freedom*. Chicago: Chicago University Press.
- Bonhomme, S., & Jolivet, G. (2009). The pervasive absence of compensating differentials. *Journal of Applied Econometrics*, 24(5), 763-795.
- Borjas, G. J. (2013). *Labor Economics*, 6th edition. New York: McGraw-Hill.
- Bothfeld, S., & Leschke, J. (2012). More and better jobs: is quality of work still an issue – and was it ever? *Transfer. European Review of labour Research*, 18(3), 337-353.
- Campbell III, C. M., & Kamlani, K. S. (1997). The reasons for wage rigidity. Evidence from a survey of firms. *Quarterly Journal of Economics*, 112(3), 759-789.
- Carré, F., Findlay, P., Tilly, C., & Warhurst, C. (2012). Job quality: scenarios, analysis and interventions, in C. Warhurst, F. Carré, P. Findlay & C. Tilly (Eds.), *Are Bad jobs inevitable?* London: Palgrave, 1-22.

- Chang, Ha-Joon (2013). There's a new jobs crisis—we need to focus on the quality of life at work. *The Guardian*, 22nd December 2013. Retrieved from <http://www.theguardian.com/commentisfree/2013/dec/22/jobs-crisis-quality-of-life-at-work>.
- Conefrey, T., & Smith, R. (2014). On the slide? Salary scales for new graduates 2004-2012. *Economic Letter Series*, 14(1).
- Cowell, F. (2011). *Measuring inequality*, 3rd edition. Oxford: Oxford University Press.
- Erhel, C., Guergoat-Larivière, M., Leschke, J., & Watt, A. (2012). Trends in Job Quality during the Great Recession, a Comparative Approach for the EU. *Document de Travail 161-1*, Centre d'Études de l'Emploi/European Trade Union Institute.
- Fehr, E. & Gächter, S. (2008). Wage differentials in experimental efficiency wage markets, in C. R. Plott & V. L. Smith (Eds.) *Handbook of Experimental Economic Results* (pp. 120-126), Volume 1. New York : North Holland.
- Financial Times (2012). Treasury weighs German 'mini jobs' scheme. *Financial Times*, 19th August 2012. Retrieved from <http://www.ft.com/cms/s/0/30c22eda-ea18-11e1-929b-00144feab49a.html#axzz38KjtYNix>.
- Finlay, P., Kalleberg, A. L., & Warhust, C. (2013). The challenge of job quality. *Human Relations*, 66(4), 441-451.
- Franz, W., & Pfeiffer, F. (2006). Reasons for wage rigidity in Germany. *Labour Review of Labour Economics and Industrial Relations*, 20(2), 255-284.
- Goos, M., & Manning, A. (2007). Lousy and lovely jobs. The rising polarization of work in Britain. *Review of Economics and Statistics*, 89(1), 118-133.
- Goos, M., Manning, A., & Salomons, A. (2009). Job polarization in Europe. *American Economic Review*, 99(2), 58-63.
- Green, F., & Mostafa, T. (2012). *Trends in job quality in Europe. A report based on the 5th European Working Conditions Survey*. Dublin: Eurofound.
- Green, F., Mostafa, T., Parent-Thirion, A., Vermeylen, G., Van Houten, G., Biletta, I., & Lyly-Yrjanainen M.. (2013). Is job quality becoming more unequal? *International Labor Relations Review*, 66(5), 753-784.

- Holman, D. (2012). Job types and job quality in Europe. *Human Relations*, 66(4), 475-502.
- Holman, D., & McClelland, C. (2011). Job quality in growing and declining economic sectors of the EU, *WALQING working paper 2011.3*.
- Hurley, J., Fernández-Macías, E., & Storrie, D.(2013). *Employment polarization and job quality in the crisis. European Jobs Monitor 2013*. Dublin: Eurofound.
- International Labour Organization (ILO) (2012). *World of Work Report. Better jobs for a better economy*. Geneva: ILO.
- Kalleberg, A. L. (2011). *Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment Systems in the United States, 1970s to 2000s*. New York: Russell Sage Foundation.
- Knox, A., Warhurst, C., Nickson, D., & Dutton, E. (2015). More than a feeling: using hotel room attendants to improve understanding of job quality. *International Journal of Human Resource Management*, 26(12), 1547-1567.
- Leschke, J., & Watt, A. (2014). Challenges in constructing a multi-dimensional European Job Quality Index. *Social Indicators Research*, 118(1), 1-31.
- McGovern, P., Smeaton, D. & Hill, S. (2004). Bad Jobs in Britain. Nonstandard Employment and Job Quality. *Work and Occupations*, 31(2), 225-249.
- Muñoz de Bustillo, R., & Antón, J. I. (2011). From the highest employment growth to the deepest fall. Economic crisis and labour inequalities in Spain. in D. Vaughan-Whitehead (Ed.), *Work inequalities in crisis. Evidence from Europe* (pp. 393-444). Cheltenham: Edward Elgar.
- Muñoz de Bustillo, R., Fernández-Macías, E., Antón, J. I., & Esteve, Fe. (2011a). *Measuring more than money. The social economics of job quality*. Cheltenham: Edward Elgar.
- Muñoz de Bustillo, R., Fernández-Macías, E., Antón, J. I., & Esteve, F. (2011b). E pluribus unum? A critical survey of job quality indicators. *Socio-Economic Review*, 9(3), 447-475.
- Muñoz de Bustillo, R., & Fernández-Macías, E. (2005). Job satisfaction as an indicator of the quality of work. *Journal of Socio-economics*, 34(5), 656-673.

- Osterman, P. (2013). Introduction to the special issue on job quality. What does it mean and how might we think about it? *Industrial and Labor Relations Review*, 66(4), 739-752.
- Osterman, P., & Shulman, B. (2001). *Good Jobs for America. Making work better for everyone*. New York: Russell Sage Foundation.
- The Economist (2011a). Job creation. Quality control. What does a 'bad job' mean?. *The Economist*. 24th September 2011. Retrieved from <http://www.economist.com/node/21530157>.
- The Economist (2011a). Wages in Germany. Merkel and the minimum. *The Economist*, 5th November 2011. Retrieved from <http://www.economist.com/node/21530157>.
- Vidal, M. (2011). Reworking postfordism: labor process versus employment relations. *Sociology Compass*, 5(4), 273-286.
- Vaughan-Whitehead, D. (Ed.) (2011). *Work inequalities in crisis. Evidence from Europe*. Cheltenham: Edward Elgar.
- Vaughan-Whitehead, D. (Ed.) (2013). *Public sector shock. The impact of policy retrenchment in Europe*. Cheltenham: Edward Elgar.

APPENDIX 1

Table 5. Comparison between the original and the updated JQI

Dimension	Original JQI		Updated JQI	
	Weighting	Variables and questions	Weighting	Variables and questions
1. Pay	20%	Gross monthly wage in Power Purchasing Parity (20%)		
2. Intrinsic quality of work	20%	Skills (5%) Autonomy (5%) Powerfulness (2.5%) Meaningfulness (2.5%) Social support (2.5) Selffulfillment (2.5%)	25%	Skills (8.3%) Autonomy (8.3%) Social support (8.3%)
3. Employment quality	20%	Contractual stability (10%) Development opportunities (10%)	25%	Contractual stability (12.5%) Development opportunities (12.5%)
4. Workplace risks	20%	Physical risks (15%) Psychosocial risks (5%)	25%	Physical risks (25%)
5. Workingtime and work-life balance	20%	Duration (5%) Scheduling (5%) Flexibility (5%) Intensity (5%)	25%	Duration (8.3%) Scheduling (8.3%) Intensity (8.3%)

Source: Authors' elaboration.