The determinants of work autonomy and employee involvement – A multi-level analysis

Helena Lopes, Teresa Calapez**, Diniz Lopes****

DinamiaCET- ISCTE-IUL, Lisbon, ** BRU–IUL, ISCTE-IUL, Lisbon, ** CIS-IUL, ISCTE-IUL, Lisbon

Abstract

Although the effects of work autonomy (WA) and employee involvement (EI) have been largely studied, their determinants, especially at the macro/institutional level, have attracted much less attention. To better understand a) the extent to which WA and EI are distinct constructs and b) the factors that explain their respective levels, we use the 2010 European Working Conditions Survey to build sound indexes of WA and EI, provide a picture of the level of both constructs in 33 European countries and analyse their predictors through a multilevel structural model. The results show that WA and EI differ in what concerns their macro-level but not micro-level predictors. Whereas union density and generalised trust strongly influence EI, only generalised trust impacts WA. Documenting that generalised trust as a macro-social trait is powerfully associated with organisational choices is a key contribution of the paper.

Keywords: Employee participation, Work autonomy, Generalized trust, Union power, Multilevel analysis

Introduction

It is largely consensual that the degree of autonomy workers have in their job and the extent to which they participate in relevant work-related decisions are key dimensions of job quality (Findlay et al, 2013; Heller, 1998, 2003). This claim is supported by influential theories, such as the job demand-control model (Karasek, 1979), and by innumerable empirical studies documenting the significant positive effects work autonomy and employee involvement have on workers' skill development (Gallie, 2009, 2013), health (De Lange et al, 2003; Haynes et al, 1999; Karasek and Theorell, 1990) and well-being (Spector, 1986; Van der Doef and Maes, 2010).

Whilst the effects of work autonomy (WA) and employee involvement (EI) have been extensively studied throughout the last decades, the analysis of their determinants began to attract attention only recently (Esser and Olsen, 2012; Gallie, 2009, 2007; Gallie et al, 2004) and the results obtained fall short of expectations, namely in what concerns the influence of trade unions. Yet, knowing which factors influence WA and EI would help policy makers take measures able to enhance job quality, a major concern of European policy circles (ETUC, 2011; European Commission, 2003). The primary aim of the present paper is to contribute to the identification of the factors that shape WA and EI.

A possible reason for the unsatisfactory results of previous studies may lie in the fact that in the empirical industrial relations literature, WA and EI are quite often

subsumed under the same construct. In fact, WA – i.e., the scope of influence workers have on how and what to do at work - and EI – i.e., the extent to which workers participate in work-related decisions – might sensibly be deemed to go hand in hand. Indeed, participation in decision-making should enable workers to broaden their discretion at work and reduce supervisory control. WA and EI might hence be expected to evolve in the same direction and exert the same effects on workers. However, there is evidence that the two phenomena sometimes evolve in different directions (Gallie et al, 2004) and affect workers in substantially different ways (Gallie, 2013). This suggests that WA and EI, though related, are distinct constructs whose differences deserve being better understood. With that purpose, our empirical analysis examines a) the extent to which WA and EI are related across countries and workers and b) whether both constructs have the same micro and macro-level predictors.

The influence of individual-level factors – job skill, type of employment contract, tenure, etc. - on WA is already established in the literature (Gallie et al, 2004). Country-level macro-institutional factors, namely union density and collective bargaining coverage, are also shown to account for cross-national variation in WA/EI taken as a single construct (Esser and Olsen, 2012; Gallie, 2009, 2007). In effect, to the extent that they deeply shape coordination modes, the strength of organized labor and employment policies are considered the most relevant institutional influences on WA/EI (Holman, 2013; Gallie, 2009).

However, generalised trust as a macro-level social trait may also affect WA and EI since it powerfully influences the dynamics of relationships between managers and workers, as well as among workers, influencing thus coordination modes and organizational choices. Yet, the effect of generalised trust on either WA or EI at the country level has not, to our knowledge, been systematically examined. A major aim of the present paper is to fill this gap in the literature. Indeed, micro-level studies show that trust may take the place of supervision in organisational contexts and is hence associated to more autonomous forms of work. For instance, Grund and Harbring (2009) confirm that a higher degree of control at the workplace is negatively associated with employees' level of trust, even when controlling for several other individual and job characteristics. Though trust is usually regarded as an individual level feature, we argue that it may also be considered a crucial property of communities or countries, i.e., a key social/institutional trait.

We use micro-data from the 2010 wave of the European Working Conditions Survey to build sound indexes of WA and EI and provide a picture of the relative level of both constructs in 33 European countries. As national averages may conceal important discrepancies between workers, our analysis distinguishes between four categories of occupational class and skill level. We then examine the determinants of both constructs through the estimation of a multilevel structural model in order to identify the factors that account for the differences in the levels of WA and EI across countries.

Studying the levels and determinants of WA and EI simultaneously and modeling their association is a major innovative trait of the present paper. Documenting the power of trust, as a macro-social trait, in influencing organisational choices is its major contribution.

The paper is structured as follows. We first define and distinguish the notions of EI and WA. We then provide the theoretical arguments that ground our expectations and hypotheses on their micro and macro-level determinants. This is followed by the presentation of the data, the construction of the WA and EI indexes and the descriptive analysis of their levels by skill group and country. We then present and conduct the multi-level econometric analyses, discuss the results and limitations of the study and conclude.

Defining and distinguishing between work autonomy and employee involvement

In industrial relations, work autonomy (WA) and employee involvement (EI) are often subsumed under a single construct (Knudsen et al, 2011; Busck et al, 2010; Hyman and Mason, 1995; Ramsay, 1983; Pateman, 1970). In this strand of literature, primarily interested in industrial - workplace - democracy, WA and EI are seen as two of the forms in which workers can directly participate in work-related decisions. Workers may also influence work indirectly, through the mediation of workers' representatives, but it is direct participation which is the focus of the present paper. Insofar as it allows democratic and civic skills to be developed, direct participation at work was considered in the 1970s

an essential element of democracy (Pateman, 1970). However, direct participation has often been denounced as resulting in further exploitation and manipulation of workers (Ramsay, 1983; Hyman and Mason, 1995). Also, the fact that most participatory practices in the last decades had been sponsored by management casts doubts about whether such schemes effectively enhance workers' participation in decision making. This led most scholars to use the more neutral term "employee involvement" (Hyman and Mason, 1995; March and Wilkinson, 2000). Heller's (1998, 2003) reviews of the theoretical and empirical literature in this area provide an insightful account of the optimistic and pessimistic views about the possibility of distributing influence and power more evenly at workplaces, recasting interest in studying direct participation/employee involvement.

The definition and forms of Employee Involvement are far from straightforward. We define EI as the degree to which workers are able to exert influence over work through communication processes. The scope of EI may vary immensely depending on the degree, form, level and range of subject matter (March and Wilkinson, 2000). EI can go from simple information sharing through consultative processes to participation in co-determination instances. The decisions in which workers may be involved can range from task-related to corporate strategic issues. EI can also take different forms, from downward and upward communications to varying types of team work (quality circles, semi-autonomous groups, self-directed teams). However, as referred above, workers may express their opinions but their voice may not be heard, or they may be consulted on

decisions that have already been taken. The items used in our empirical study allow capturing both purely formal consultative practices and real influence at work (see Table 1).

We define Work Autonomy as the extent to which workers are able to exercise control and influence over their immediate work activities. It refers to the scope of the latitude to take decisions on the content, methods, scheduling and performance of work tasks (Breaugh, 1985). The degree of WA is an outcome of the way in which work is organised and of the extent and forms in which it is controlled. Consequently, like EI, the scope of WA may vary immensely. It may range from being able to choose the ordering of one's tasks to being able to decide which tasks to do as well as how and when to do them, which would mean full self-determination at work and freedom from any type of control. In the last decades, organizational structures based on job enlargement/ enrichment and management practices aimed at functional flexibility largely contributed to enhancing the discretion and responsibility some workers have in work.

As to the effects of WA, most social scholars consider that it is beneficial for workers' self-esteem, personal growth and psychological well-being (Deci and Ryan, 2000), even when it is associated to work intensification and work pressure (Karasek and Theorell, 1990). On the same vein, Gallie (2013) shows that even the workers who do not desire having high work autonomy - workers with low "growth need strength" (Hackman and Oldham, 1975) – benefit from it in terms of skill development and learning

opportunities. The important point about WA for our purpose is that it is integral to the job and forms a part of everyday working life (March and Wilkinson, 2000).

Whereas EI may have no effect in terms of decision-making power, WA is by definition associated with effective discretion at work. Actually the main feature distinguishing WA from EI is that the former is designed into the job itself while the latter entails taking part in communication processes with management and/or co-workers. The fact that EI requires entering in communication processes underlies its definition in most of the studies that actually distinguish between WA and EI (Gallie, 2013; Kalleberg et al, 2009; Spector, 1986), but it is not singled out as such. It is a crucial point though since, as referred, the outcomes of communication processes on workers' influence are highly uncertain.

Unlike WA, EI as we define it is compatible with any form of work organization – and this is a second major distinguishing feature. To use March and Wilkinson's (2000) terms, schemes of EI are "bolted on" rather than integral to work activity. Involvement processes usually take place "out" of the jobs insofar as they are not part of daily work life, running instead parallel to work activities. In fact, old and recent evidence reveals that even team work – which is considered the most effective participation practice - has contrasted influence on workers' decision-making power (Gallie et al., 2012; Zoghi and Mohr, 2011)[1].

The relevance of distinguishing between WA and EI is further supported by Gallie's (2013) results, which shows that WA (individual task discretion in Gallie's terms) has substantially more positive effects on workers' skill development and psychological well-being than EI. While EI is shown to have a positive influence on quality of work in Nordic countries and for certain self-managed teams, its impact on workers' well-being is non-existent or negative in other countries and for most types of team work (Kalleberg et al., 2009; Knudsen et al, 2011). But some studies also document a general positive relation between participation at work and health outcomes (Haynes et al, 1999; Spector, 1986).

As referred earlier, WA and EI are expected to be related; more precisely, they are deemed to go hand in hand. Indeed, on one hand, when workers enjoy high autonomy, the need should arise for intensified upward and downward communication; and, on another hand, the more involved workers are in decisions, the more they should be able to enhance their decision latitude at work. In theory, involvement practices only make sense if managers actually wish to give workers more power on work-related matters, but this may not be always the case in practice. The descriptive part of our empirical analysis aims at examining the relative levels of WA and EI in different countries and for different groups of workers to see whether EI endows workers with the possibility to exert influence in their jobs. Situations where EI is high and WA is low may indicate that EI aims to induce workers to deliver high levels of effort and boost their personal

commitment towards the firm while allowing them no effective influence. That is, despite high EI levels, managers in these cases do not abdicate from any decision-making power.

In sum, though not totally independent, WA and EI are distinct constructs and understanding whether and why they diverge is relevant for academic and policy purposes. By examining their determinants, our econometric analysis will aim at exploring the reasons why both constructs differ.

The micro and macro determinants of work autonomy and employee involvement

Given that firms' decisions are influenced by their specific circumstances as well as by the institutional context in which they take place, it is relevant to investigate the influence of both individual-level and country-level factors on WA and EI. Macro-level traits may condition WA and EI directly or via their effect on managerial attitudes and choices.

Over time, several macro-level factors have been acknowledged to potentially influence WA/EI (Gallie, 2007, 2009). While the growing complexity of technologies would bring about more participatory workplaces, the ever-increasing division of labour would result in a reduction of discretion at work and reinforcement of managerial control. But, instead of common structural trends in job quality and WA across countries, what is observed is an increasing divergence across institutional or welfare regimes (Gallie, 2007,

2009; Lopes et al, 2014). This led researchers to concentrate on investigating the institutional influences on job quality. The available evidence clearly suggests that the employment policies and the capacity of organised labour are the major macro-level determinants of the scope of autonomy conferred to workers (Finlay et al, 2013). Contrary to expectations, the type of skill formation does not seem to influence WA/EI (Esser and Olsen, 2012).

Concerning macro-level factors, our analysis focuses on organised labour – by far the most researched topic, but we know of no study that scrutinizes its effect on WA and EI separately – and on generalised trust, an under-researched issue. As for micro-level variables, our aim is to see whether the results found in other studies hold with our data and whether occupational and demographic factors influence similarly WA and EI.

Country-level factors

Union density and collective bargaining characteristics are the institutional factors that all studies show to positively affect WA/EI (Esser and Olsen, 2012; Gallie 2007, 2009). The strength of organized labour and its participation at various levels of decision-making (economy-wide, industry, firm, workplaces) increases its capacity to promote good working conditions and resist practices detrimental to workers. It is important here to distinguish between WA and EI. While the effect of the power of unions on WA appears quite clear-cut - it enables workers to constrain employers' decisions and induce

them to enhance their discretion and reduce job control - its effect on EI is less straightforward. Indeed, the attitude of unions towards EI has been contrasted - some unions are suspicious and try to replace non-union forms of employee involvement by representative participation whenever possible (Hyman and Mason, 1995). The argument is that EI may be used by managers to break workers' solidarity and stimulate their commitment instead of actually augmenting their participation. A variety of situations is hence possible, ranging from complementarity to competition between management and trade unions to secure influence (March and Wilkinson, 2000).

Despite possible clashes, we expect that the more influential organized labor, the higher both WA and EI. Given that the influence of unions on WA is always indirect (it is ultimately managers who take organizational choices) whilst industrial relations regulation may directly impact the type and extent of involvement practices, we expect union power to influence WA to a lesser extent than EI. As we use two measures to capture union power, namely union density and collective bargaining coverage, two hypotheses ensue: Hypothesis 1a states that union density positively influences WA but to a lesser extent than EI; Hypothesis 1b makes the same statement for collective bargaining coverage.

Departing from the wide literature that analyses trust in (micro) organizational settings, the present paper focuses on the influence of cross-cultural differences in trust on organizational choices. Our study differs from most others in several respects. Firstly,

most micro-level analyses focus on trust of employees towards management and examine the respective effects on various organizational outcomes (see references in Grund and Harbring, 2009). By contrast, our study tends to capture the effects of trust of managers towards employees since it is managers who decide on WA and EI. Secondly, instead of studying the effect of interpersonal trust (trust in people we already dealt with), we examine the impact of generalised trust, defined as trust in people one generally does not know. Thirdly, we examine the impact of generalised trust on managerial decisions, namely WA and EI levels, at the country rather than the organizational level.

While some strands of literature tend to explain trust, expected trustworthiness and actual trustworthiness, by individual features such as preferences and beliefs (Fehr, 2009), other strands assert that institutional variables are key determinants of trust (Elsner and Schwardt, 2014). Whatever its determinants, for economists trust is a micro-level institution, one of the basic "rules of the game" that govern behaviour and structure social interactions (North, 1994). Trust reduces transaction costs and promotes the self-enforcement of contracts, hence lessening the need for costly control to protect organizations from opportunistic behaviour. Actually, there is evidence that important macro-level economic variables are positively related with the degree of generalised trust (see references in Fehr, 2009). Therefore, though trust is usually regarded as an individual level feature, it also certainly is a crucial property of communities or countries, i.e., a social/institutional trait. The variety and divergence of levels of trust across countries

suggests that trust is a process sustained by repeatedly experienced cooperative behaviour and processes of generalisation and transfer from some to other arenas of life. Generalised trust and trustworthiness would hence become a general (normative) habit institutionalized in a whole society (Elsner and Schwardt, 2014).

Generalised trust is the belief that most others are trustworthy, a belief that may lead managers to increase the workers' scope of discretion and decentralize decision-making. In countries and organisations where most people, including managers, expect others to be trustworthy and comply with commitments, trust may take the place of supervision. The prevalence of a generalised propensity to trust others would then be associated to high levels of WA. In contrast, low levels of trust would lead to a greater amount of job prescriptions and monitoring of work. Generalised trust may also induce managers to adopt more EI practices, and in particular practices that actually enhance workers' power. It would by contrast have no effect on involvement devices of the pseudo participation (to use Pateman's term) kind.

Given these considerations and because WA is more closely related to work organization than EI, as argued above, we expect generalised trust to be the major determinant of country differences in WA (Hypothesis 2a) and to also influence, though to a lesser extent, EI (Hypothesis 2b).

Individual-level factors

In contrast to macro-level variables, we find no reason why individual-level factors would influence WA and EI differently.

Skill and education levels are the most obvious individual-level determinants of WA/EI. Management has a strong incentive to decentralise decision-making in jobs requiring high skills since work autonomy is shown to promote performance and creativity in complex and knowledge-intensive jobs (Gallie, 2009; Gagné and Deci, 2005). In contrast, control devices have been found to yield superior short-term performance on unskilled tasks. We hence expect WA and EI to be positively associated to the job skill level.

Other individual-level factors found to affect WA/EI are gender, age, tenure, working hours and contract status (Esser and Olsen, 2012; Gallie et al, 2004). As women are generally more vulnerable workers, they are reported to benefit from less WA and EI and we expect obtaining the same findings with our data set. On the other hand, older workers, employees with high tenure, long working hours and permanent contracts are found to be given more responsibility and leeway. We hence expect these features to be associated to higher levels of WA/EI.

Some firm characteristics might also influence WA and EI. The effect of establishment size is indeterminate: larger establishments may need to institutionalise

communication channels and rely more on workplace decision-making to reduce monitoring costs, but they may also implement more standardised forms of work and IT-based control devices. Whereas the first argument points to a positive association between establishment size and WA/EI, the second anticipates a negative relationship. WA and EI may also differ according to whether establishments are publicly or privately owned. Previous studies found no significant effect of establishment size and ownership form on WA/EI (Gallie et al, 2004).

Lastly, following our hypotheses for the macro-level, we expect that the presence of any employee or union representative positively influences WA but to a lesser extent than EI.

Data and descriptive analysis of work autonomy and employee involvement across Europe

Our empirical analysis begins by building indexes of WA and EI and then examining their relative levels in 33 European countries. This part of the paper hence describes the procedure used for building the indexes and depicts the situation across the studied countries. The multi-level structural model's procedures that test our hypotheses are presented in the next parts of the paper.

The study of WA and EI is based on the 2010 wave of the European Working Conditions Survey (EWCS, Eurofound, 2010), a cross-sectional dataset that provides unique and detailed information on quality of work in Europe. The EWCS is questionnaire-based, administered using face to face interviews to a representative sample of those aged 15 years and over who are in employment. In the 2010 EWCS sample, a multi-stage, stratified random sampling design was used in each country[2]. Cases were weighted by means of the final country level weights provided in the EWCS data file. These combine design and post stratification weights in order to ensure that the results reflect the population of workers in each country (Eurofound, 2012).

The EWCS database includes 43816 questionnaires from 34 countries. One country was excluded (Albania) due to lack of information on country-level variables (see Table 3A). We also excluded all individuals that did not classify themselves as *employed* (based on question q6.*Are you mainly: self-employed without employees, self-employed with employees, employed, other*) thus resulting in 30843 questionnaires.

As the sole observation of national averages might conceal significant divergences between workers of different skill levels, we discriminate between groups of workers. Indeed, a low WA average may suggest that all workers in that country display below average WA, while what actually may happen is that this country's unskilled workers are more disadvantaged than in any other country. Conducting the analysis by skill level allows seeing not only the levels of WA/EI but also their discrepancies. We use the

Eurofound's classification of occupational classes which places workers' jobs into four categories of skill level: High Skill Clerical – HSC; Low Skill Clerical – LSC; High Skill Manual – HSM; and Low Skill Manual – LSM[3].

Measurement of employee involvement

From the EWCS questionnaire we chose four variables proxying employee involvement. The exact phrasing is presented in Table 1, along with relevant percentages. Three variables are originally Likert-type items and were dichotomized (never, rarely=0; sometimes, most of the time, always=1), the other one (q64) is dichotomous (percentage of *Yes* responses reported in first line of Table 1).

A brief look at Table 1 reveals that high-skill clerical workers clearly benefit from higher levels of employee involvement, followed by low-skill clerical workers and then manual workers, a result in line with the evidence reported in Heller (1998). While about 80% of HSC workers declare they are (at least sometimes) involved in all participatory schemes, only 40 to 60% of high-skill and low-skill manual workers – depending on the scheme – declare the same. The higher the potential influence of a given involvement scheme (q51d and q51o), the less manual workers are involved.

Measurement of work autonomy

Five EWCS variables were used to measure work autonomy. Four are dichotomous and one is originally Likert-type and was dichotomized (q51i). The exact phrasing is presented in Table 1, along with relevant percentages.

Again, we observe that high-skill – followed by low-skill – clerical workers display substantially higher levels of work autonomy than manual workers. The difference between HSC and manual workers is greatest in the items "being able to choose or change your order of tasks", "being able to apply own ideas" and "being able to choose or change your method of work".

Table 1. Distribution of the employee involvement and work autonomy items, by skill level and total (all data pooled)

		HSC	LSC	HSM	LSM	Total
Employee involvement items						
q64. Does management hold meetings in which you can express your views about the organization?	% "Yes"	78.1%	60.1%	47.5%	49.3%	60.2%
q51c. You are consulted before targets for your work are set	% Sometimes / Most of the time/ Always	81.1%	66.4%	63.9%	50.6%	65.9%
q51d. You are involved in improving the work organisation or work processes of your department or organisation	% Sometimes / Most of the time/ Always	86.2%	65.8%	56.4%	44.2%	64.4%
q51o. You can influence decisions that are important for your work	% Sometimes / Most of the time/ Always	85.0%	61.8%	55.0%	43.9%	62.0%
Work autonomy items						
q49c. Does your job involves solving unforeseen problems on your own?	% "Yes"	92.2%	82.8%	78.4%	68.8%	81.5%

q50a. Are you able to choose or change your order of tasks?	% "Yes"	82.6%	66.2%	52.3%	45.8%	63.8%
q50b. Are you able to choose or change your methods of work?	% "Yes"	83.3%	64.7%	58.4%	49.2%	64.8%
q50c. Are you able to choose or change your speed or rate of work?	% "Yes"	81.0%	69.4%	65.2%	58.7%	69.2%
q51i. You are able to apply your own ideas in your work	% Sometimes / Most of the time/ Always	91.8%	72.7%	69.7%	54.6%	72.5%

We assume, as referred in the theoretical section, that there are good reasons to expect that WA and EI are distinct though not independent constructs. Indeed, a multilevel factorial analysis (CFA) revealing this two factor structure will be presented in the next section. For descriptive purposes, and in order to know the levels of WA and EI across countries, we conducted two nonlinear PCAs (CATPCA) one for each of the two sets of items. CATPCA (Meulman et al, 2004, Linting et al, 2007) is an IBM SPSS's procedure for nonlinear factor analysis that allows input variables in different measurement levels. This technique not only finds optimal quantifications that satisfy the measurement level of each variable and best represent the relationship between variables but also provides object scores permitting the representation of countries in a low-dimensional space. The quantifications obtained are reported in table 2, along with the correlation between object scores.

Table 2. Work autonomy and employee involvement: results from nonlinear PCA (CATPCA) and correlation between scores

WA -work autonomy	Quantifications	
	No	Yes

Q49c. (…)solving unforeseen problems(…)	-1.991	.509
Q50a. (…) order of tasks?	-1.306	.771
Q50b. (…) methods of work?	-1.344	.750
Q50c. (…) speed or rate of work?	-1.488	.678
	Never/rarely	Sometimes/most time/always
q51i. (…) apply your own ideas in your work	-1.750	.578

EI - Employee involvement

	Never/rarely	Sometimes/most time/always
q51c. You are consulted (…)	-1.555	.672
q51d. You are involved (…)	-1.434	.725
q51o. You can influence (…)	-1.328	.760
	No	Yes
q64. Does management hold meetings (…)?	-1.213	.836

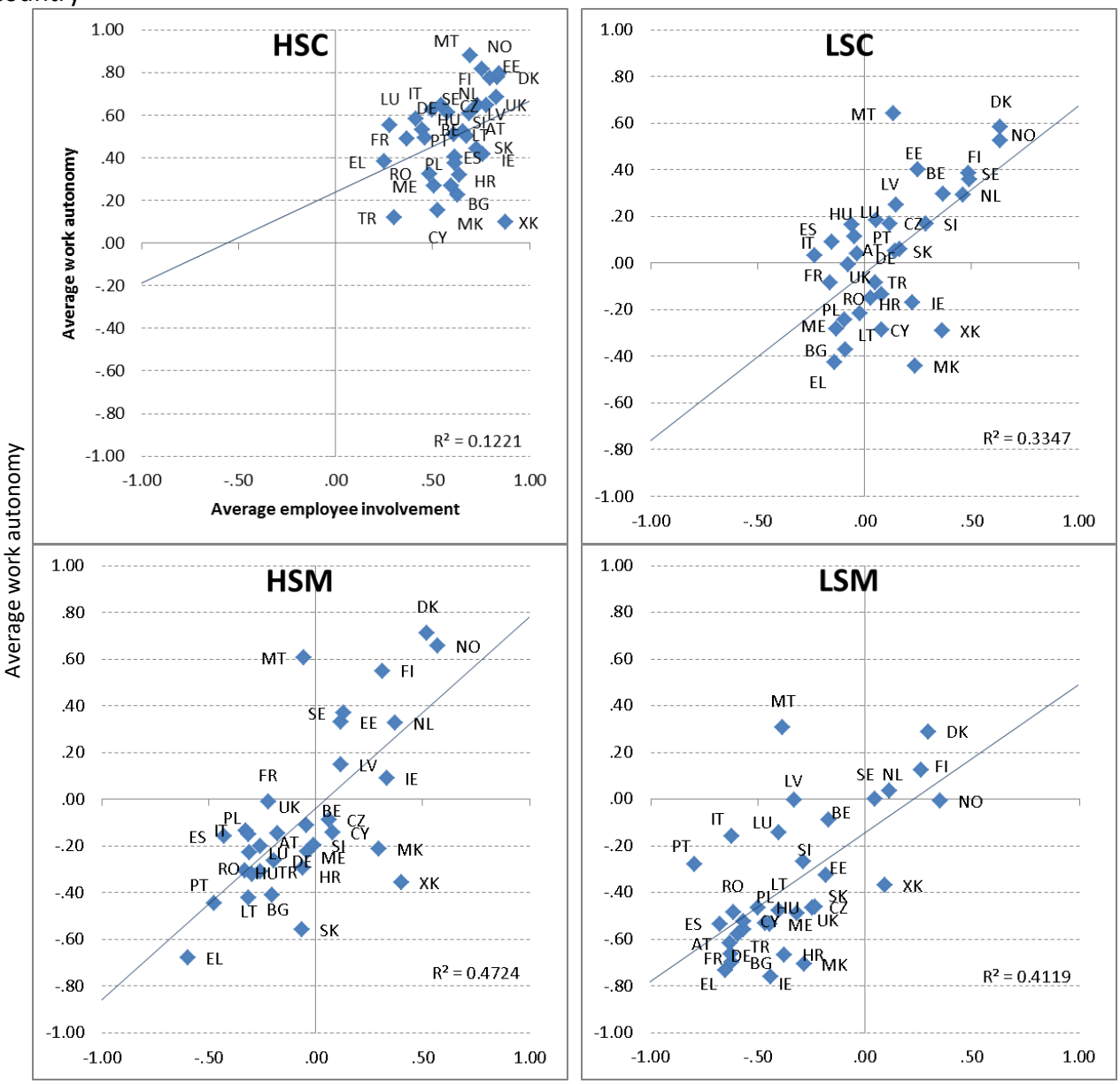
Correlation (WA, EI)	.492

The descriptive analysis of the relative levels of WA and EI by country and skill level presented in Figure 1 is based on the scores obtained with the CATPCA. Positive values correspond to above European average WA/EI, whereas negative values denote below average WA/EI.

The quite rounded shape of the HSC – high-skill clerical - workers cloud and its compactness translate into a lower determination coefficient and indicate a much more homogeneous group: HSC workers in all studied countries benefit from a markedly privileged situation when compared to the other groups of workers. Their WA and EI levels are substantially higher than those of other workers, which suggest that WA and EI interact in a positive way for HSC workers in all countries.

By contrast, the condition of low-skill clerical and high-skill manual workers is highly differentiated across countries. In Cyprus, Macedonia, Kosovo and Ireland, low-skill clerical workers enjoy above average levels of EI but below average levels of WA (lower-right cell). The situation is the same for high-skill manual workers in Cyprus, Macedonia, Kosovo and Czech Republic. In other words, if our analytical frame is correct, LSC and HSM workers are likely to be the most "manipulated" groups: their involvement in decision-making does not translate into high discretion at work and may in fact be aimed at inducing them to adopt a positive attitude towards the organisation and provide high effort at work.

Figure 1. Employee involvement and work autonomy, averages by skill level and country



Note: The 0.00 score corresponds to the average level of work autonomy or employee involvement of all workers of all countries.

This may indicate instances of "pseudo-participation" in some countries. Actually, it has been argued that it is especially for workers in lower occupational classes and with lower education levels that recent types of EI may prove to be mechanisms of control rather than empowerment (Gallie, 2013).

Manual workers in general and low-skill manual workers in particular suffer from substantially lower levels of WA and EI in all but Nordic countries. In this case, the interaction between both constructs converges to shape a negative condition: their scope of decision-making at work is low and their lack of involvement in decisions does not allow them to reverse the situation.

Circumstances across countries differ widely in many respects. All workers in Nordic countries (Denmark, Finland, Norway, Sweden and the Netherlands) benefit from near or above average WA and EI levels, which is consistent with most empirical findings reporting generally positive outcomes of EI for workers in these countries (Knudsen et al, 2011; Kalleberg et al, 2009). Results also suggest much less discrimination among workers in these countries and hence more egalitarian work environments. These results are in line with those found for WA by Lopes et al (2014). By contrast, in Southern and most Eastern countries the discrepancy between HSC and manual workers is extremely large. An analysis centred on national averages would conceal the huge diversity across skill levels that characterises the European situation in matters of job quality.

Multilevel analysis procedures

We now turn to the analysis of the factors that may explain the WA and EI levels just depicted. Our econometrical analysis aims generically at identifying the predictors of WA and EI at the individual and macro-level. Our expectations regarding the effects of individual-level factors were presented above and broadly follow those reported in the literature, but the hypotheses to be tested with the macro-level factors are worth recalling:

Hypothesis 1a: union density is positively related to WA but to a lesser extent than to EI

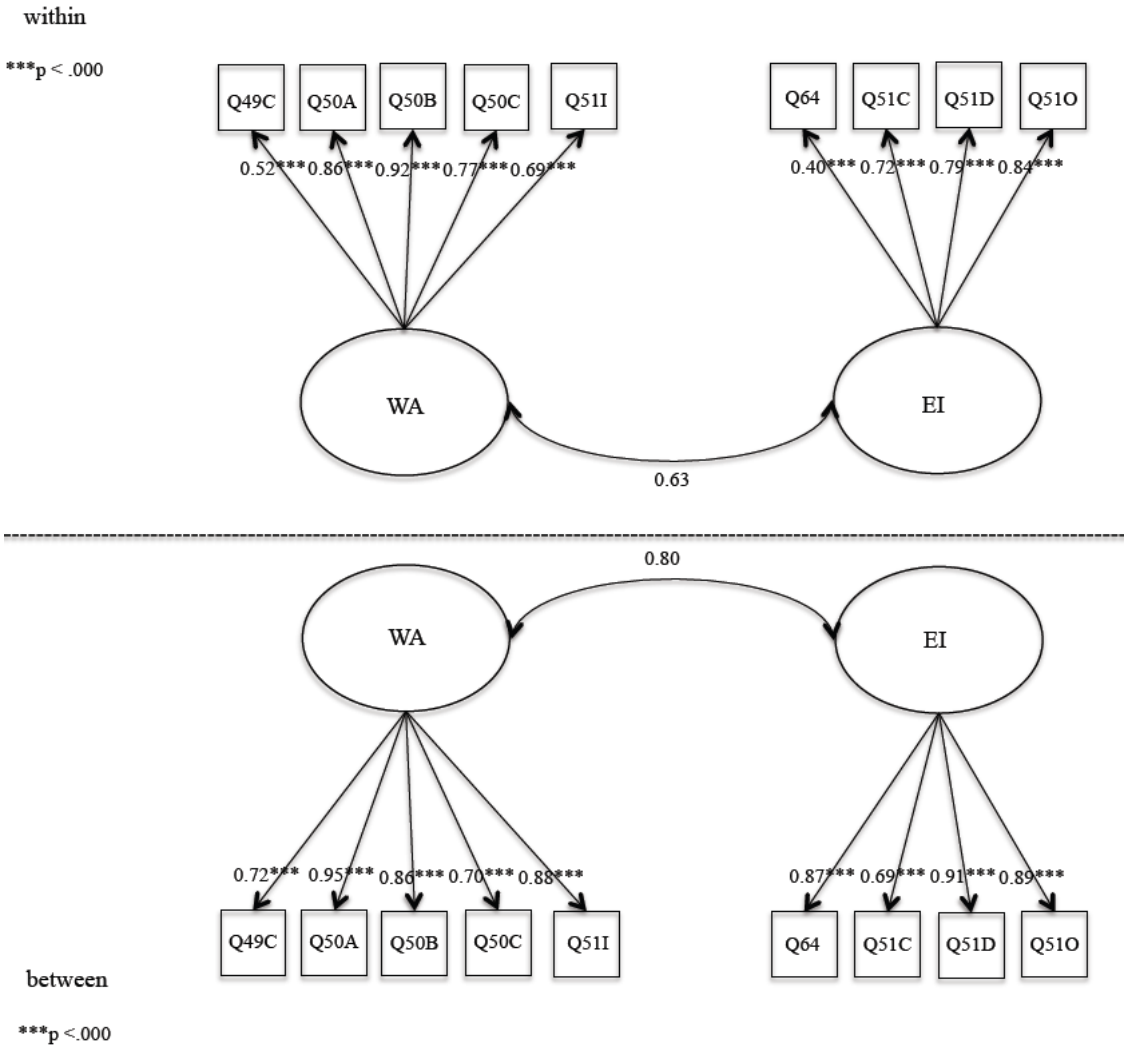
Hypothesis 1b: collective bargaining coverage is positively related to WA but to a lesser extent than to EI

Hypothesis 2a: generalised trust is the major determinant of country differences in WA

Hypothesis 2b: generalised trust is positively related to EI but to a lesser extent than to WA.

In order to show that the selected items combine to build reliable latent variables of WA and EI respectively, and that these latent variables hold both at the individual and country-level, we conducted a multilevel confirmatory factorial analysis (CFA). The corresponding model is represented in Figure 2.

Figure 2: Multilevel confirmatory factorial analysis of work autonomy and employee involvement



The analysis was carried out using the WLSMV estimator in Mplus 7 (Muthén & Muthén, 2012). The model fits the data acceptably well (CFI=.97; TLI=.96; RMSEA=.01; WRMR=2.24, SMRM=.09 (within) and 0.10 (between). All paths from latent variables

to observed variables were significant, as can be seen in Figure 2 (all $p < .01$; all λ varying from .92 to .40 within-level; and from .69 to .95 between-level). As expected, the two latent factors appear as correlated ($\phi_{within} = .63$; $\phi_{between} = .80$), but variance remains to be explained over and above their association. The multilevel CFA also shows that predicted latent variables are homologous within and between level, meaning that the same set of observed variables weight on their respective latent variable both at individual and country level. One exception should be made for item Q64, since its between-level loading on the respective latent factor is bigger than its within-level loading. Indeed, the item wording is referring mainly to the organizational level making it a better representative of EI at an aggregate level, and not so much at an individual level.

Next we will present the results of a fixed effects multilevel structural model. A fixed effects multilevel structural model with categorical data (using Mplus v.7; Muthén & Muthén, 2012) was deployed to capture the predictors of the latent variables WA and EI at individual and country level. It could be argued that a three-level model should be used instead of a two-level one, encompassing an individual, organizational, and country level. This was not the strategy followed in the present paper, due to two main reasons: (1) our data set does not allow the clustering of individual-level data at the organization level; (2) the three-level model could be theoretically inadequate and lacking parsimony. It is well documented that multilevel models deploying more than two levels are quite speculative concerning their theoretical support, and are statistically very complex,

demanding superior quantity of iterations that penalize the model's goodness of fit (Bickel, 2007).

The two-level structural model includes the measurement model of WA and EI presented above and adds a structural component represented by the predictors of these two latent constructs. The model is tested using a multilevel estimation, since our data possesses a nested structure with predictors at different levels of analysis (Snijders & Bosker, 1999). Moreover, intra-class correlation coefficients (ICC) will be obtained in order to verify the adequacy of a multilevel analysis to our data.

Thus, at the individual level gender, age, contract status, tenure, working hours per week, skill level (low skill clerical vs high skill clerical; both low and high skill manual vs high skill clerical), sector of activity, number of employees in the establishment, and presence of employee representative were used as predictors of EI and WA. Table A1 in the appendix presents the exact phrasing and codes used for all variables of the model, and table A2 presents some basic descriptive statistics.

At the country level, generalised trust and the strength of organised labour were used as predictors of EI and WA (see Table A3).

Our measure of trust is the most widely used in social sciences (EVS)[4]: "*Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?*" Although its validity is much debated (Nannestad, 2008), it

remains the standard generalised trust measure, partially because it is the only trust question asked across multiple countries.

We are also aware that measuring the strength of labour unions is a much-disputed issue. We follow the usual practice in the literature and use union density – net union membership as a proportion of workers – and collective bargaining coverage – proportion of employees covered by agreements. Both measures are taken mainly from the ICTWSS database[5]; they are considered good proxies for the actual influence of industrial relations regulation.

Multilevel analysis results

Table 3 presents the results of the multilevel structural model for the two latent variables EI and WA. It can be seen that the explained variance for both variables reaches acceptable levels at both the individual and country levels. Table 3 also displays the fit indices and ICC. The ICC reveal that there is sufficient variation at individual-level left to be explained at country level[6]. Likewise, fit indices are all within the standards fixed in the literature (e.g., Bentler, 1990) testifying the quality and adequacy of our model to the present data set.

A first inspection reveals quite a similar set of predictors at the individual level. Indeed, and looking at the results in more detail, we can observe that at the individual

level results are as expected: male, high skill clerical workers, with permanent contracts, working in the public and other sectors, for longer hours, with higher tenure, in smaller establishments and where there are employee representatives display higher EI.

A rather similar pattern of predictors emerges for WA but with some notable differences: age is a predictor of WA but not EI and the presence of an employee representative is not significant for WA (see comments in the next section). There are also some differences between our results and those reported in the literature. While Gallie et al (2004) found no significant effect for establishment size and ownership form, we find establishment size and private ownership to be negatively associated to WA and EI.

Note that the individual-level predictors explain 15% of the variance of WA and 25% of the variance of EI and that skill levels have the highest explanatory power.

Turning now to country level, we can see that countries with higher levels of generalised trust and union density tend to show higher levels of EI, but only trust is significantly associated with WA. Countries where people trust each other more display higher levels of WA and EI, while only countries with higher union density are associated to higher levels of EI. In both cases, collective bargaining coverage does not predict EI and WA. This is certainly due to the fact that, though related, these two institutional forms are distinct aspects of industrial relations. Gallie (2009) also found that union density and

collective bargaining affect job control in dissimilar ways across Europe and argues that this is because of their very different dynamics, depending on the country.

Table 3: Determinants of Employee Involvement and Work Autonomy (multilevel regression)

	Involvement (EI)	Autonomy (WA)
Country-level variables		
Generalised Trust	.68 (.13) ***	.73 (.10) ***
Union Density	.49 (.16) **	.26 (.15)
Collective bargaining coverage	-.22 (.17)	-.19 (.15)
Individual-level variables		
Gender	.09 (.01) ***	.07 (.01) ***
Age	-.01 (.01)	.02 (.01) **
Indefinite contract	.08 (.01) ***	.05 (.01) ***
Private Sector	-.05 (.01) ***	-.04 (.01) ***
Persons in workplace	-.04 (.01) ***	-.10 (.01) ***
Tenure	.07 (.01) ***	.04 (.01) ***
Hours per week	.06 (.01) ***	.04 (.01) ***
Employee representative	.15 (.01) ***	-.01 (.01)
Low skill clerical	-.34 (.01) ***	-.33 (.01) ***
Manual (Low and high skill)	-.56 (.01) ***	-.47 (.01) ***
Number of cases	30843	
var(Residual): *Individual level*	.75	.85
var(Constant): *Country level*	.36	.21
Explained variance intercept		
Individual level	.25	.15
Country level	.79	.64
ICC / Design effect		
Q49C	.05 / 48	
Q50a	.05 / 48	
Q50b	.05 / 48	
Q50c	.07 / 66	
Q51i	.05 / 48	
Q64	.04 / 38	
Q51c	.05 / 48	
Q51d	.02 / 20	
Q51o	.03 / 29	

Fit Indexes	
Qui-square	χ^2 (143) = 1056.02, p < .000
CFI	.92
TLI	.90
SRMR	
Within	.13
Between	.20
WRMR	3.43

Notes: Reported effects are standardised. Values in brackets are standard errors of the estimation; *** p < 0.001; ** p < 0.01. For the sake of presentation simplicity, coefficients from the measurement model are omitted (all λ significant - p < .001). Design effect is [1+(Average Cluster Size-1)ICC].

At country level, 64% of the variance of WA is primarily explained by trust, while 79% of the variance of EI is primarily explained by generalised trust and union density. This means that between-country differences in WA variance are very well captured by differences in the levels of trust, while differences in EI are better captured by variations in trust and union density simultaneously. This clearly indicates that institutional and macro-social national traits account for a large proportion of the variation in WA and EI and that WA and EI are distinct constructs on country level.

Discussion

Our first aim was to provide a picture of the relative levels of WA and EI across skill levels and 33 European countries. For that purpose, based on a comparable, high quality and representative international survey, we built particularly reliable multi-item measures of WA and EI when compared to the indexes found in the studies that use international surveys data such as the EWCS. The results of the descriptive analysis reveal

an extremely diverse situation between skill levels and across countries. Indeed, workers of all skill levels display above average WA and EI in Nordic countries whereas in Southern and most Eastern countries high skill clerical workers also display high WA and EI but other workers do not. Most manual workers in the latter countries are not involved in practices like having a say in improving the work organisation or influencing important decisions, and low skill clerical workers are also much less involved than high skill clerical workers.

Another contribution of the paper is having shown that the individual-level factors influencing WA and EI do not differ – which may justify why both constructs are sometimes subsumed in the literature – contrary to the country-level factors. Higher than average WA and EI are experienced by men, in high skill clerical jobs, with permanent contracts, high tenure and longer working hours. These results are consistent with those of Esser and Olsen (2012) and Gallie et al (2004). According to expectations, the presence of an employee representative significantly influences EI but, contrary to expectations, it does not influence WA. Managers seem to be reluctant to decentralise decision-making in firms where trade unions are better implemented, an outcome already documented by Gallie et al (2004) who found union representation to be negatively associated to WA in the UK - their study did not examine the determinants of EI. It is also possible that employee representatives focus more on EI than WA when bargaining with management.

The positive association, at the micro-level, of the presence of an employee representative and EI but not WA is consistent with what occurs at the macro-level where EI, but not WA, is positively associated to union density. Esser and Olsen's (2012) result that WA is significantly impacted by union density may therefore be due to the fact that their indicator of WA also includes involvement practices; when both constructs are distinguished, the effect disappears for WA. At both the micro and macro level, the power of unions does not seem to significantly affect WA, but it does significantly influence EI. Hypothesis 1a - union density is positively related to WA but to a lesser extent than to EI – is hence only partially supported since it is not significantly related to WA. By contrast, Hypothesis 1b - collective bargaining coverage is positively related to WA but to a lesser extent than to EI – is not supported since it is not related to EI or to WA. Though acknowledging that the effect of unions on organizational choices is unavoidably indirect and hence possibly weak we, as most social scientists, nonetheless expected a positive association.

This discrepancy in the influence of unions on WA and EI might reinforce the doubts suggested by our descriptive evidence that EI sometimes does not enhance the workers' decision-making power. That is, under the pressure of formal prescriptions, managers implement involvement schemes, but the latter do not systematically translate into greater discretion at work. Managers may use employee voice to creating more cooperative relationships with workers and generating their commitment to the firms'

goals rather than enhancing their influence at work. However, the responses to some of our EI questions show that many workers feel that they effectively have influence at work. Actually, EI can be an opportunity to strengthen the workers' rights and dignity through limiting the management's power to unilaterally decide on matters that affect them (Dundon et al, 2004). And unions may play a crucial role on this issue, as shown by the positive association between union density and EI.

It is worth recalling that involvement practices that fail to enhance the employee's feelings of personal control, which is reported to happen not so infrequently (Godard, 2004), may have deleterious effects on the workers' self-esteem and well-being. Feeling manipulated or not being heard undermines all the beneficial effects of WA/EI predicted by Self-Determination Theory (Deci and Ryan, 2000). In such cases, the educative function and consequent effect on civic behaviour supposedly fostered by participatory practices (Pateman, 1970) may have just the opposite result.

Our most original finding lies in having documented the association between generalised trust as a macro-social trait and EI/WA. Our expectation that generalised trust is the major predictor of country differences in WA (Hypothesis 2a) and that it influences EI to a lesser extent (Hypothesis 2b) are both supported by the evidence. As exposed in the theoretical section, WA but not EI is closely related to organizational choices. A large body of micro-studies shows that control and monitoring are less pervasive in workplaces characterized by high trust levels (Grund and Harbring, 2009; Kramer and Tyler, 1996).

Our results demonstrate that these findings also hold at the country level. Managers in high trust countries are less suspicious about opportunistic behaviours and therefore tend to design more autonomous work environments. A prevailing high level of trust in a society also tends to lead managers to implement more involvement practices.

This typically seems to apply to Scandinavian countries (see Figure 1 and Table A3) in which high generalised trust is viewed as related to interactive work organisation, universal and inclusive social policies, and public policy commitment to work life quality (Elsner and Schwardt, 2014; Nannestad, 2008). By contrast, Southern and Eastern European countries display low levels of generalised trust, which are often associated to the weakness of their welfare state and labour-oriented policies.

Limitations and concluding remarks

Some limitations of the present study need to be mentioned. The cross-sectional nature of the data does not permit the assessment of causality, even though it was difficult to avoid mentioning it when interpreting the results. Reverse causality is always possible, in particular regarding the relationship between generalised trust and WA/EI. We assumed that the prevailing level of trust leads managers to confer more/less autonomy to workers and involve them more/less in decisions. But causation may also run in the opposite direction: autonomy-supportive workplaces may lead workers to reciprocate trust in management (Timing, 2011; Grund and Harbring, 2009) or teach them to trust co-

workers, thus generating and nurturing societal traits like high generalised trust levels. That is, life in society may be just as influenced by the way in which work is organised than the other way round. There is indeed little doubt that trust-building is a circular, mutually reinforcing process (Nannestad, 2008). However, in the case at hand, we must distinguish between the short and the long term. Decisions on work organisation are influenced by managers' current expectations about workers' behaviour – we may speak of contemporaneous causality. By contrast, the effect WA and EI may have on the dispositions of workers to trust others might take several years because time is required to alter attitudes and behaviours – we may speak of delayed causality. Actually, generalised trust seems to be an institutionalised feature of societies which evolves slowly. Cooperative behaviour learned and practiced in specific arenas appears to be a necessary step toward the emergence of more general trust; the expectation effect is then cumulatively strengthened, just as trustful behaviour stimulates trustworthy responses (Elsner and Schwardt, 2014). The causal direction and the possible long-term reciprocity of effects between several facets of job quality and generalised trust deserve being thoroughly examined in future research.

The direction of causality may also be discussed regarding skill level and WA/EI: being given the opportunity to use and develop one's skills by enjoying high discretion at work may also explain the observed close association between the constructs (Heller, 2003; 1998). Finally, another limitation is worthy of comment. The items used to build

the EI index refer to two different phenomena: while two items just ask whether the respondent was consulted, the other two asked for real influence in decision-making.

Our analysis shows that job quality is not solely a function of firm-level differences in strategy but is also influenced by political, institutional and cultural factors outside the firm (Finlay et al, 2013; Doellgast et al, 2009). Whilst there is much that individual employers can do to improve working conditions, pressures from product and financial markets make it unlikely that the firms' goodwill can be relied upon to guarantee high quality of work. Workplace policy therefore needs to adopt a more interventionist stance. A formal or legal framework which establishes a structure of influence-sharing at all levels should be set up whenever possible (Heller, 2003). Only state policies and laws can promote positive-sum solutions – stronger rights for workers through practices that also enhance performance - to workplace dilemmas. Securing a meaningful voice and healthy psychosocial work environments should be assumed as a major public responsibility as their effects undoubtedly spill over to the whole society.

Acknowledgements

The authors wish to thank two anonymous referees for their insightful and very helpful comments and suggestions. All remaining errors are our own.

The European Working Conditions Surveys are sponsored and owned by the European Foundation for the Improvement of Living and Working Conditions and distributed by

UK Data Archive, University of Essex. These institutions bear no responsibility for the present analysis and interpretation of the data.

[1] Tests with our data confirm that questions related to group work form an orthogonal construct to those of work autonomy and employee involvement (tests available on request).

[2] http://www.eurofound.europa.eu/surveys/ewcs/2010/sampling.htm. The standard sample size was 1,000 but some countries sponsored additional samples (see Table A3).

[3] High-skill clerical includes ISCO-08 codes 1 (Legislators, senior officials and managers) and 2 (Professionals); Low-skill clerical includes codes 3 (Technicians and associate professionals), 4 (Clerks) and 5 (Service workers and shop and market sales workers); High-skill Manual includes codes 6 (Skilled agricultural and fishery workers) and 7 (Craft and related trades workers); Low-skill manual includes codes 8 (Plant and machine operators and assemblers) and 9 (Elementary occupations).

[4] *EVS (2011): European Values Study 2008: Integrated Dataset (EVS 2008). GESIS Data Archive, Cologne. ZA4800* Data file Version 3.0.0, doi:10.4232/1.11004

[5] http://www.uva-aias.net/208 and http://www.eurofound.europa.eu/eiro/country_index.htm

[6] Note that although ICC absolute values are low, the computation of design effects yielded large indexes testifying the need for taking into consideration the clustering of the data (i.e., the adequacy of analysing data at the country level; Muthén & Satorra, 1995; see table 3)

References

Bentler P (1990) Comparative fit indexes in structural models. *Psychological Bulletin* 107: 238–246.

Bickel R (2007) *Multilevel analysis for applied research*. UK: The Guilford Press.

Breaugh J (1985) The measurement of autonomy. *Human Relations* 38(6): 551-574.

Busck O, Knudsen H, and Lind J (2010) The transformation of employee participation: Consequences for the work environment. *Economic and Industrial Democracy* 31(3): 285-307.

De Lange A, Taris T, Kompier M, Houtman I and Bongers P (2003) The very best of the millennium. *Journal of Occupational Health Psychology*, 8(4): 282-305.

Deci EL and Ryan RM (2000) The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry 11*(4): 227-268.

Doellgast V, Holtgrewe U and Deery S (2009) The effects of national institutions and collective bargaining arrangements on job quality in front-line service workplaces. *Industrial and Labor Relations Review* 62(4): 489-509.

Dundon T, Wilkinson A, Marchington M and Ackers P (2004) The meanings and purpose of employee voice. *The International Journal of Human Resource Management* 15(6): 1149-1170.

Elsner W and Schwardt H (2014) Trust and arena size: expectations, institutions and general trust, and critical population and group sizes. *Journal of Institutional Economics* 10(1): 107-134.

Esser I and Olsen K (2012) Perceived job quality: Autonomy and job security within a multilevel framework. *European Sociological Review* 28(4): 443-454.

Eurofound (2010) *European Working Conditions Survey (computer file)*. [Online] Available at: eurofound.europa.eu/ewco/surveys/ [Accessed Feb 2012].

Eurofound (2012) *Fifth European Working Conditions Survey: Overview report*. Luxembourg: Publications Office of the European Union. Available at www.eurofound.europa.eu/surveys/ewcs/2010/weighting.htm [Accessed April 2013].

European Commission (2003) *Communication from the Commission to the Council. Improving quality in work.* Luxembourg: COM, 728.

ETUC – European Trade Union Confederation (2011) *The Athens Manifesto*. Brussels

Falk A and Kosfeld M (2006) The hidden costs of control. *American Economic Review* 96(5): 1611-1630.

Fehr E (2009) On the economics and biology of trust. *Journal of the European Economic Association* 7(2-3): 235-266.

Findlay P, Kalleberg A and Warhust C (2013) The challenge of job quality. *Human Relations* 66(4): 441-451.

Gagné M and Deci E (2005) Self-determination theory and work motivation. *Journal of Organizational Behavior* 26(4): 331-362.

Gallie D (2007) Task discretion and job quality. In Gallie D (ed) *Employment Regimes and the Quality of Work*. Oxford: Oxford University Press, 105-136.

Gallie D (2009) Production regimes, employee job control and skill development. *LLAKES Research Paper 31*: http://llakes.org

Gallie D (2013) Direct participation and the quality of work. *Human Relations* 66(4): 453-473.

Gallie D, Felstead A and Green F (2004) Changing patterns of task discretion in Britain. *Work, Employment and Society* 18(2): 243-266.

Gallie D, Zhou Y, Felstead A and Green F (2012) Teamwork, skill development and employee welfare. *British Journal of Industrial Relations* 50(1): 23-46.

Godard J (2004) A critical assessment of the high-performance paradigm. *British Journal of Industrial Relations* 42(2): 349–378.

Grund C and Harbring C (2009) Trust and control at the workplace: evidence from representative samples of employees in Europe. IZA DP nº 4297.

Hackman J and Oldham G (1975) Development of the Job Diagnostic Survey. *Journal of Applied Psychology* 60(2): 159-170.

Haynes C, Wall T, Bolden R, Stride C and Rick J (1999) Measures of perceived work characteristics for health services research: Test of a measurement model and normative data. *British Journal of Health Psychology* 4(3): 257-275.

Heller F (2003) Participation and power: A critical assessment. *Applied psychology: An international review* 52(1): 144-163.

Heller F (1998) Influence at work: A 25-year program of research. *Human Relations* 51(12): 1425-1456.

Holman D (2013) Job types and job quality in Europe. *Human Relations* 66(4): 475-502.

Hyman J and Mason B (1995) *Managing employee involvement and participation*. London: Sage.

Kalleberg A, Torstein N and Olsen K (2009) Is participation good or bad for workers? Effects of autonomy, consultation and teamwork on stress among workers in Norway. *Acta Sociologica* 52(2): 99-116.

Karasek R and Theorell T (1990) *Healthy work: Stress, productivity and the reconstruction of work life*. New York: Basic Books.

Knudsen H, Busck O and Lind J (2011) Work environment quality: The role of workplace participation and democracy. *Work, Employment & Society* 25(3): 379-396.

Linting M, Meulman JJ, Groenen PJF and Van der Kooij AJ (2007) Nonlinear principal components analysis: Introduction and application. *Psychological Methods* 12(3): 336–358.

Lopes H, Lagoa S and Calapez T (2014) Declining autonomy at work in the EU and its effect on civic behavior. *Economic and Industrial Democracy* 35(2): 341-366.

March M and Wilkinson A (2000) Direct participation. In Bach S, Sisson K (eds) *Personnel Management – A comprehensive guide to theory and practice*. Oxford: Blackwell Publishers.

Meulman JJ, Van der Kooij AJ and Heiser, WJ (2004) Principal Component Analysis with nonlinear optimal scaling transformations for ordinal and nominal data. In: Kaplan D (ed) *The Sage handbook of quantitative methodology for the social sciences*. Thousand Oaks, CA: Sage, 49-70.

Muthén B and Satorra A (1995) Complex sample data in structural equation modelling. *Sociological Methodology* 25: 267-316.

Nannestad P (2008) What have we learned about generalized trust, if anything? *Annual Review of Political Science* 11: 413-436.

North D (1994) *Economic performance through time*. Nobel prize lecture, December 19, 1993. Available at: www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1993/north-lecture.html

Pateman C (1970) *Participation and democratic theory*. Cambridge: Cambridge University Press.

Ramsay H (1983) Evolution or cycle? In: Crouch C, Heller F (eds) *Organizational democracy and political processes*. Hoboken: John Wiley: 203-225.

Snijders TAB and Bosker RJ (1999) *Multilevel analysis: An introduction to basic and advanced multilevel modelin*g. London: Thousand Oaks: SAGE Publications Ltd.

Spector P (1986) Perceived control by employees: A meta-analysis of studies concerning autonomy and participation at work. *Human Relations* 39(11): 1005-1016.

Timing A (2011) Tracing the effects of employee involvement and participation on trust in managers. *The International Journal of Human Resource Management* 23(15): 3243-3257.

Van der Doef M and Maes S (2010) The job-demand-control-(support) model and psychological well-being. *Work and Stress: An International Journal of Work, Health and Occupations*, 12(2): 87-114.

Zoghi C and Robert M (2011) The decentralization of decision-making and employee involvement within the workplace. *British Journal of Industrial Relations* 49(4): 688-716.

Appendix.

Table A1. Variables used in the analysis.

Variable	Values	
q49c. Generally, does your main paid job involve solving unforeseen problems on your own?	1: Yes	0: No
q50a. Are you able to choose or change your order of tasks?	1: Yes	0: No
q50b. Are you able to choose or change your methods of work?	1: Yes	0: No
q50c. Are you able to choose or change your speed or rate of work?	1: Yes	0: No
q51i. Select the response which best describes your work situation - You are able to apply your own ideas in your work	1: Always, most of the time or sometimes	0: Rarely or never
q64. At your workplace, does management hold meetings in which you can express your views about what is happening in the organisation?	1: Yes	0: No
q51c. Select the response which best describes your work situation - You are consulted before targets for your work are set	1: Always, most of the time or sometimes	0: Rarely or never
q51d. Select the response which best describes your work situation - You are involved in improving the work organisation or work processes of your department or organisation	1: Always, most of the time or sometimes	0: Rarely or never
q51o. You can influence decisions that are important for your work	1: Always, most of the time or sometimes	0: Rarely or never
Independent variables		
Within level		
Gender	1:Male	0:Female
Age	In years	
q7. What kind of employment contract do you have?	1: indefinite contract	0: other types of contract (e.g. fixed term, employment agency, apprenticeship)
q10. Are you working in the …?	1: private sector	0: other (public sector, joint private-public organisation, NGO)
q11. How many people in total work at your workplace?	1; 2=2 to 4; 3=5 to 9; 4=10 to 49; 5=50 to 99; 6=100 to 249; 7=250 to 499; 8= 500 and over	
q12. How many years have you been in your company or organisation?	In years	
q18. How many hours do you usually work per week in your main paid job?		
q63. At your workplace is there an employee acting as an employee representative?	1: Yes	0: No
Between level		
Generalised Trust	0-100	
UD - union density	0-100	
AdjCov - collective bargaining coverage	0-100	

Table A2. Basic descriptive statistics for the independent variables.

	Mean	Min	Max	Median	Standard Deviation
Male? (1=Yes 0=No)	.49	0	1	.00	.50
Q7 Indefinite contract (Y/N)	.78	0	1	1.00	.41
Q10.1 Are you working in the private sector?	.63	0	1	1.00	.48
q64. At your workplace, does management hold meetings in which you can express your views about what is happening in the organisation?	.59	0	1	1.00	.49
hh2b. Age - Respondent	41.18	15	91	41.00	11.70
q11. How many people in total work at your workplace?	4.22	1	8	4.00	1.77
q12. How many years have you been in your company or organisation?	9.83	0	57	6.00	9.66
q18. How many hours do you usually work per week in your main paid job?	38.24	1	168	40.00	10.83
(Q7 value 1) most people can be trusted %	32.99	7.5%	76.1%	29.76	17.02
UD - union density	31.18	5.8	90.0	27.50	20.04
AdjCov - collective bargaining coverage	65.51	15.0	100.0	70.00	26.81

Table A3. List of countries, corresponding acronyms and data for macro-level variables

Country	ISO code	N	UD - union density(1)	Collective bargaining coverage(1)	Most people can be trusted %(2)
Belgium	BE	2826	52.0	96	35.9%
Czech Republic	CZ	676	17.3	43	30.6%
Denmark	DK	913	68.8	80	76.1%
Germany	DE	1698	18.8	62	40.4%
Estonia	EE	754	6.7	19	32.3%
Greece	EL	621	24.0	65	21.6%
Spain	ES	776	15.9	84	34.5%
France	FR	2273	7.6	90	27.2%
Ireland	IE	729	36.6	44	38.5%
Italy	IT	932	34.7	80	30.9%
Cyprus	CY	723	54.3	52	7.5%
Latvia	LV	837	14.8	25	25.6%
Lithuania	LT	733	9.5	15	29.8%
Luxembourg	LU	741	37.3	58	33.0%
Hungary	HU	781	16.8	34	21.0%
Malta	MT	785	51.0	55	22.5%
Netherlands	NL	747	19.0	82	62.9%
Austria	AT	747	28.6	99	36.4%
Poland	PL	937	15.1	38	27.8%
Portugal	PT	726	20.1	45	19.7%
Slovenia	SI	1101	29.7	92	24.4%
Slovak Republic	SK	724	17.2	40	12.8%
Finland	FI	858	69.2	90	65.1%
Sweden	SE	792	68.8	91	70.1%
United Kingdom	UK	1182	27.5	33	37.4%
Bulgaria	BG	713	19.8	30	18.1%
Croacia	HR	818	35.0	60	20.2%
Romania	RO	663	32.8	70	17.7%
Turkey	TR	1195	5.8	25	11.3%
Norway	NO	926	54.4	74	74.2%
Kosovo	XK	491	90.0	100	10.9%
Montenegro	ME	719	26	100	25.20%
FYROM (Macedonia)	MK	706	27.95	100	19.40%

(1) From Jelle Visser, ICTWSS: Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts between1960 and 2007, AIAS; and EUROFOUND, Industrial relations profile, for Croatia, Kosovo, Montenegro and Former Yugoslav Republic of Macedonia (FYROM), EIRO, 2012

(2) From European Values Study (2008). Values reported are the percentages by country for option 1,"people can be trusted" responses (question Q7: 1 – people can be trusted; 2 – can't be too careful)