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Article

Work and life: the relative importance of job quality for general well-being, and implications for social surveys

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Abstract

We investigate the relative importance of variations in job quality in accounting for variations in general well-being among employed people in Europe, the USA, Australia and South Korea. We find that the importance of job quality is everywhere of a similar magnitude to that of health, while both are far more important than other conventional determinants, including education, gender, marital status, parental status, age or household income. Job quality accounts for somewhat more of well-being's variation among men than among women. Within the majority of European countries, the R^2 for the variation accounted for ranges between 14 and 19%. The paper's findings, alongside rising policy interest, support the allocation of a greater priority for job quality in general socio-economic and labour force surveys than hitherto.

Key words: labour markets, work, employment

JEL classification: I3 welfare, well-being, and poverty; J81 working conditions; J30 wages, compensation, and labour costs

1. Introduction: the coverage of job quality in social surveys

It is well-established that, compared with being unemployed, employment is advantageous for well-being, and not just because of the consequential gain in income. The loss of well-being associated with unemployment is found to be at least of a comparable magnitude to the losses resulting from many other major life setbacks (Clark and Oswald, 1994; Zhou *et al.*, 2019). Yet even though the effect of being employed could be expected to vary depending on a job's quality, notwithstanding some notable exceptions (Clark *et al.*, 2018;

Viñas-Bardolet *et al.*, 2020), the relative importance of job quality alongside other factors for general well-being has not been systematically considered within well-being scholarship or wider social science. Key factors upon which attention has been focused include inter alia the associations of well-being with age, gender, marital status, parental status, education, income and health (Diener *et al.*, 2000; Luttmer, 2005; Kahneman and Deaton, 2010; Della Giusta *et al.*, 2011; Pollmann-Schult, 2014; Powdthavee *et al.*, 2015; Steptoe *et al.*, 2015; Graham and Ruiz Pozuelo, 2017; Batz and Tay, 2018; Clark *et al.*, 2018; Kristoffersen, 2018; Layard and Ward, 2020; Ugur, 2020; Blanchflower and Piper, 2022), but little research has been directed at understanding how such associations compare, in magnitude, with the links between job quality and well-being. Our aim in this article is to evaluate this relative importance across a range of countries. In this way, our intention is to better situate the role of job quality within well-being research and well-being policy and to consider whether it receives adequate attention and priority in evidence gathering globally.

As motivation, the last two decades have witnessed increased policy discourse surrounding the objective of ‘more and better jobs’ (as articulated by the OECD) and, stemming from the International Labour Organization (ILO), the vision of ‘decent work’ for all is now enshrined among the United Nations’ Sustainable Development Goals (United Nations, 2015, p. 21). In 2019, the ILO marked its centenary with a declaration on the future of work which included the invocation: ‘to act with urgency to seize the opportunities and address the challenges to shape a fair, inclusive and secure future of work with full, productive and freely chosen employment and decent work for all’ (ILO, 2019, p. 2). This call came at a time of uncertainty following two decades of rising workplace inequality and polarization (Kalleberg, 2012), with the accelerating adoption of Artificial Intelligence (AI)-driven work technologies bringing risks to job quality in the future of work (Berg *et al.*, 2023). It was to be followed only a year later by the disruptions to work from the global pandemic lockdowns.

Matching this growing interest and attempting to keep up with real-world developments, certain dedicated survey series worldwide collect job quality data in these domains—across Europe, the USA, South Korea and Central America. The US General Social Survey also collect occasional and incomplete data, as do other countries through irregular ‘work orientation’ modules of the International Social Survey Programme. OECD Statistics makes creative use of some of these data to produce job quality statistics, even if these are sparse in their coverage and for many domains irregular. Yet while employment status is interrogated universally in the regular national-level, work-horse general social surveys and labour force surveys that serve the needs of national statistical offices and social science scholars, job quality is commonly allotted very limited attention. Across Europe and North America, countries’ labour force surveys typically record the details of employment status, hours worked and, less frequently, pay and some non-wage benefits such as paid holidays. All other dimensions of job quality are left unmeasured.

A lack of focus on job quality is also shown in the major social science longitudinal studies. For example, the US Panel Study of Income Dynamics (PSID) collects earnings and benefits data, some partial information about working time quality and work intensity, and little or nothing about other domains. In Britain, the space allocated for job quality in the UK Household Longitudinal Study (UKHLS) is only a little more extensive than that afforded in the PSID: it covers pay, and a few aspects of worker autonomy and working time quality; but its data on the prospects of jobs are limited, and it fails to collect any data

about work intensity or the physical or social environment of work. The German Socio-Economic Panel is similar in this respect. The British cohort studies are also very sparing of data on the quality of the jobs that people do through the life course.

This comparatively subdued emphasis at the heart of general social survey research might be justified if it could be maintained that job quality's effects on well-being and health were of no more than secondary importance compared to other spheres of life. Yet, that assumption remains to be systematically tested and may be untenable—especially when one recalls that full-time workers spend at least a quarter of their waking life at work (Clark *et al.*, 2018). Moreover, the adjustments made to working life during and after the worldwide pandemic lockdowns, and the emergence of the so-called 4th Industrial Revolution, have edged job quality issues, such as the future of hybrid working, the role of AI systems and algorithmic management, more towards the forefront of debate.

Such developments amplify our motivation to enquire into the relative importance of job quality for well-being research and for social enquiry generally. The issue is inherently a concern of the literature known as the 'Domains-of-life Approach' to subjective well-being, in which, from the bottom up, different zones of life, linked as they are to the satisfaction of distinct needs, are compared in their effects on well-being. Surveying knowledge of the importance of work quality as late as 2007, one study concluded that 'There is insufficient evidence to draw clear conclusions about the impact of the type of work on well-being' (Dolan *et al.*, 2008, p. 101). Following the subsequent conduct of multiple dedicated working conditions surveys, the further development of the evidence base and the increased policy emphasis, a new assessment is due.

We follow a straightforward methodological approach. Using data on domains of job quality and on well-being collected during recent decades, drawn from multiple different countries across the developed world, we investigate how the difference between being in good and bad jobs is associated with well-being, and how these differences in well-being are compared with those associated with other factors such as household income, unemployment, marriage, the presence of children, age and gender. Section 2 outlines a relevant theory for the relationships between job quality, these other factors and aspects of well-being. Section 3 describes the data, indicators and analytical strategy, and Section 4 presents our findings. We conclude with a discussion of the implications for the place of job quality research in social science.

2. The importance of work for general well-being

The origins of the ideas behind the importance of the quality of employment for the quality of life lie as far back as the early writings of Marx and before. In this tradition, job quality is defined as comprising the aspects of jobs that contribute to meeting workers' needs from their work, implying that job quality is normally positively related to workers' well-being (Green, 2021).

Along with the majority of job quality scholars, as well as the European Union (EU), the OECD, and the United Nations, we adopt an objective multidimensional measure of job quality (see e.g. Green, 2006; Osterman, 2008; Holman and McClellan, 2011; Eurofound, 2012, Cazes *et al.*, 2015; OECD, 2017; Eurofound and International Labour Organization, 2019). Nevertheless, it is important to distinguish and acknowledge the separate importance of workers' subjective evaluations and emotional responses to work, such as work-related affect or job satisfaction. It is argued by some that subjective evaluations should be embedded in the

concept and measure of job quality (Cooke *et al.*, 2013; Findlay *et al.*, 2013; Belardi *et al.*, 2021), owing to long-standing findings that evaluations of similar jobs can depend on workers' circumstances or social context, and to an insistence that workers' 'lived experiences' of jobs should be a focal point of study. They thus propose a hybrid concept of job quality. However, while recognizing that the strength of the association between job features and well-being can vary, we note that there are also good arguments favouring a wholly objective concept and measure of job quality. Thus, objective measures permit comparability over time and socio-economic space and provide potential targets for policies and changing employer practices. Any subjective element in job quality would render over-time comparisons of evaluative judgements much more likely to be compromised by the adaptation/habituation of the observer than over-time comparisons of objective data. Similarly, cross-cultural benchmarking of objective job data is informative, but cross-cultural comparisons of job satisfaction or of emotions are hard or impossible to interpret. Finally, adopting an objective measure can facilitate, rather than exclude, studies of subjective experiences and behaviours.

Meeting workers' needs is not reducible to completing a set of tasks and getting paid for it: it also entails doing work which provides meaning, social relatedness and identity, as well as providing a safe and healthy working environment and offering a secure future (Budd and Spencer, 2015). The list of domains of job quality that reflect this broad notion of worker well-being varies between studies, mainly depending on the availability of data. However, most lists are variations, subsets, combinations or intersections of the following seven domains: earnings, job prospects (including job security), working time quality, skills and discretion, work intensity, physical environment and social environment. These are the domains adopted by the European Foundation for Living and Working Conditions and by the European Parliament (Eurofound, 2012; European Parliament, 2016). Some conceptualizations also include person-job fit in respect of skills or hours (Leschke and Watt, 2008; UNECE, 2015). For overviews see, for example, Muñoz de Bustillo *et al.* (2011), Visser (2019) and Green (2021). Appropriate data can be acquired through multiple channels though in practice, especially for non-wage aspects of job quality, surveys are commonly used, recognizing that the most informed source of job-quality information is the job-holder. This means that, notwithstanding the arguments for deploying objective concepts just noted, analysts should be aware of potential social-esteem biases that may arise when workers report about something close to themselves (i.e. their jobs).

There is a substantial body of evidence from the disciplines of psychology, sociology, ergonomics and economics, which gives support to the foundational assumption relating job quality to both work-related well-being and general well-being. For all domains of job quality, their association with health and well-being outcomes is reasonably well-established both theoretically and empirically, even if the characterization of causal effects remains a task in progress (for an overview, see Eurofound, 2019). Much of this evidence focuses on particular unwanted outcomes such as stress, burn-out and depression in particular settings (Siegrist, 2017). General, longitudinal social surveys (with the exception of Australia's Household, Income and Labour Dynamics in Australia [HILDA]) have contributed relatively little to this literature. However, in a small number of studies, those deploying the dedicated working conditions surveys covering all occupations, there are findings of significant and substantial links between job quality and work-related well-being outcomes, notably job satisfaction and work-related affect (e.g. Green *et al.*, 2016; Krekel *et al.*, 2019).

Most relevant for this article, a few studies focus on broad well-being outcomes, reporting substantial effects of job quality on life satisfaction and other general well-being indicators. In an early study using the 2003 European Quality of Life Survey (EQLS), Wallace *et al.* (2007) found that working conditions on their own accounted for around 14% of the variation of life satisfaction among employed people in 25 European countries, an effect that was almost entirely mediated by job satisfaction. Using the same data but focusing on nine countries, Drobnič *et al.* (2010) found that job quality variables explain around 18% of the variation in life satisfaction, after including controls for gender, age, marital status, number of children and education. Within countries, the proportion accounted for ranges between 16 and 23%. Drobnič *et al.* (2010) also reported large differences—as many as 5 points on the 10-point life-satisfaction scale—between the predicted life satisfaction of those people in jobs with average or good working conditions and those with generally poor working conditions. Cumulative bad working conditions in many dimensions—a long commute, no permanent contract, non-supervisory, high time pressure, stressful, insecure, high work–home interference, boring, dangerous and unhealthy jobs—have a substantial negative effect on life satisfaction. Moreover, working conditions appeared to matter most in countries with the worst job quality generally. Altogether, these were striking findings. More recently, Lorente *et al.* (2018) and Cannas *et al.* (2019) found that job satisfaction, itself moulded by job quality, is a significant determinant of general well-being. Williams *et al.* (2020) showed that life satisfaction in Britain varies by as much as 0.9—approximately one whole standard deviation, within a range of 1–7—when comparing those at the lowest with those at the highest decile of a job quality index. Riva *et al.* (2021) found that job quality also matters specifically for older workers: they showed that workers aged 50–64 years across Europe in higher quality jobs experience substantially higher levels of general well-being measured on the multidimensional CASP scale.

The relative importance of different life domains for general well-being can be framed within a hierarchical model, whereby the well-being associated with various domains spills over to overall life satisfaction (Sirgy *et al.*, 2001). The spillover from work to overall life satisfaction takes place as long as work is not completely segmented from life, and as long as other domains of life are not affected so as to compensate for variation in the work domain. We expect that the importance of work for understanding variations in general well-being depends on how much job quality varies among jobs, and on the magnitude of its effects on well-being (which may in turn depend on personal circumstances and social context). One salient implication follows, namely that analyses should be gender-differentiated. If job quality varies more, for example, among men than among women, and if job quality matters no less for men than for women, this implies that job quality would account for a greater proportion of the variation in men's than in women's well-being. The spillover effects may also be gender differentiated owing to social context and are likely to be related to the time spent at work.

However, this framework on its own provides no new theory of the relative effects of work and other life domains. Ultimately, the effects derive from meeting needs, as might be specified for example in Maslow's theory. Our limited focus here is on the empirical evidence, and thence the research and policy consequences surrounding the relative importance of job quality. If variations in job quality are found to provide only a small account of variations in general well-being—as compared with employment status itself, or other domains such as family—then existing emphases within social surveys can be defended as well-balanced in this

respect. If, however, job quality is found to be of significantly greater importance than other domains, there arises a stronger case for prioritizing data collection in this domain.

A few studies touch on the specific aims of this article in that they have also examined the relative contribution of job quality to explaining general well-being. Job security, for example, can on its own be comparable to job loss in its effects (Green, 2011). Okulicz-Kozaryn and Golden (2018) found that flexi-time, a salient feature of working time quality, is relatively strongly associated with general happiness, compared with household income and other variables. Viñas-Bardolet *et al.* (2020) found that job quality variables have the expected links with job satisfaction, which itself has a large impact on life satisfaction. They also found that job satisfaction ranks only fourth, below the standard of living, family life and social life in the strength of their effects on well-being. However, this indirect way of analysing the importance of job quality is compromised by the subjectivity and the limitations of the job satisfaction concept (Brown *et al.*, 2012): job satisfaction is affected by both expectations and aspirations and is not normally considered suitable as an overall indicator of job quality. Using alternative data drawn from the European Social Surveys of 2005 and 2010, Clark *et al.* (2018) reported that, even though for many people work is not the most satisfying domain, the quality of that work makes a huge difference to the quality of their lives. Across all European countries, they found that job quality variables explained as much as 27% of the variation in life satisfaction among employed people. Similar findings using the same survey data, but extended to further indicators of well-being, are reported, though not commented upon, by De Neve and Ward (2017). These are even more striking findings than that of Drobnic *et al.* (2010). Finally, indirect evidence of the potentially huge impact of job quality is suggested by estimates of the aggregate high cost, in terms of both lives and healthcare costs, of exposure to workplace stressors in US workplaces (Goh *et al.*, 2016).

Given that these studies use incomplete sets of job quality indicators, they can be regarded as providing a lower bound for job quality's relative importance in understanding well-being outcomes. However, they also deploy demographic and economic control variables, which account for some of the variation in addition to job quality variables. These facts make it hard to be confident about the relative importance of job quality, as compared with other life domains. Moreover, the studies are based only on cross-sectional data; therefore, none are able to examine the changes in well-being that may be associated with individuals' changing job circumstances, as could be feasible with longitudinal data. With only the few aforementioned studies examining the relative importance of job quality, a new study is called for to gauge this relative importance systematically, not only within Europe but elsewhere, and where possible using more complete sets of job quality indicators.

Our research questions are:

RQ1: To what extent is the overall variation among employed individuals in their well-being associated with variation in job quality? Specifically, how does the proportion of variation accounted for by variations in job quality compare with the proportion accounted for by other domains commonly examined in the well-being literature?

RQ2: How do the marginal effects of differences in job quality on well-being compare with the marginal effects of differences in other domains of life?

RQ3: How does the proportion of growth or decline in well-being that is accounted for by job quality changes compare with the proportion accounted for by changes in other well-being domains?

3. Data, indicators and analytical strategy

3.1 Data

The impact of job quality on well-being may vary between countries according to their institutions, not least their welfare regimes (Gallie, 2007), but its relative importance compared to other factors in life could be expected to transcend cultural differences between countries. We therefore utilize data drawn from multiple countries to provide robustness for the findings and thereby give greater confidence in the generality of any conclusions to be drawn about the relative priority to be attached to job quality in social science enquiry and data collection.

We deploy 5 datasets, covering a total of 39 countries (see Table 1). The European Working Conditions Survey (EWCS) in 2015 sampled employed people from all 28 EU member countries and a further 7 countries within Europe. It is the most detailed job quality survey in existence, with a questionnaire covering almost all job quality domains and many related items. For our purposes, the EWCS is preferable as a European data source to both the EQLS and the European Social Surveys because it covers job quality more fully and more recently. The EWCS survey is also adopted by the Republic of Korea (hereafter, South Korea) whose survey series dates from 2006, and most recently it is used in the USA for surveys in 2015 and 2018. The questionnaires in South Korea and the USA closely follow the European questionnaire. The survey in the USA has the additional advantage of containing a longitudinal element: the 2015 respondents were re-surveyed in 2018. We supplement these with job quality data for Britain from the 2017 Skills and Employment Survey (SES) and for Australia from the HILDA survey. Neither SES nor HILDA are as comprehensive as the EWCS in their coverage of job quality.

Fuller details and sources for all these datasets are in Tables A1 to A5 of the Appendix.

3.2 Job quality indicators

For the EWCS data, we utilized the job quality indices for each of the seven domains, as provided with the data. These indices were derived using the protocols described in detail in Eurofound (2012). The same protocols to generate job quality indices were applied by the authors to the Korean Working Conditions Survey (KWCS) and the American Working Conditions Survey (AWCS) data. For the SES data, it was generally not possible to construct whole domain indices; instead, 12 items that fell under any of the domains were entered separately (see Appendix). For the HILDA data, we constructed domain indices as the first principal component of items in each of the five domains for which data were available;

Table 1. Surveys and years

Survey data	Countries covered	Year(s)
EWCS	EU 28 and 8 non-EU countries in Europe	2015
KWCS	Republic of Korea (South Korea)	2020
AWCS ^a	USA	2015, 2018
SES	UK	2017
HILDA ^a	Australia	2001–2020

^aIndicates longitudinal panel.

we also included two items for person-job match in skills and working time, which can be seen either as parts of Skills and Discretion and of Working Time Quality, respectively, or as a separate category of job quality (Green, 2021) (see Appendix).

We also generated a single job quality index for every dataset in a consistent manner, derived as the first principal component of all the job quality features. A single index has the potential disadvantage of conveying less information but can be useful if, as expected, domains have cumulative effects on well-being. In the present context, a single index facilitates a suitable, straightforward way of comparing marginal effects between job quality and other variables.

3.3 Well-being measures

We utilize three measures of well-being: life satisfaction (available in SES, HILDA and AWCS), the WHO-5 Well-being Index (available in EWCS and KWCS) and the Mental Health SF36 scale (available in HILDA).

Life satisfaction is measured by a question that reads ‘All things considered, how satisfied would you say you are with your life these days?’ The responses range from 0 to 10 in Australia, 1 to 7 in Britain and 0 to 100 in the USA. The WHO-5 Well-being Index is a widely used and validated self-reported measure of psychological well-being. It consists of five items: ‘I have felt cheerful and in good spirits’; ‘I have felt calm and relaxed’; ‘I have felt active and vigorous’; ‘I woke up feeling fresh and rested’; and ‘my daily life has been filled with things that interest me’. The answers were made on a five-point scale ranging from ‘at no time’ to ‘all of the time’. A summative 0–100 scale was created based on individuals’ responses to all five questions with 0 indicating the lowest and 100 the highest level of well-being. Finally, the SF36 scale is a derived scale with a range of 0–100 supplied with data, based on eight areas of subjective health (Ware *et al.*, 2000).

3.4 Analytical strategy

We adopt a straightforward open linear specification, allowing each domain to have its separate effect on well-being outcomes. Apart from its simplicity and consequent utility for comparisons with other well-being determinants, the advantage of an open specification is that it can be applied across the well-being distribution, rather than just to the low well-being outcomes implied by theories of job strain. We note, however, that some theories suggest significant non-linearities in the relationship between job quality and well-being. Both psychology and economics propose that there may be diminishing returns, implying that the marginal effects of job quality improvement are greatest at low levels (Warr, 2007). Sociological theory shows the importance of social context for moderating and mediating the effects of working conditions on health and well-being (Wainwright and Calnan, 2002). Psychological theories also imply that certain job domains interact in their effects on worker stress and burnout. Prime exemplars are the theories of demand–control, of effort–reward imbalance and their development in job demands–resources theory (Karasek and Theorell, 1990; Siegrist, 1996, 2017; Bakker and Demerouti, 2017). Economics theorizes that substitution between wages and other working conditions in their effects on well-being (utility) is brought into balance at the margin with their costs (Rosen, 1986). To take account of such factors, one might either build them into re-designed job quality domains or simply include interactive and quadratic terms when modelling well-being. To do the latter might increase the proportion of the variance of well-being that is explained but could be argued to weigh

the influence of job quality unfairly relative to the consideration of other well-being determinants. Moreover, the above theories do not lead to a single model of how *all* domains of job quality might interact.

Thus, in line with our research questions, the analytical strategy takes three steps. First, we regress each well-being outcome against a linear model of job quality indices, and separately against variables that measure the other life domains (Equations (1) and (1')):

$$Y_i = \alpha + \beta JQ_i + \varepsilon_i \quad (1)$$

$$Y_i = \alpha' + \beta' LD_i + \varepsilon'_i \quad (1')$$

where Y_i is a well-being outcome of individual i , JQ_i is a vector of job quality indices, LD_i represents life domains that are considered in the literature as significant determinants of individuals' well-being (age, marriage, the presence of children, education, household income, unemployment and physical health), and ε_i and ε'_i are normally distributed error terms. The main parameter of interest for comparison is the R^2 , which shows the proportion of variation in well-being accounted for solely by job quality indices or other life domains; by not including terms for interactions between job quality domains, we are presenting lower-bound estimates of the association. We also compare the effect of all the non-work life domains together, before and after including job quality indices to examine if the inclusion of job quality adds to explanatory power.

In the second step, we shift our focus from model explanatory power to the effects of job quality and other life domains on the well-being outcomes. To that end, we run two similar sets of models and report the regression coefficients instead of R^2 . In order to compare effect sizes, we generated deciles of the overall job quality index. In the first set of regressions, we estimate the effects on well-being of being in the top decile versus the median quintile of the overall job quality index, as well as the median quintile versus the bottom decile. In the second set of regressions, we regress dichotomized life domains against well-being outcomes (for instance, female versus male, partnered versus single). Comparing the coefficients from these models will reveal the relative effect size of job quality and of other life domains.

Third, within-person changes in job quality and changes in well-being outcomes are modelled using the longitudinal panel datasets in the USA (AWCS) and Australia (HILDA). This is important given that the cross-sectional associations cannot be interpreted as causal. To illustrate, individual factors that affect individuals' well-being directly might be associated with selection into good or bad jobs; if so, the associations estimated using Equations (1) and (1') stem from a mix of selection and causation. Controlling for every possible factor affecting individuals' well-being and selection is hardly possible, particularly with observational data on working conditions. Though some research is beginning to establish causality (Caroli and Godard, 2016), suitable quasi-experimental conditions are rare. Analysing longitudinal panel datasets, however, at least allows the possibility to remove bias stemming from time-invariant person-fixed effects. This advantage is mitigated because there may be lags in the effects of job quality on well-being—for example, long-term effects on health—which cannot be satisfactorily modelled and estimated in a short panel (as here); we expect that a smaller proportion of well-being variation will be accounted for. We may nevertheless expect the relative importance of job quality features, as compared with other

domains (whose associations with well-being also reflect a mix of causation and selection), to be observable in the longitudinal estimates, as a signal of the robustness or otherwise of our findings.

4. Estimation and results

4.1 R-Squared

Table 2 shows the R^2 values for the simple regression models which reflect the proportions of well-being accounted for by job quality and other life domains. We first carried out the analysis on the full sample and then repeated it by gender. As can be seen, the R^2 values for job quality are generally higher in the dedicated working conditions surveys: 15% in the EWCS, 13% in the KWCS and 11% in the AWCS. The figures are slightly lower for the SES (11%) and HILDA (10%), which is expected since these surveys have fewer job quality indicators. It can also be noted from the table that in all data sets the R^2 value is just a little higher for men than for women, and this is consistent across countries. The full regression outputs underpinning this are given in the [Supplementary Appendix](#).

To determine the relative importance of job quality in well-being, comparing the R^2 values for job quality with those for other life domains is required. The proportion of well-being accounted for by any one of several other key determinants, for example, household income, marriage, age and education, is smaller by an order of magnitude than the proportion accounted for by job quality. For instance, variations in household income explain only 5% of life satisfaction in the USA and 2% in Australia. In the case of Australia, we also ran regressions incorporating unemployed respondents to estimate the raw effect of employment on well-being in line with the existing literature, and this explains only 1% of well-being variations; this latter is unsurprising, given that only a small proportion of the population is unemployed. The occupation or industry where jobs are situated also contributed remarkably small amounts to the variations in well-being. Finally, for the EWCS that covers multiple countries, we estimated the amount of variation that could be explained by country variation; this was also modest, at around 3%.

In contrast, the R^2 for physical health is 14% in the EU, 10% in South Korea and 15% in the USA. The variation between datasets is in part affected by the variation in the particular items measuring health perceptions. The physical health variable is a self-perceived response, and hence its association with the well-being outcomes, especially WHO-5 and SF36, are likely to contain positive bias owing to common variance in the variables on both sides of the equations.

In short, job quality is, everywhere, broadly as important as self-perceived physical health, and much more important than other commonly investigated life domains in accounting for variation in individuals' well-being.

Finally, since it could be expected that job quality covaries with some or all of the control variables, some of the variation attributed to job quality might stem from the controls. Thus, for a broad comparison with earlier studies, we also investigated the additional explanatory power of job quality when combined with the other variables. We first inputted all variables together other than job quality, including affiliation to occupation and industry (row 12 in Table 2), and then added the job quality domains (row 13). The proportion accounted for was raised by the added job quality variables from 15 to 25% in Europe, from 20 to 25% in the USA and from 11 to 20% in South Korea. These outcomes are of the same order of magnitude

Table 2. Associations of life domains with well-being: R^2

	Europe (EWCS)			Australia (HILDA)			Australia (HILDA)			UK (SES)			USA (AWCS)			South Korea (KWCS)		
	WHO-5			Life satisfaction			SF-36			Life satisfaction			Life satisfaction			WHO-5		
	Range: 0–100			Range: 0–10			Range: 0–100			Range: 1–7			Range: 0–100			Range: 0–100		
	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All
0 Job Quality	0.152	0.145	0.145	0.083	0.072	0.077	0.115	0.085	0.100	0.117	0.112	0.105	0.135	0.100	0.108	0.149	0.121	0.132
1 Female versus male	NA	NA	0.000	NA	NA	0.000	NA	NA	0.007	NA	NA	0.000	NA	NA	0.002	NA	NA	0.001
2 Partnered versus single	0.000	0.001	0.000	0.008	0.009	0.008	0.011	0.009	0.011	0.044	0.033	0.038	0.026	0.025	0.027	0.000	0.001	0.000
3 Any children under 16 ^a years	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.006	0.003	0.004	NA	NA	NA	0.000	0.001	0.000
4 Physical health	0.137	0.146	0.141	0.050	0.056	0.053	0.071	0.075	0.073	0.105	0.080	0.088	0.121	0.171	0.150	0.106	0.094	0.099
5 Age and age squared	0.002	0.003	0.002	0.023	0.009	0.015	0.015	0.018	0.016	0.000	0.008	0.001	0.015	0.003	0.007	0.016	0.016	0.015
6 Education-level dummies	0.004	0.013	0.006	0.001	0.001	0.001	0.002	0.002	0.001	0.017	0.001	0.007	0.020	0.026	0.018	0.028	0.021	0.022
7 Log of household income ^b	NA	NA	NA	0.001	0.004	0.002	0.001	0.003	0.002	NA	NA	NA	0.038	0.056	0.048	NA	NA	NA
8 Industry	0.007	0.012	0.005	0.005	0.003	0.003	0.003	0.005	0.008	0.014	0.015	0.009	0.050	0.035	0.027	0.015	0.009	0.011
9 Occupation	0.011	0.017	0.009	0.001	0.000	0.000	0.002	0.006	0.004	0.040	0.009	0.016	NA	NA	NA	0.020	0.014	0.017
10 Employed versus unemployed	NA	NA	NA	0.007	0.006	0.007	0.014	0.015	0.014	NA	NA	NA	NA	NA	NA	NA	NA	NA
11 Country dummies (EWCS)	0.032	0.027	0.027	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12 All variables rows 1–9	0.147	0.162	0.154	0.098	0.085	0.090	0.102	0.104	0.103	0.183	0.138	0.137	0.213	0.223	0.201	0.125	0.106	0.112
13 All variables rows 0–9	0.245	0.246	0.245	0.161	0.141	0.148	0.187	0.164	0.173	0.252	0.236	0.212	0.283	0.266	0.251	0.219	0.187	0.196

Notes:

^aUnder 14 in HILDA;^bThe log of 'equivalised' household income, defined here as total household income/ $n^{0.5}$.

Each number refers to a separate regression. For the comparator domains, R^2 numbers are for samples of those in employment comparable to the sample for the job quality domains at the first row. For the employed versus unemployed, the samples include also the unemployed but exclude the economically inactive. The full regression result tables, including sample sizes, can be found in the [Supplementary Appendix](#).

as similar estimates including controls, reported in Drobníč *et al.* (2010), De Neve and Ward (2017) and Clark *et al.* (2018). We therefore computed the coefficient of partial determination (the ‘partial R-squared’): the proportion of the remaining variation in well-being—that part which is not explained by the controls—which can be accounted for by variations in job quality. These were computed as 11.2% for the EWCS, 9.5% for KWCS, 6.1% for AWCS, 9.1% for SES and 7.9% for HILDA (SF36 outcome). These estimates, which are all somewhat lower than the R^2 values for job quality alone, suggest that, as suspected, job quality and the control variables are not fully orthogonal determinants of well-being.

4.2 Effects

Table 3 compares the effect sizes of job quality to those of other life domains. Specifically, we look at the well-being differences between the respondents in the top decile of the job quality index with those in the middle quintile (from the 40th to the 59th percentiles) and also at the differences between the respondents in the middle quintile and those in the bottom decile.

As can be seen from Table 3, in Europe the job quality gradient at the upper part of the distribution was 7.6, compared to 15.7 in the lower part (consistent with possible non-linearity in this relationship). Again, the magnitude of the effect of job quality is similar to that of physical health (15.6). The effects of either job quality or physical health are substantially greater than any of the other life domains. For example, the well-known well-being slump in the middle age band is -2.0 . That pattern is consistent in Europe, the USA and South Korea. Finally, the standard deviation of the country’s means of psychological well-being in Europe (which are shown in Figure 1 below) is just 3.2.

The findings from the SES (UK) and HILDA (Australia) are broadly consistent with those elsewhere. An exception is that the effect of marital status on well-being is similar to that of job quality when comparing the bottom to the middle deciles. Also, we estimated the effect of employment on well-being using the HILDA data. The results confirm the well-established finding that being employed has a large and positive effect on well-being. Indeed, the effect size is similar to that of being in a good job (top decile) instead of a bad job (bottom decile).

4.3 Comparison across countries

Within each country, the importance of job quality for well-being variation would be expected to depend on the variance of job quality and on its effects, both of which may differ across institutional cultures. To determine whether this is the case, as a side validity check on the validity of our approach, we ran regression models separately for individual European countries in the EWCS. Figure 1 presents the R^2 across countries, showing that in all countries the amount of variance explained is high, compared with typical variance explained by other variables excluding health. R^2 is at its lowest, 9%, in Finland, which has a substantially lower inequality in job quality than any other country: the standard deviation of the job quality single index is 1.25 in Finland, as compared with the Europe with average value of 1.37. Also, from country-specific regressions, we estimated that in Finland the marginal effect of job quality on mental health is 3.51 (SE = 0.04), compared with the Europe with average value of 4.99, (se = 0.08). In contrast the R^2 is at its highest, 22%, in Hungary where, while its job quality inequality is near average, the marginal effect is among the highest (5.85, se = 0.66). Thus, the cross-country range of within-country variance explained appears plausible. Looking across all 35 countries, there is a weak positive correlation between job quality inequality and the R^2 for

Table 3. Associations of life domains with well-being: effect sizes

Variables	Europe (EWCS)			Australia (HILDA)			Australia (HILDA)			Britain (SES)			USA (AWCS)			South Korea (KWCS)		
	WHO-5			Life satisfaction			SF-36			Life satisfaction			Life satisfaction			WHO-5		
	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All
Mean (Range)	67.63 (0–100)			7.93 (0–10)			74.95 (0–100)			5.65 (1–7)			64.51 (0–100)			56.38 (0–100)		
1	6.0*	9.0*	7.6*	0.4*	0.3*	0.4*	4.7*	3.9*	4.5*	0.4*	0.1	0.3*	9.5*	6.3	8.2*	9.8*	7.6*	8.3*
Job Quality Index (top decile versus median quintile)																		
2	16.1*	16.3*	15.7*	0.2*	0.2*	0.2*	3.7*	2.9*	3.4*	0.5*	0.5*	0.5*	16.0*	13.0*	14.3*	8.3*	9.8*	9.2*
Job Quality Index (median quintile versus bottom decile)																		
3	NA	NA	-1.9*	NA	0.0*	NA	NA	NA	-2.6*	NA	NA	0.0	NA	NA	-1.6	NA	NA	1.0*
Female versus male																		
4	1.8*	0.8*	1.3*	0.2*	0.3*	0.2*	3.6*	3.2*	3.6*	0.4*	0.3*	0.4*	7.4*	7.4*	7.5*	-0.8	1.1*	0.2
Partnered versus single																		
5	-0.9*	-0.9*	-1.1*	-0.0	-0.1*	-0.0*	0.0	0.5*	0.4*	0.1*	0.1*	0.1*	NA	NA	NA	0.2	1.4*	0.7*
Any children under 16 (under 14 in HILDA)																		
6	14.4*	16.8*	15.6*	1.0*	1.0*	1.0*	13.9*	15.1*	14.5*	0.5*	0.6*	0.6*	18.6*	22.3*	20.9*	12.3*	11.1*	11.6*
Physical health (good versus poor)																		
7	-1.6*	-2.5*	-2.0*	-0.2*	-0.1*	-0.1*	0.1	1.4*	0.8*	-0.0*	-0.2*	-0.0	-0.8	-0.3	-0.5	-0.6	-0.4	-0.5
Age dummy (45–54 versus others)																		
8	2.5*	1.9*	2.1*	-0.0*	-0.0*	-0.0*	0.2	1.2*	0.5*	0.2*	0.1	0.1*	3.7*	4.9*	4.5*	5.2*	4.0*	4.5*
Education (university versus rest)																		
9	NA	NA	NA	0.1*	0.2*	0.1*	1.0*	1.6*	1.3*	NA	NA	NA	9.4*	9.8*	9.7*	NA	NA	NA
Household income (above versus below median)																		
10	NA	NA	NA	0.5*	0.5*	0.5*	8.2*	9.2*	8.6*	NA	NA	NA	NA	NA	NA	NA	NA	NA
Employed versus unemployed																		

Note:

* $P < 0.05$

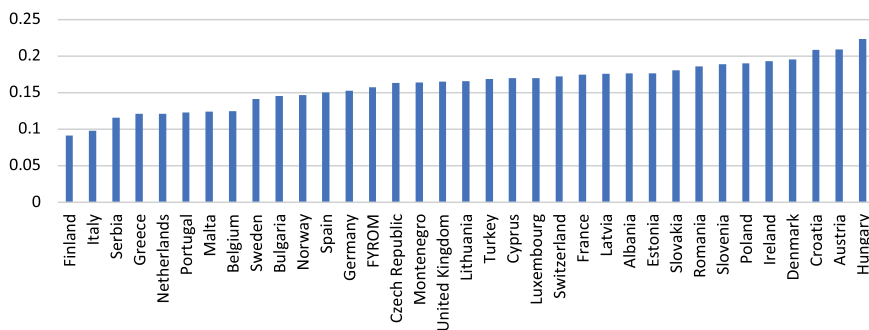


Figure 1. The importance of job quality for psychological well-being by country in Europe.

Note: R^2 from within-country regressions of well-being (WHO-5) on 7 job quality domains (EWCS 2015).

the amount of variation accounted for ($r = 0.31$, $P = 0.068$); and a strong positive correlation between the marginal effect of job quality on mental health and the R^2 ($r = 0.69$, $P = 0.00$). Notwithstanding the extremes, the R^2 for the majority of individual countries in Europe falls in the range between 14 and 20%. The SES estimate for Britain is lower, at 11%, which was expected largely because job quality is not fully covered in the SES.

4.4 Within-person variation

Table 4 reports the within R^2 estimates from fixed effect analyses. As expected, all within R^2 estimates turned out to be much smaller than those from the cross-sectional analysis. The largest within R^2 values for job quality are obtained from the USA: 4.5% of within-person changes in life satisfaction can be accounted for by changes in job quality. In Australia, the within R^2 estimate is 1.5% for life satisfaction and 2.1% for mental health. Although these effect sizes in fixed effect models are generally smaller, the relative effect of job quality on well-being is substantially larger than that of other life domains with the exception of physical health, which is consistent with our findings derived from cross-sectional analysis.

5. Implications for social enquiry

This article contributes to the existing literature by providing geographically extensive and robust empirical evidence on the relative importance of job quality for individuals' well-being outcomes, as compared with the influence of other life domains. There are three key results. First, job quality indicators account for substantially more of the variation in individuals' well-being than do other life domains, except for self-perceived physical health conditions. Secondly, relatively large estimates of the effects of job quality on well-being have been found compared with estimates of the effects of other determinants in the life-satisfaction literature. Thirdly, these findings have been consistently found across all countries and datasets we deployed, though are weaker for the datasets with fewer job quality items, namely the SES in Britain and HILDA in Australia.

These findings should be considered in light of some of the data limitations. First, our estimates are based solely on observational data and do not here establish any causal relationship between job quality and well-being outcomes, even though our analysis of both cross-sectional and longitudinal data provides additional information. Secondly, some surveys, specifically the

Table 4. Associations of life domains with well-being: within R^2

	Australia (HILDA)			Australia (HILDA)			USA (AWCS)		
	Life satisfaction			Mental health			Life satisfaction		
	M	F	All	M	F	All	M	F	All
Mean (range)									
		7.93 (0–10)			74.95 (0–100)			64.51 (0–100)	
Multiple job quality domains	0.018	0.013	0.015	0.026	0.017	0.021	0.042	0.018	0.020
Female versus male	NA	NA	NA	NA	NA	NA	NA	NA	NA
Partnered versus single	0.005	0.003	0.004	0.001	0.000	0.001	0.005	0.000	0.000
Any children under 16 (Under 14 in HILDA)	0.000	0.001	0.000	0.000	0.000	0.000	NA	NA	NA
Physical health: good versus poor	0.011	0.013	0.012	0.024	0.024	0.024	0.016	0.008	0.011
Age and age squared	0.007	0.003	0.005	0.005	0.001	0.003	0.003	0.010	0.006
Education: level dummies	0.002	0.001	0.001	0.001	0.000	0.000	0.025	0.003	0.005
Log of household income	0.000	0.001	0.001	0.000	0.000	0.000	0.005	0.002	0.003
Industry	0.001	0.001	0.000	0.000	0.001	0.000	NA	NA	NA
Occupation	0.000	0.000	0.000	0.001	0.000	0.000	NA	NA	NA
Employed versus unemployed	0.002	0.002	0.002	0.001	0.001	0.001	NA	NA	NA
All domains above, excl. job quality	0.028	0.024	0.025	0.032	0.026	0.028	0.035	0.025	0.021
Multiple job quality indices and all other domains	0.041	0.035	0.037	0.054	0.042	0.046	0.070	0.053	0.041

EWCS, KWCS and AWCS, provide a relatively full list of job quality items, but improvements could be anticipated that would raise the explanatory power of job quality as the science of job quality proceeds. Thirdly, it could be objected that, while we have compared the effects of job quality variations with education, marriage and so on, we have not examined the potential effects of education quality or marriage quality: a legitimate consideration, even though the primary concerns of the literature have been with status not quality. Future research might usefully address quality issues more generally, while research on job quality effects could be extended to examining other aspects of well-being than those used in this study.

Moreover, while some of the cross-country variations in well-being outcomes are attributable to differences in national income, our findings also suggest that job quality variations across countries might have a role to play in understanding national variations in the level and distribution of well-being. Our findings dovetail with the increased importance attached to job quality policy concerns since the ILO developed its vision for ‘decent work’, and the wider calls for ‘better jobs’ (Green, 2021). They also highlight how the way in which the future of work plays out in the coming decades is likely to be of considerable importance for health and well-being. If some level of employee participation is facilitated in the design or implementation of new technologies, there is hope that improving job quality could contribute towards improving the health and well-being of workers; if, however, such technologies ignore workers’ needs and contributions, the consequences for employed workers can be negative (Grote and Guest, 2017; Berg *et al.*, 2023).

It will be important, then, for social science to keep pace with such changes, and to embed enquiry into job quality within general social science. With improved knowledge of the key features of jobs and of how job quality may be categorized, it is time for designers of general social surveys, panels, cohort studies and labour force surveys, the world over, to allocate significantly more resources (specifically, survey space) to measuring job quality for the majority of their adult respondents who are in work. Survey time constraints can if necessary be overcome by utilizing valid short-form measures of job quality domains (e.g. Felstead *et al.*, 2019). While dedicated working conditions surveys of those in work can track trends and variations in job quality, these should not be segmented from the rest of social enquiry. By including job quality in general socio-economic surveys, social scientists could better unravel job quality’s many individual and social effects on people’s lives. Our findings suggest that is something worth doing. If well-being concerns are to be accepted as legitimate ends for enquiry and for policy purposes, as they increasingly are, then a greater priority for job quality data in surveys is called for.

Author contributions

Francis Green (Supervision, Conceptualization, Methodology, Data curation, Writing—original draft preparation), Sangwoo Lee (Methodology, Data curation, Writing—original draft preparation), Min Zou (Data curation, Writing—reviewing and editing), and Ying Zhou (Methodology, Data curation, Writing—reviewing and editing)

Supplementary material

[Supplementary material](#) is available at *Socio-Economic Review Journal* online.

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Appendix A: Data set summaries

Table A1. EWCS.

Contents	Explanation
Description	The EWCS is a cross-sectional survey normally conducted every five years by Eurofound (the European Foundation for the Improvement of Living and Working Conditions). In each country, the survey is administered face-to-face to a nationally representative, random sample of employed persons. Sample sizes are a minimum of 1000 per country in each wave, totalling 43 850 in 2015. All analyses use the provided weights for Europe-wide analyses.
Source Reference	Eurofound. (2022). <i>European Working Conditions Survey, 2015</i> . [data collection]. 4th Edition. UK Data Service. SN: 8098, DOI: 10.5255/UKDA-SN-8098-5
Outcome	The WHO-5 Well-Being Index
Job Quality variables	Domain-level indices were devised in Eurofound (2012). Updated indices are provided with the 2015 data for the domains: Earnings, Prospects, Skills and Discretion, Good Social Environment, Good Physical Environment, Work Intensity, Working Time Quality.
Construction of JQ index	The first principal component of the domain-level indices listed above.
Non-work domains	Age, gender, children under 16 years, education, marital status, household income, self-reported health.

Table A2. KWCS.

Contents	Explanation
Dataset Description	The KWCS is a repeated cross-sectional survey of employed people over 15 years old in 2006 (first), 2010 (second), 2011 (third), 2014 (fourth), 2017 (fifth) and 2020 (sixth). The questionnaire was based on the 2020 EWCS. The sample for the first and second waves was 10 000 and increased up to 50 000 for the third, fourth, fifth and sixth waves. The interview was conducted fully face-to-face until the fifth wave before the pandemic, and a hybrid method was used for the sixth wave due to the pandemic.

continued

Table A2. *Continued*

Contents	Explanation
Source	https://www.kosha.or.kr/eoshri/resources/KWCSDownload.do
Outcome(s)	The WHO-5 Well-Being Index.
Job Quality variables	Indices were derived following the procedures given in Eurofound (2012) for all domains: Earnings, Prospects, Skills and Discretion, Good Social Environment, Good Physical Environment, Work Intensity, Working Time Quality.
JQ index	The first principal component of the seven domain-level indices listed above.
Non-work domains	Age, gender, children under 16 years, education, marital status, self-reported health.

Table A3. AWCS.

Contents	Explanation
Description	AWCS is based on a nationally representative, probability-based panel of over 6000 members aged 18 years and older who are regularly interviewed over the Internet for research purposes. The first wave of the AWCS was conducted from July to October 2015. Information on all job quality domains is harmonized with the EWCS. The most recent data on job quality domains were collected in 2018.
Source Reference	Maestas Nicol, Kathleen J. Mullen, David Powell, Till von Wachter, and Jeffrey B. Wenger (2017). <i>The American Working Conditions Survey Data: Codebook and Data Description</i> . Santa Monica, CA: RAND Corporation. https://www.rand.org/pubs/tools/TL269.html
Outcome	Life Satisfaction: Using a scale of 1 to 10 where 1 means 'Very dissatisfied with my life as a whole right now' and 10 means 'Very satisfied with my life as a whole'.
Job Quality variables	Indices were derived following the procedures given in Eurofound (2012) for all domains: Earnings, Prospects, Skills and Discretion, Good Social Environment, Good Physical Environment, Work Intensity, Working Time Quality.
Construction of JQ index	The first principal component of the seven domain-level indices listed above.
Non-work domains	Age, gender, education, marital status, household income and self-reported health

Table A4. SES.

Contents	Explanation
Description	The SES is a series of nationally representative sample surveys of individuals in employment in Britain aged 20–60 years old (since 2006, the surveys have additionally sampled those aged 61–65 years). Though not originally planned in this way, continuity in questionnaire design has created an integrated data series since 1986, approximately every 5 years. Sample numbers in 2017 were 3306.
Source	https://beta.ukdataservice.ac.uk/datacatalogue/studies/study?id=8581
Outcome(s)	Life satisfaction (1–7)
Job quality variables	Job quality items include work intensity, job insecurity, task discretion, task variety, opportunity to use skills, ease of taking time off work, training provision, choice over work, short repetitive tasks, hourly pay, managerial support and the scope for innovation.
Construction of JQ index	The first principal component of all the job quality items listed above.
Non-work domains	Age, gender, children under 16 years, education, marital status, self-reported health.

Table A5. Data Set Summaries: HILDA.

Contents	Explanation
Description	The HILDA Survey is a structured annual household-based longitudinal study following the lives of more than 17 000 Australians. Data are collected through face-to-face interviews, though during the pandemic, around 10% of the interviews were conducted by telephone. All analyses use the provided weights.
Source	https://melbourneinstitute.unimelb.edu.au/hilda
Outcome(s)	Life satisfaction (0–10) Mental health SF36 (0–100)
Job quality variables	Job quality items include monthly pay, flexible working times, decide when to take a break, normal working hours, secure future in job, business security, worry about job future, permanent employment contract, work fast, work intensely, not enough time to do job, job is complex, job requires to learn new skills, job provides variety of interesting things, job requires to take initiative, have freedom deciding how to work, have freedom deciding when to work, have choice deciding what to work, have say about what happens in job, use skills and abilities in job, prefer to work same hours. These items were used to derive six domain level indices: earnings, working time quality, prospects, work intensity, skills and discretion, person-job match.
Construction of JQ index	The first principal component of all the job quality items listed above.
Non-work domains used	Age, gender, children under 14, education, marital status, household income, self-reported health

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