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DOES WORKER WELLBEING AFFECT WORKPLACE PERFORMANCE?

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Abbreviations

GDP	Gross domestic product
HAPA	High activation, pleasant affect
HAUA	High activation, unpleasant affect
HIM	High involvement management
HR	Human resources
HRM	Human resource management
LAPA	Low activation, pleasant affect
LAUA	Low activation, unpleasant affect
OECD	Organisation for Economic Co-operation and Development
ONS	Office for National Statistics
PANAS	Positive and Negative Affect Schedule
SWB	Subjective wellbeing
WERS	Workplace Employment Relations Survey

Glossary

Affect	A term used in psychology to refer to a person's elementary feelings. Positive affect indicates feelings of pleasure; negative affect indicates feelings of displeasure or pain.
Correlation coefficient	A number varying between -1 and +1 which indicates the strength and direction of the linear relationship between two variables. A coefficient of 0 indicates that they are entirely uncorrelated.
Eudemonic wellbeing	An approach which focuses on the extent to which a treatment gives rise to a sense of purpose, vitality or personal development.
Experience sampling	A research methodology that asks participants to stop at certain times of the day and to make a record of their feelings or behaviours. Also referred to as the 'day-reconstruction method'.
Fixed effects model	A multivariate regression model that is estimated on lower-level units (e.g. employees) but which incorporates one dummy variable for each higher-level unit in the sample (e.g. each workplace). The approach is used to remove any unobservable differences that are common to all members of the same higher-level unit (i.e. each employee in the same workplace).
Hedonic approach	An approach which focuses on the extent to which a treatment gives rise to positive or negative affect (pleasure or pain).
Human resource management (HRM)	Human resource management practices typically include practices relating to training, recruitment and selection, performance management, teamwork, incentive pay, job security, participation and communication.
Job-related affect	The nature of a person's elementary feelings towards their job. Also see 'Affect'.
Job-related emotional exhaustion	One of the key components of 'job burnout'. Emotional exhaustion refers to tension, strain and fatigue.
Job satisfaction	A measure of the adequacy of one's affective feelings towards aspects of their job.

Instrumental variables	An analytical technique that uses a variable associated with the factor under study, but not directly associated with the outcome variable, in order to remove bias caused by reverse causation, omitted variables or measurement error.
Meta analysis	A statistical technique that combines the results of several different studies in order to provide an overall indication of the strength of the relationship between the variables of interest.
Monopsony	A market situation in which there is only one buyer of the good or service in question. Often used also to refer to a situation of oligopsony – a market situation in which there are few buyers relative to the number of sellers.
Multivariate regression	A statistical technique for estimating the relationship between one outcome (or dependent variable) and a number of predictors (or independent variables).
Organizational citizenship behaviours	Positive and constructive things that employees do, of their own volition, which support co-workers and benefit the organization.
Subjective wellbeing	All of the various evaluations, positive and negative, that people make of their lives, and the affective reactions of people to their experiences.
Utility	An economic concept referring to the degree of satisfaction that is obtained from consuming a good or service.

Executive Summary

Employee wellbeing is increasingly a focus of government attention in the UK and elsewhere. It is viewed as a legitimate target of government policy in its own right, but there are also reasons to think that improvements in employees' wellbeing may be conducive to economic growth. This paper focuses on the subjective wellbeing of employees and its potential impact on workplace performance. As yet there is relatively little empirical evidence on the relationship between employees' subjective wellbeing and workplace performance. This paper begins to fill that gap for Britain.

Background

The term subjective wellbeing (SWB) is used to cover a number of different aspects of a person's subjective mental state and has been defined by the OECD to include "all of the various evaluations, positive and negative, that people make of their lives, and the affective reactions of people to their experiences". For many years, policy makers focused on GDP growth as the best means of securing a better quality of life for citizens. But governments and their advisers have recently turned their attention to other measures, including of individuals' subjective wellbeing. One of the motivations has been research indicating that citizens in developed economies have not necessarily become 'happier' as a result of increased prosperity.

Aims and objectives

This study focuses on the links between employees' subjective wellbeing at work and workplace performance. It sets out to address four questions:

- How do we measure and define wellbeing in the workplace?
- What employee and job characteristics influence wellbeing in the workplace?
- What employer practices have the greatest positive impact on wellbeing in the workplace?
- Is there any evidence to link employee wellbeing and business performance?

Our approach

The study consisted of three main substantive stages. In the first stage of the study, we sought to develop a conceptual framework around SWB and its possible links to workplace performance. Within this conceptual framework, we sought to describe the different approaches to the definition and measurement of SWB, drawing heavily on the existing psychological literature which points to its multi-dimensional nature. The framework also considered the factors that affect employees' levels of SWB at the

workplace. It then went on to consider the potential ways in which employees' SWB might affect their job performance, and the likelihood that such effects will aggregate in such a way as to form a causal link between employees' SWB and the overall performance of their workplace or firm.

The second stage of the study comprised a review of the existing research literature on the two broad questions of: which employee characteristics, job characteristics and employer practices affect employees' levels of SWB at work; and whether employees' SWB has a causal impact on individual or workplace performance.

The third and final stage of the study involved new empirical analysis of the links between employees' SWB and workplace performance, based on the 2011 Workplace Employment Relations Survey (WERS). These linked employer-employee data contain multiple measures of employees' SWB and provide the basis for a robust investigation of the SWB-performance link in British workplaces. Using various multivariate regression techniques we sought to isolate the independent relationship between SWB at the workplace and workplace performance.

Key findings and policy implications

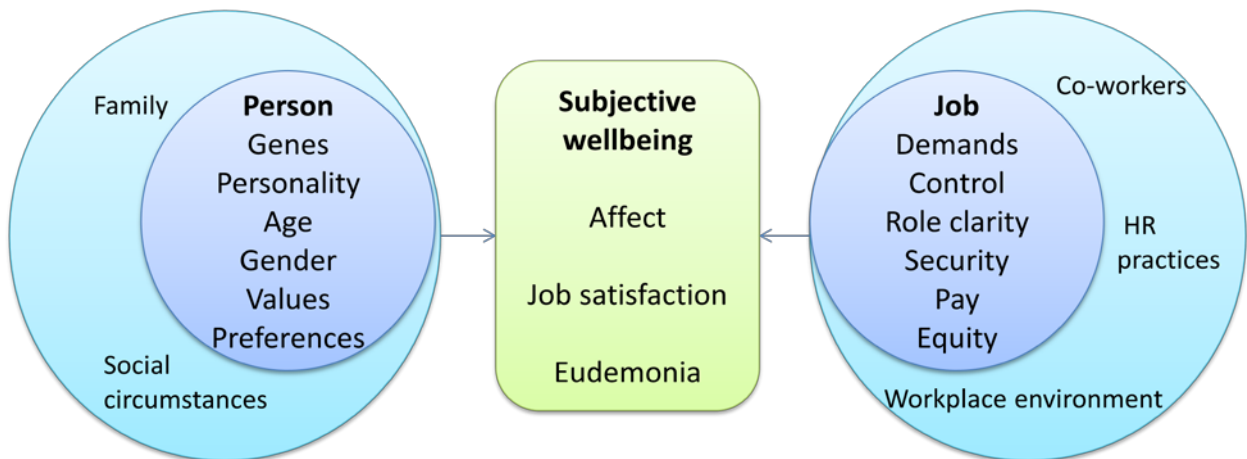
How do we conceptualise and measure wellbeing in the workplace?

There are two broad - but complementary - approaches to the conceptualisation and measurement of SWB. Hedonic approaches focus on the type of affective feelings that a person experiences (e.g. anxiety or contentment) and also on the adequacy of those feelings (e.g. whether the person is satisfied with certain aspect of their life). In contrast to these hedonic approaches, the eudemonic approach to SWB focuses on the extent to which a person experiences feelings that are considered to demonstrate good mental health (e.g. the extent to which they feel a sense of purpose).

Most research into employees' SWB has adopted the hedonic approach, with job satisfaction being the most frequently studied aspect of job-related SWB. The study of job-related affect has a more recent history, but a growing body of empirical research investigates this dimension of SWB. The eudemonic approach to SWB has been less frequently operationalised in organisational research. The term SWB is used hereafter as a catch-all for research in any of these three areas, although the focus of particular research studies is highlighted within the main body of the report.

What employee and job characteristics influence SWB in the workplace and what employer practices have the greatest effect?

An individual's SWB at work is influenced both by their own characteristics, and those of the job and workplace in which they are employed (see Figure). From a policy perspective, it is the features of the job and workplace (i.e. those on the right-hand side of the Figure) which are of most interest, as these are typically more amenable to policy influence. Nevertheless, an understanding of the relationship between individual characteristics and SWB is also important, not least because these shape employees' experiences of work.



An extensive literature discusses the characteristics of jobs which influence SWB at work.¹ SWB tends to be higher when employees have:

- autonomy over how they do their job and a measure of control in relation to the broader organisation, e.g. participation in decision-making;
- variety in their work;
- clarity over what is expected of them, including feedback on performance, e.g. via appraisals;
- opportunities to use and develop their skills, e.g. via the provision of training;
- supportive supervision;
- positive interpersonal contact; with both managers and co-workers, but also with customers or the general public (where the job requires it);
- a perception of fairness in the workplace, both in terms of how the employee is treated themselves but also how their co-workers are treated, with disciplinary and grievance procedures being one way for employers to address this;
- higher pay, although this relationship depends not only on the absolute level of pay but how this compares with pay of other workers;
- physical security, including the safety of work practices, the adequacy of equipment and the pleasantness of the work environment;
- a sense of job security and clear career prospects;
- a perception of significance, both in terms of the significance that the job has for the worker, and the perceived value of the job to society.

SWB tends to be lower when the demands of the job are particularly high. Job demands result not only from the amount or type of work, but also from any incompatibility with pressures from outside of work.

¹ See for example: P Warr (2007) *Work, Happiness and Unhappiness*, Mahwah, NJ: Lawrence Erlbaum Associates.

These relationships are fairly well-established in the existing literature. Employers therefore have the potential to influence the SWB of their employees through changes in job design.

The picture has its complexities, however. An employee's SWB will reflect not only the actual characteristics of their job, but also the value which they place upon them. In a similar way, individuals differ in their expectations; if an individual has lower expectations of their job, they may rate their job satisfaction more highly than someone who expects more from their work. This has the implication that, in thinking about job and workplace changes that may raise SWB, employers and policy makers need to bear in mind that there may be differing effects for different employees. Any analysis of the factors driving SWB at work therefore needs to take account of individual traits as well as job and workplace characteristics.

In addition, the relationships between the human resource practices adopted by a workplace and its employees' SWB are not always clear-cut. Practices may influence more than one aspect of an employee's job, some of which act to improve SWB, and others which serve to reduce it. There may also be different effects for different employees within a workplace, and different effects of policies from one employer to another. For example:

- Practices which aim to give employees more involvement may raise autonomy, but may also increase the level of demands placed on them.
- Practices aimed at raising the SWB of one group of employees within a workplace may do so to the detriment of others (e.g. if they give rise to perceptions of unfair treatment amongst those who are not covered by the practice).
- Practices may have differing effects on SWB dependent on workplace characteristics (e.g. formal arrangements may be better received in larger workplaces than in smaller ones).

Much of the literature in this area relates to the impact of systems of human resource management (HRM) practices on SWB; here the evidence is inconclusive. Evidence for the UK to date points to a positive correlation between HRM and the job-related anxiety measure of SWB, but also a positive, or at least neutral, impact on the job satisfaction measure of SWB. However, it is clear that there is a case for more robust studies of the impact of employer practices on a range of aspects of SWB.

How can SWB affect workplace performance?

There is a considerable amount of evidence to indicate that there is a positive *association* (a correlation) between SWB and an employee's job performance. Moreover there is some evidence which indicates that higher levels of SWB may *lead to* (cause) higher levels of job performance in some circumstances.

The empirical literature indicates three causal mechanisms through which higher levels of SWB can bring about higher job performance. The first is by affecting employees' cognitive abilities and processes - enabling them to think more creatively and to be more effective at problem-solving. The second is by affecting employees' attitudes to work - raising their propensity to be co-operative and collaborative. The third is by improving

employees' physiology and general health - improving their cardiovascular health and immunity, enabling speedier recovery from illness, and securing greater levels of energy and potentially effort.

There is not necessarily a straightforward link between an employee's SWB and their job performance, however. For example, raised levels of creativity and improved social interaction is only likely to generate better employee performance in jobs with a substantial degree of autonomy and those that involve team work or customer interaction. In addition, it is possible that employee behaviours or work attitudes may be most heavily affected when levels of SWB are particularly high or particularly low. There is a need for further examination of the links between SWB and employee performance in real world settings to address these issues.

There are also reasons to think that the relationship between SWB and job performance at the level of the employee may not necessarily be replicated at the level of the workplace. One reason is that low levels of SWB among a small number of workers may spill over to negatively affect levels of SWB (and thus levels of job performance) among the wider workforce. Another relates to the differing contributions workers make to workplace output, because of variations in their ability and their span of control; the contribution of all workers may not matter equally for the performance of the workplace, and so it may matter *who* has high or low SWB.

Whilst there are some studies which do show a robust causal impact of employees' SWB on the performance of the workplace or firm, the evidence is more limited at this level. The review concludes that more research is needed at the level of the workplace or firm in order to generalise beyond the small number of existing studies.

Findings from analysis of the 2011 Workplace Employment Relations Survey

Statistical analyses were conducted using the 2011 Workplace Employment Relations Study to explore the relationship between SWB and performance at workplace level, thereby contributing new evidence to the literature.

The level of employee SWB in the workplace was measured in terms of the two most studied aspects of SWB: job satisfaction and job-related affective feelings (WERS did not collect eudemonic measures of SWB). WERS measures nine dimensions of job satisfaction (pay, sense of achievement, training receipt, job autonomy, skill development opportunities, job security, scope for initiative, involvement in decision-making and their satisfaction with the work itself). It contained six indicators of job-related affect, covering the frequency with which the employee feels tense, depressed, worried, gloomy, uneasy and miserable. Workplace performance was measured using the manager's subjective assessment of the workplace's performance relative to the industry average on three dimensions: financial performance, labour productivity and the quality of the output/service. An additive scale formed from these three individual measures was used as a fourth measure of performance.

The analysis was carried out using data from workplaces that took part in the 2011 WERS (the cross-sectional analyses) and workplaces that took part in the 2004 WERS and were followed up in 2011 (the panel survey). The cross-sectional analyses examined the extent to which a workplace's performance in 2011 could be accounted for

by the level of employee SWB at the workplace in 2011. The panel analyses explored whether changes in workplace performance between 2004 and 2011 were linked to changes in the level of employee SWB at the workplace between those two years. The panel survey also assessed whether the level of employee SWB in 2004 was predictive of workplace closure by 2011.

The analyses showed a clear, positive, statistically significant relationship between the average level of job satisfaction among employees at the workplace and workplace performance. This finding was present in both the cross-sectional and panel analyses and was robust to various estimation methods and model specifications. Employee job satisfaction was found to be positively associated with workplace financial performance, labour productivity and the quality of output and service. Workplaces experiencing an improvement in job satisfaction – whether measured in terms of the average level of satisfaction in the workforce, or measured in terms of an increase in the proportion "very satisfied" or a reduction in the proportion "very dissatisfied" - also experience an improvement in performance. By contrast, there was no association between job-related affect and workplace performance. These findings are significant because this is the first such study for Britain.

Considering the findings in more detail, the results from the cross-sectional analyses can be summarised as follows:

- The average level of job satisfaction among employees at the workplace was positively related to all four workplace performance measures.
- Workplaces with "very satisfied" employees had higher labour productivity, higher quality of output, and higher overall performance. Workplaces with "very dissatisfied" employees had lower financial performance and lower overall performance on the additive scale.
- Non-pecuniary aspects of job satisfaction were positively correlated with overall workplace performance, the quality of output (and, less robustly, with labour productivity) whereas pay satisfaction was positively associated with workplace financial performance but not with other performance measures.
- Job-related affect was not correlated with workplace performance, regardless of the measure used.

The results from the panel analyses can be summarised as follows:

- Increasing overall average employee job satisfaction was associated with increases in all four workplace performance measures.
- Increasing average non-pecuniary job satisfaction was positively associated with changes in all four workplace performance measures. Increasing pay satisfaction, on the other hand, shows varied associations with the performance measures, depending on the model specification, but it is never positively associated with performance measures.

- Workplaces with rising job dissatisfaction experienced deterioration in all four performance measures, whereas workplaces with an increase in "very satisfied" employees experienced rising quality of output or service and an increase in the additive performance measure, but not financial performance or labour productivity.
- Changes in job-related affect were not associated with workplace performance, regardless of the measure used, although there was some evidence that an increase in employees reporting "ill-being" most or all of the time was associated with deteriorating quality of output or service and a decline in the additive performance scale, at least in some models.

These findings are consistent with the proposition that employers who are able to raise employees' job satisfaction may see improvements in the performance of their workplace. These improvements are apparent in profitability (financial performance), labour productivity and the quality of output or service.

Although we cannot state definitively that the link is causal, the findings are robust to tests for reverse causation and persist *within* workplaces over time, so that we can discount the possibility that the results are driven by fixed unobservable differences between workplaces. Thus the results are consistent with the causal relationship suggested by conceptual work in this area.

What are the implications of the study's findings for policy makers and employers?

First, there is a *prima facie* case for employers to consider investing in the wellbeing of their employees on the basis of the likely performance benefits. The study sets out a conceptual framework indicating the ways in which raising employees' SWB may improve performance, and also presents evidence which is consistent with there being a causal relationship between the two. Specifically, if the average employer is able to raise their employees' SWB, the theory and available evidence suggest that they are likely to see improvements in the performance of their workplace.

It should be noted, however, that the evidence of a causal link between the job-related affect measure of SWB and workplace performance is limited, and indeed the WERS analysis conducted here finds no such association. Thus there appears to be no clear case yet for employers to invest in that dimension of employee wellbeing – although equally we find no clear disadvantage to doing so.

Equally, there are likely to be routes to commercial success that employers can pursue without regard to employees' SWB. We find no link between employees' SWB and workplace closure probabilities, suggesting workplaces can continue to trade and, perhaps even prosper, whether employees' SWB is high or low. Thus the "low road" may be a viable option for some employers, although we do find clear evidence that an increase in job dissatisfaction within a workplace is linked to deteriorating workplace performance.

There is, of course, also a rationale for promoting employee SWB based on benefits that go beyond the private returns to employers, since the wider society can benefit from

citizens who are "happier". There are spillovers to employees' family life, their participation in social activities and their consumption of government services (most obviously welfare services and health care). A higher level of job-related SWB might then be considered a goal in itself – a point reflected in broader arguments about moving beyond purely economic measures such as GDP when considering levels of national progress. Nevertheless, judging by the descriptive information presented in Appendix C of this report, most employees in Britain appear reasonably satisfied with most aspects of their jobs and they are not suffering in large numbers from particularly adverse SWB. The percentages saying they are depressed or anxious most of the time are low.

As regards policy responses, it is apparent from the literature review that we do not yet fully understand what it is about jobs and the working environment that change employees' SWB. Some things we know quite a lot about. For example, higher pay leads to higher job satisfaction, but even here the relationship is not linear, tailing off at higher pay levels. The complexity of the job satisfaction concept is illustrated by the pay satisfaction literature which emphasises the importance not only of pay levels but also pay relativities. Moreover, even if employers and policy makers were to promote certain policies or practices that, on average, engender greater employee SWB, this does not mean that this will lead to improved SWB everywhere or that, even if it did, this would translate into improved workplace performance for all. There is likely to be substantial heterogeneity across workplaces and employees such that different policies might work better for some employers than others. Policy initiatives should therefore be carefully evaluated so that this heterogeneity can be better understood.

1 Introduction

Employee wellbeing is increasingly a focus of government attention in the UK and elsewhere. It is viewed as a legitimate target of government policy in its own right, but there are also reasons to think that improvements in employees' wellbeing may be conducive to economic growth. This paper focuses on the the subjective wellbeing of employees and its potential impact on workplace and organisational performance. As yet there is relatively little empirical evidence on the relationship between employees' subjective wellbeing and workplace performance. This paper begins to fill that gap for Britain by carrying out a literature review and new empirical analyses.

Background

It has been acknowledged in a prominent recent report on wellbeing and public policy (O'Donnell et al, 2014: 10) that countries will inevitably want to measure how well they are doing, both over time and compared with other countries; and so the question arises of how to measure success? There are broadly four components to the measurement of societal wellbeing (Allin, 2007):

- The National Accounts and, in particular, the level of gross domestic product (GDP) per person. Clearly if GDP per head rises, the nation is more prosperous and individuals are (on average) better able to meet their material needs and to exercise choices that satisfy their preferences.
- Other economic measures of welfare, which extend the National Accounts to include measures of social capital and environmental sustainability, as well as considering the distribution of income across society and within households.
- Measures of specific social and environmental conditions, including measures of education, health, social inclusion and pollution.
- Measures of individuals' subjective wellbeing, including measures of 'happiness' and life-satisfaction.

For many years, policy makers focused on GDP growth as the best means of securing a better quality of life for citizens. But recently governments and their advisers have turned their attention to the other measures listed above, most recently given increased attention to individuals' subjective wellbeing (SWB).

Subjective wellbeing has been defined by the OECD to include "all of the various evaluations, positive and negative, that people make of their lives, and the affective reactions of people to their experiences" (2013: 29). It has been promoted as a target for government policy for some years by prominent economists, such as Lord Layard in the UK (Layard, 2011) and by Nobel Prize winning Joseph Stiglitz and the Commission

advising the Sarkozy French Government (Stiglitz et al., 2009). Its value as a focus for public policy has been prompted, in part, by what has come to be known as Easterlin's Paradox (Easterlin, 1974) which suggests that citizens in developed economies have not necessarily become 'happier' as a result of increased prosperity.² Measures of subjective wellbeing also have the democratic advantage of allowing people to decide on the quality of their own life experience (Dolan et al, 2011). The approach then fits with a utilitarian view of the world where governments try to maximise the sum of everybody's utility or 'hedonic experience' (O'Donnell et al, 2014: 10).

Progress is being made on measuring citizens' SWB at a national level (e.g. Tinkler and Hicks, 2011; OECD, 2013) and in identifying policies governments can implement to improve citizens' subjective wellbeing (e.g. O'Donnell et al, 2014: 56-73). Such improvements in SWB, it is believed, may result in improvements in other areas of peoples' lives including their physical health and labour market participation. Certainly, there is a great deal of empirical evidence pointing to a positive causal effect of SWB on individuals' physical health (see Diener and Chan, 2011), and the benefits of greater subjective wellbeing appear to feed through into individuals' performance in the labour market (see Judge et al, 2001; Lyubmirsky et al, 2005).

If, as seems plausible, heightened subjective wellbeing can affect individual performance, it is conceivable that policies and practices that target improvements in subjective wellbeing may result in economic growth. For example, where employees' subjective wellbeing at work increases, they may work harder or "smarter", leading to productivity growth which, in turn, may increase profitability. The causal link between increased wellbeing and improved productivity has recently been established in a laboratory experiment (Oswald et al., 2014) and research is being undertaken to investigate this causal linkage beyond the laboratory. However, there is no certainty that higher subjective wellbeing will translate into greater profitability at the level of the workplace or organisation. First, one must factor in the costs an employer may have incurred to bring about the improvement in wellbeing. Second, many institutional and contextual factors may intervene, such that any improvements in performance dissipate. Third, group dynamics come into play when considering relationships at a workplace or organisation-level that are not considered when focusing on individual effects. We seek to contribute to this debate by presenting the theoretical and conceptual arguments linking subjective wellbeing to workplace performance, reviewing the literature on the subject, and contributing new evidence from the Workplace Employment Relations Study 2011 on the links between SWB and workplace performance. To our knowledge, this is the first study for Britain that seeks to accomplish this.

If improving employees' subjective wellbeing is linked to improved workplace performance, policies targeting subjective wellbeing will result in benefits to employers and benefits to employees, both in terms of future job prospects, but also through direct improvements in how employees feel at work.

² See Easterlin (1994) and Stevenson and Wolfers (2008) for different perspectives on this issue.

Aims and objectives

This study focuses on the links between employees' subjective wellbeing and workplace performance. It sets out to address four questions:

- How do we measure and define wellbeing in the workplace?
- What employee and job characteristics influence wellbeing in the workplace?
- What employer practices have the greatest positive impact on wellbeing in the workplace?
- Is there any evidence to link employee wellbeing and business performance?

Our approach

In the first stage of the study we developed a conceptual framework linking subjective wellbeing (SWB), the factors that might affect it, and how it can affect workplace performance. We began by defining subjective wellbeing, drawing heavily on concepts in the existing psychological literature that point to the multi-dimensional nature of SWB. We also explored the standard ways in which these underlying concepts are captured in data. The factors affecting SWB at the workplace are various, and include personal characteristics, social influences and experiences outside work; however our prime focus was on job and workplace characteristics, particularly those that are amenable to employer or government policy influence.

In the second stage we reviewed the existing research literature in the fields of economics, psychology and business/management on the issues covered in the conceptual framework. The literature review was carried out in the spirit of 'realist synthesis' (Pawson et al., 2004), whereby one begins with a discussion of how an intervention is supposed to work (what Pawson et al. refer to as the 'programme theory') and which then gathers evidence in a systematic way to test and refine this theory. This approach is less standardised than some research reviews which seek exhaustively to cover the entire literature on a particular topic, but has the advantage that one can expect to arrive at a better understanding of how an intervention works and in what circumstances (ibid.: 37-41).

Our review sought out the key literature on each of the four questions listed above. Expert reviews and meta-analyses were sought out in particular, where these were available. However, we were already aware from our knowledge of the subject that certain issues were less well-evidenced than others. Accordingly, specific effort was dedicated to identifying evidence on the following two issues:

- the relationship between human resource practices and subjective wellbeing (as distinct from the relationship between specific job characteristics and SWB).
- the relationship between subjective wellbeing and performance at the level of the workplace or organisation (as distinct from the relationship between SWB and performance at the level of the individual).

Our searches in these areas focused more heavily on database search methods, calling upon the Social Science Citation Index through the Web of Science Core Collection (Thomson Reuters), which covers 3,000 of the world's leading social science journals. In each of the two areas cited above, we compiled a list of search terms based on preliminary reading and knowledge from existing work. The complete list of search terms is provided in Appendix A. Attention was given to research studies in the fields of economics, psychology or business/management, published since 2000 in academic journals with at least a three-star ranking in either the Association of Business Schools (ABS) or Keele University lists (for economics and business/management journals) or the top 40% of psychology journals in the SCImago Journal Ranking list. Within the list of search results, particular attention was given to those studies with a higher number of citations, after accounting for the year in which the study was published.

The quality of research evidence in each of the four areas cited above was assessed by reference to standard quality indicators as summarised by Farrington (2003):

- Statistical conclusion validity - whether one can be confident (in a statistical sense) that the presumed cause (the intervention) and the presumed effect (the outcome) are related
- Internal validity - whether one can be confident that the intervention had a causal effect on the outcome
- Construct validity - whether the theoretical constructs underlying the study were appropriately defined and measured.
- External validity - the extent to which any causal relationship may be generalised to other places, times or people.
- Descriptive validity - whether the key features of the study have been adequately presented in the research report so as to enable a systematic review of the study in question.

Comments are made in the discussion of the literature (esp. Chapters 3 and 4) to illustrate the limitations of the available evidence along these various dimensions.

In the final part of the study we present new empirical analysis of the links between employees' SWB and workplace performance based on the 2011 Workplace Employment Relations Survey (WERS). These linked employer-employee data contain multiple measures of employees' SWB taken from self-completion questionnaires and workplace performance measures from the manager responsible for employment relations at the workplace. These are available for a nationally representative cross-section of workplaces in 2011 and a panel of workplaces followed up between 2004 and 2011. They provide the basis for a robust investigation of the SWB-performance link in British workplaces. Using various multivariate regression techniques we isolate the independent relationship between SWB at the workplace and workplace performance.

The structure of the report

Chapter 2 sets out a conceptual framework for the study of subjective wellbeing (SWB) and its links to workplace performance. It first introduces the different aspects of SWB, and discusses the similarity of SWB to the economic notion of utility and its distinctiveness from concepts such as job quality. Chapter 3 then considers the various factors that may affect an employees' SWB in the workplace. In Chapter 4 the discussion turns to the possible impact of employees' SWB on workplace performance. Chapter 5 then summarises the results of new analysis of the link between employees' SWB and workplace performance using data from WERS. The final chapter (Chapter 6) summarises the findings from various strands of the study and link them back to our four research questions. It also highlights the implications of the findings for policy makers and employers.

2 What is subjective wellbeing and how is it measured?

This chapter introduces the concept of subjective wellbeing. It discusses the different approaches that have been taken to its conceptualisation: the hedonic approach which focuses primarily on the extent to which work engenders positive or negative feelings in the job holder, and the eudemonic approach which focuses more on the extent to which the job-holder derives a sense of purpose, vitality or personal development from their work. The chapter also discusses how the concept of SWB has been operationalised in empirical research. Finally, the chapter considers the similarity of SWB to the economic notion of utility and its distinctiveness from concepts such as job quality.

The definition of subjective wellbeing

Subjective wellbeing (SWB) covers a number of different aspects of a person's subjective mental state. As noted in Chapter 1, recent guidelines on the measurement of SWB (OECD, 2013) take it to comprise:

“all of the various evaluations, positive and negative, that people make of their lives, and the affective reactions of people to their experiences”

(OECD, 2013: 29).

The broader literature on SWB is concerned with people's affective reactions or feelings towards many different aspects or domains of life, including their housing, family life and so on. Our primary concern is with that component of a person's SWB which is related to their work: their *job-related* subjective wellbeing. Irrespective of the particular domain that is of interest, there is nevertheless general agreement on the approaches that may be used to gauge or measure levels of SWB. These can be broadly distinguished into hedonic and eudemonic approaches.

Hedonic approaches to SWB

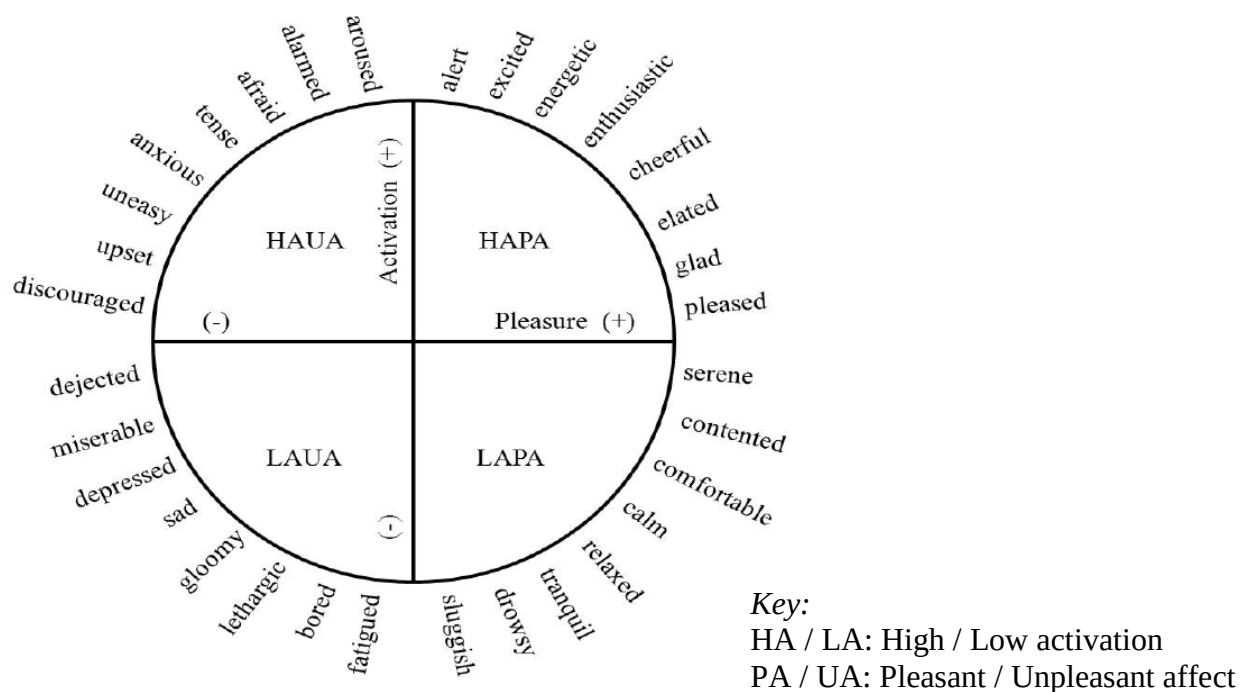
Hedonic approaches to SWB are focused on whether a person's affective reactions or feelings towards their job are either positive or negative. The term 'hedonic' (alt. hedonistic) is used here to indicate that these approaches focus on the extent to which work gives rise to positive or negative affect (pleasure or pain).

One form of hedonic approach focuses on the *type of affective feelings* that the person experiences asking, for example, the extent to which a person's job engenders positive

feelings (such as enthusiasm or contentment) or negative feelings (such as anger or worry) (see column 1 of Table 1).

A number of empirical investigations (e.g. Russell, 1980, 2003) have shown that the nature of this affective reaction can be charted on a circumplex with two independent axes, as shown in Figure 1. The horizontal axis is concerned with the degree to which the feeling involves pleasure or displeasure; the vertical axis is concerned with the degree to which the feeling involves a high or low level of mental activation – in other words the extent to which the person is ready to act or expend energy (Russell, 2003: 156). A feeling of enthusiasm is therefore distinct from a feeling of anxiety as the former entails a higher degree of pleasure. Similarly, a feeling of anxiety is distinct from a feeling of lethargy as the former entails a higher level of activation. In an organisational setting, the employee and employer can both be expected to benefit when the job primarily engenders feelings in the upper-right quadrant of Figure 1, indicating the combination of high activation and pleasant affect (HAPA).

Figure 1: A two-dimensional view of affect



Source: Warr et al. (2013)

A second hedonic approach to SWB focuses on the *adequacy of one's affective feelings* towards aspects of the job, asking (for example) how satisfied a person is with the work they do or the pay they have received (see column 2 of Table 1). Feelings of satisfaction tend to be correlated with the pleasant-unpleasant dimension of job-related affect shown in Figure 1 (see Weiss et al, 1999) and so there is some relation between the two hedonic approaches. However, the important distinction in the 'satisfaction-based' approach to SWB is that it involves an implicit comparison with some alternative state (for example, the features of that job in a prior period, or the features of jobs held by other employees).

Whilst a focus on the type of job-related affect may therefore arguably give a more direct indication of an employee's core feelings at work, a focus on job satisfaction can be particularly informative as it indicates how the employee evaluates those feelings. Such evaluations may factor into the employee's decision making – for example whether to begin the search for an alternative job (see Green, 2010). Indeed Warr (2007: 51-52) judges that job satisfaction is closer than core affect to being an *attitude* (that is, a relatively enduring psychological tendency).³ This is potentially significant, since attitudes are usually described as having three components: affective, cognitive and behavioural, which are reflected in feelings, beliefs and actions (ibid.). For Warr, there is then an “action-tendency” embodied within the concept of job satisfaction that is not present in core affect. In other words, one can expect job satisfaction to have a greater influence on an individual's actions or behaviour. One might then expect job satisfaction to have a greater influence than core affect on work behaviours.

The eudemonic approach to SWB

Under the hedonic approach, an employee is considered to have high levels of SWB when they are satisfied with their job, and when they experience positive feelings more frequently and negative feelings less frequently. However, it is argued that it is not necessary for an employee always to gain enjoyment or pleasure from the job in order to attain a positive mental state. The ‘eudemonic’ approach to SWB then focuses on themes that are considered to constitute aspects of good mental health, such as the extent to which an employee derives a sense of purpose from their work.

The eudemonic approach therefore starts from the position – derived from psychological and philosophical literature – that some actions or personal states are more appropriate or worthwhile than others, and views SWB primarily in terms of self-actualisation and virtuous behaviour (psychological ‘flourishing’) rather than in terms of self-gratification. The essential distinction from the hedonic approach can be illustrated by reference to an employee who, like a parent, may find their role stressful and be dissatisfied with its financial rewards, but who may nevertheless gain a strong sense of purpose from that role.

The three differing approaches to the concept of SWB are illustrated side-by-side in Table 1.

³ The psychological literature notes that there are overlaps between SWB and attitudes (and indeed with similar constructs such as emotions and moods), but ultimately sees these as distinct (see Warr, 2007: 49). Economists are more liable to use such terms interchangeably (e.g. Halliwell and Barrington-Lee, 2010). Indeed psychologists are not universally in agreement: Fisher (2009: 388), for example, asserts that job satisfaction is indistinguishable from an attitude.

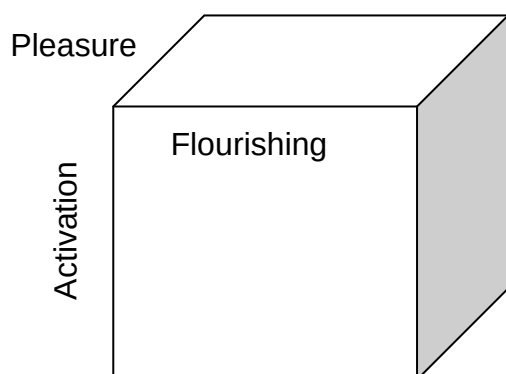
Table 1: Differing approaches to the concept of subjective wellbeing, as applied to work

Hedonic wellbeing		Eudemonic wellbeing
Affective feelings engendered by the job	Satisfaction with the job	Psychological functioning associated with the job
<i>Sub-components include...</i>	<i>Sub-components include...</i>	<i>Sub-components include...</i>
Anxiety	Satisfaction with work tasks	Sense of meaning or purpose
Boredom	Satisfaction with pay	Sense of vitality
Enthusiasm	Satisfaction with job security	Sense of achieving your potential
Contentment	Satisfaction with training	Sense of personal development

Adapted from OECD (2013, Figure 1.1).

Three-dimensional view of SWB

An important consequence of the preceding discussion is that SWB may vary along any one of the three dimensions (namely, pleasure, activation and eudemonia). The two-dimensional view of SWB portrayed in Figure 1 can therefore be extended to incorporate a third dimension, as in Figure 2 below.

Figure 2: A three-dimensional view of SWB

Adapted from Figure 2.3 in Warr et al. (2007)

In recognition of the complementarity of the different approaches, research that seeks to measure SWB at a societal level has often attempted to incorporate all three dimensions. For example, as part of its efforts to arrive at a fuller statistical picture of the nation's wellbeing, the Office for National Statistics included the following four SWB questions in the Integrated Household Survey (Tinkler and Hicks, 2011):

- Overall, how happy did you feel yesterday?

- Overall, how anxious did you feel yesterday?
- Overall, how satisfied are you with your life nowadays?
- Overall, to what extent do you feel the things you do in your life are worthwhile?

These questions illustrate the multi-dimensional approach to SWB, as they include measures of positive and negative affect (bullet points 1 and 2), the degree of satisfaction with one's situation (bullet point 3) and eudemonia (bullet point 4). Such a multi-dimensional approach is less in evidence within research on job-related SWB, however, which has tended to give most attention to measures of job satisfaction, with some attention given (particularly in the psychology literature) to direct measures of affect, and which has arguably given least attention to the eudemonic aspects of SWB.

The measurement of SWB in the workplace

Job satisfaction is the most frequently studied aspect of job-related SWB and has a long history dating back at least half a century (e.g. Brayfield and Rothe, 1951). It can be examined in different ways, however. Some enquiries use a single question asking the respondent about their degree of satisfaction with the job as a whole (perhaps alongside questions asking them about their satisfaction with other 'domains' of their life, such as their family life or social activities). Research that is focused on the work domain, however, tends to utilise a battery of questions which ask the respondent about their satisfaction with a number of different 'facets' of their job, such as the *level of pay*, the *provision of training opportunities*, and their *relationships with supervisors or co-workers*. These facet-specific questions may then be analysed separately, grouped into coherent subsets (e.g. satisfaction with extrinsic versus intrinsic rewards) or combined together to form a single index.⁴ Whether using a single item or a range of facet-specific items, the level of satisfaction is typically rated on a five or seven-point scale from 'Very satisfied' to 'Very dissatisfied', with a mid-point labelled 'Neither satisfied nor dissatisfied'.

The measurement of job-related affect has a more recent history but, nevertheless, there are a wide range of empirical studies which have sought to implement and validate sets of measures for the core feelings illustrated in Figure 1. Many measures have been based on the Positive and Negative Affect Schedule (PANAS; Watson et al, 1988). The PANAS contains 10 positive terms, including for example *enthusiastic* and *excited*, and 10 negative terms such as *distressed* and *nervous*. However it has been demonstrated that these items only cover feelings with a high level of activation, i.e. those in the two upper segments of Figure 1 (e.g. Remington et al, 2000). Other measures have therefore sought to follow the circumplex more closely by seeking to consider all four quadrants. Warr et al's (2013) Multi- Affect Indicator, for example, contains 16 items, comprising four terms from each of the quadrants in Figure 1. Each is scored on a seven-point scale according to how often the respondent has experienced that feeling over the past week (from 'Never' to 'All of the time'). Analysis shows that – on a range of measures of fit including chi-square tests – a four-factor model provides a better fit to empirical data than a model which emphasises only pleasure or activation (Warr et al, 2013: Table C1), and

⁴ Single-item measures have, however, been shown to be highly correlated with multi-item measures (Wanous et al, 1997).

thus supports the view that the four quadrants are somewhat distinct. In other words, positive affect is not simply the absence of negative affect.

As noted above, the eudemonic approach to SWB has been less frequently applied in research within organisational settings – something which Warr et al (2013) attribute to the greater difficulty in specifying the nature of the underlying construct and in separating it from related concepts such as organizational commitment and job engagement (see below). However, some aspects of eudemonic SWB have been explored, including "thriving" – conceptualised as having a sense of vitality and forward movement, with new learning and personal development – and "meaningfulness" – conceptualised as the extent to which the job matters to you. One means of measuring job-related thriving in terms of vitality and learning has been described by Porath et al (2011), who asked respondents to score 10 items such as "I feel alive and vital" and "I continue to learn more as time goes by" on a seven-point scale from "Strongly disagree" to "Strongly agree". A perceived meaningfulness scale has been described by May et al (2004) who asked respondents to score six items such as "My job activities are personally meaningful to me" and "I feel that the work I do on this job is worthwhile" on a similar five-point scale. The Ryff Scale of Psychological Wellbeing (Ryff, 1989; Ryff and Keyes, 1995) also covers eudemonic aspects, such as meaningfulness, but is not specifically targeted at job-related wellbeing.

One other instrument which, although not job-related, seeks to cover both the hedonic and eudemonic perspectives is the Warwick-Edinburgh Mental Well-Being Scale. The full scale includes 14 items including statements, asking the respondent how often they have felt "optimistic about the future", "useful", "relaxed" and so on, with each item scored on five-point scale from "None of the time" to "All of the time". The scale has been shown to compare well with other scales in validation tests (Tennant et al, 2007). However it focuses solely on positive aspects of SWB and so has the limitation that it may not capture the full dimensionality of affect.⁵

One pertinent issue that arises in any measure of SWB however is the likelihood of short-term fluctuations, since an individual's SWB may vary over the course of the day, week or month. Indeed it is very likely to vary if there are changes in their environment (Xanthopolou et al, 2012; also Chapter 3 of this report). Any measure of subjective wellbeing which seeks to explain an employee's work behaviours over a period of time ought then to seek to establish the nature of a person's feelings over a similar period, rather than simply at the moment that the measure is taken. As Warr (2012) notes, measures of SWB have differed in their use of either 'intensity' or 'frequency' responses, but questions which elicit frequency responses (e.g. how often have you felt ... over the past week) or which encourage some kind of averaging (e.g. in general, how satisfied are you with ...) are to be preferred.⁶

⁵ The validation tests showed a higher correlation with the positive (PA) element of the PANAS scales than with the negative (NA) element. However the scale did show a significant moderately-sized negative correlation with a measure of mental ill-health derived from the 12-item General Health Questionnaire (GHQ-12) (Tennant, 2007: 6).

⁶ Other approaches to capturing variation in the SWB of a given individual over time include experience sampling (e.g. Bryson and McKerron, 2013) and the day-reconstruction method (Kahnemann et al, 2004). However both place a greater burden on the respondent than the reflective measures discussed in the text. This makes them expensive to

Related concepts

Finally in this chapter, we consider a number of concepts that are related to SWB, namely: job quality, utility, job engagement and organizational commitment. For each we discuss the overlap with the concept of SWB, but also those elements of distinctiveness which set these related concepts apart.

Job quality

In the more general literature on societal wellbeing, a distinction is made between individuals' own subjective assessments of their hedonic or eudemonic wellbeing, and objective indicators of their wellbeing which might be measured through reference to their level of income or their access to education and healthcare (e.g. Dolan et al, 2011: 3). The two are argued to be complementary in assessing overall levels of wellbeing (see Allin, 2007), but subjective measures have the benefit that they allow the individual to decide on the quality of that experience for themselves. This recognises that individuals do not have the same affective reactions to particular circumstances, and do not have the same preferences. It follows that individuals cannot be expected to react homogeneously to a given set of circumstances.

In a similar way, within an organisational setting one can make a distinction between measures of job-related SWB, as discussed above, and objective measures of the quality of a person's job or working environment. Objective measures of job quality might cover facets of the job such as the number of hours worked, the level of pay, the level of job security, the degree of autonomy and opportunities for skill development (see Green, 2006, for example). Many of these facets of the job or working environment have an effect on a person's job-related subjective wellbeing (see Chapter 3). However, measures of SWB reveal valuable additional information about the job and working environment *as it is experienced by the employee* (Brown et al, 2012). This experience may be shaped by dispositional traits, norms and expectations, which can differ substantially between individuals, such that the same level of pay may engender different feelings – and thus bring about differing behavioural reactions – in two otherwise-similar workers.⁷ Measures of SWB are therefore distinct from measures of job quality, but the two are complementary in understanding overall levels of wellbeing in the workplace, and in understanding the impact that the job or working environment may have on an employee's productivity.

Experienced utility

In conceptual terms, SWB is then closer than job quality to the economic notion of 'experienced utility', when the latter is defined in hedonic terms as the degree of pleasure or satisfaction that a person experiences from an outcome (Dolan and Kahnemann, 2008; Stutzer and Frey, 2010). Standard economic theory has tended to focus on outcomes, with an individual's welfare being maximised when they choose between alternatives. Under this approach, individuals' choices (their 'revealed preferences')

collect in population surveys. Some (e.g. Helliwell and Barrington-Lee, 2010) also argue that reflective measures are preferable, as memories are more likely than the average of momentary reports to influence subsequent decisions.

⁷ Norms and expectations may also vary for the same individual over time, such that their affective reaction or subjective evaluation may change from one period to the next.

provide all the information that is required to infer the utility of outcomes. However, once it is acknowledged that individuals make mistakes in their decision making – ‘mispredicting’ the future utility to be gained from a particular outcomes (Dolan and Kahnemann, 2008: 227) – it is questioned whether utility can generally be derived from observed choices. Measures of SWB are thus helpful in making assessments of individual welfare. This similarity partially explains the recent interest shown in SWB by economists.⁸

Job engagement and organizational commitment

Within the psychological and management literature, SWB is often discussed in conjunction with the concepts of job engagement and organizational commitment (e.g. Fisher, 2009; Van de Voorde, 2012). Job engagement can be defined as “a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption” (Bakker and Demerouti, 2008: 209). It then incorporates high levels of energy and enthusiasm, as well as a sense of challenge. In these respect, there are clear overlaps with aspects of SWB. ‘Wants’ and ‘feelings’ are central to both; however it is argued that ‘wants’ are more prominent in the concept of engagement. Engagement is then more motivational than either core affect or job satisfaction – and may thus have a greater influence on levels of discretionary effort (Warr and Iceoglu, 2012). With its focus on fulfilment, job engagement perhaps has a closer overlap with eudemonic SWB than with hedonic SWB and indeed, measures of engagement such as the Utrecht Work Engagement Scale (Schaufeli and Bakker, 2003) often contain similar items to measures of eudemonic SWB.

Organizational commitment is typically viewed as having three components (Meyer and Allen, 2007). The first and second are normative commitment (under which the employee commits to the organisation because of feelings of obligation) and continuance commitment (whereby the employee commits because of the losses they will incur through leaving the organisation). The third aspect is affective commitment, which concerns the employee’s emotional attachment to the organisation. Affective commitment is typically measured by asking *inter alia* about an employee’s feelings of loyalty to their organization or the extent to which they share the organisation’s values. The affective component of this facet of organisational commitment is then clear. However notions of loyalty and value-sharing clearly go further than the hedonic notions of pleasure or pain to encompass attitudes and emotions, and may not necessarily be strongly correlated with an employee’s sense of wellbeing. Some studies would suggest that job satisfaction has a causal influence on an employee’s level of organisational commitment (e.g. Lincoln and Kalleberg, 1990), although other studies suggest that the direction of causation works in the other direction, or that they are jointly determined.

Studies have shown reasonably high correlations between job satisfaction and measures of job engagement (Rich et al, 2010) and commitment (Cooper-Hakim and Viswesvaran, 2005). However, there is value in further unpacking the relationships between SWB, job engagement and organizational commitment beyond that which has been achieved in the literature to date. This is beyond the scope of this study, which has focused on the

⁸ See Dolan and Metcalf (2008) for one explicit comparison between the ‘revealed preferences’ approach and the SWB approach to valuing the welfare effects of public policy. For another study relating choice behaviour and SWB measures, see Benjamin et al (2012).

concept of SWB as outlined earlier in this chapter. The broader relationships would be a valuable subject for further research.

Summary

The term subjective wellbeing (SWB) is used to cover a number of different aspects of a person's subjective mental state. There are two broad approaches to the conceptualisation and measurement of SWB. Hedonic approaches focus on the type of affective feelings that a person experiences in their job (e.g. anxiety or contentment) and also on the adequacy of those feelings (e.g. whether the person is satisfied with certain aspects of their job). Ratings of job satisfaction can be particularly informative and have been shown to have an influence on employees' decision-making and behaviours, e.g. as to whether to search for an alternative job. In contrast to these hedonic approaches, the eudemonic approach to SWB focuses on the extent to which a person experiences feelings that are considered to demonstrate good mental health, e.g. the extent to which they feel a sense of purpose in their job.

These various approaches are complementary to one another and research that seeks to measure SWB at a societal level has often attempted to incorporate all three dimensions (as in the case of the ONS program to measure national wellbeing). Such a multi-dimensional approach is less in evidence within research on job-related SWB, however. Research on job-related SWB has tended to give most attention to measures of job satisfaction, with some attention given to direct measures of affect, and least attention given to eudemonic aspects of SWB. This may partly be due to the conceptual proximity between the concept of job satisfaction and the economic notion of 'experienced utility', which makes ratings of job satisfaction particularly attractive to economists. It may also be due to the greater difficulty that researchers have experienced in clearly specifying the nature of the underlying construct of eudemonic SWB and in separating it from relations concepts such as organizational commitment and job engagement. Efforts to further unpack the relationships between different elements of SWB and the concepts of job engagement and organizational commitment would be a valuable subject for further research, although this lies beyond the scope of the current study, which is focused squarely on SWB and its relationship with workplace performance.

3 What factors affect SWB in the workplace?

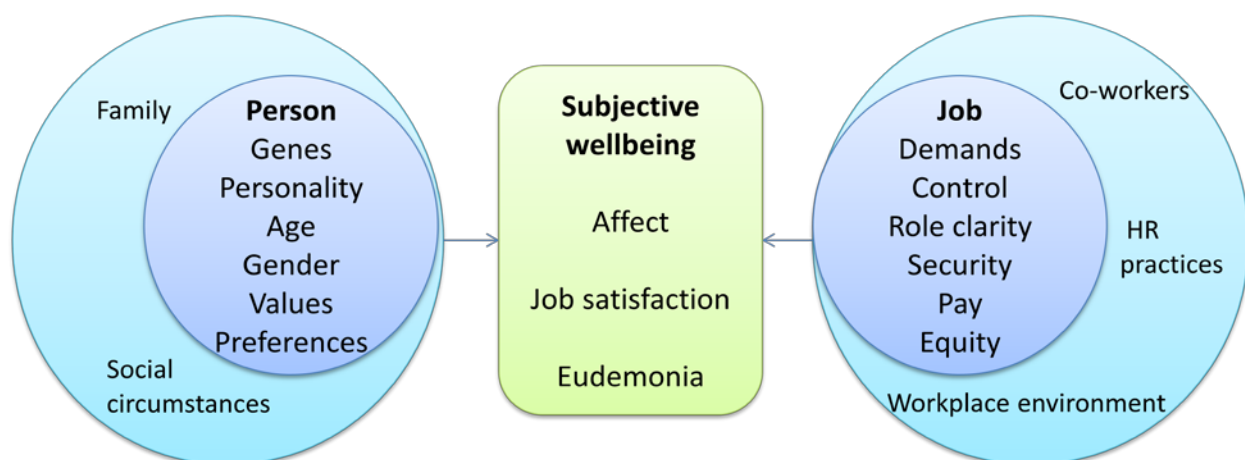
This chapter extends the conceptual framework to incorporate the factors that may influence employees' SWB in the workplace. It also presents findings from the existing research literature to demonstrate how those factors affect employees' SWB and examines the role of employer practices. Much of the evidence focuses on SWB as measured by job satisfaction. There is also a sizeable literature on job-related affect, such as job-related anxiety, but few studies have explored the relationship between job characteristics and eudemonic aspects of wellbeing.

SWB at work is influenced by both personal attributes and job and workplace characteristics. Consequently, an employee is expected to have high SWB at work if their job and workplace have features that are generally desirable, and if their own characteristics and mental processes encourage the presence of high SWB. Employers have the potential to influence the SWB of their employees by the way in which they design jobs and the practices they adopt.

Introduction

An individual's SWB at work is influenced both by their individual characteristics, and the features of the job and workplace in which they are employed (Figure 3).

Figure 3: Factors influencing SWB at work



The relationships between personal characteristics and SWB are well-documented in the literature, as discussed in the following section. Similarly, a sizeable amount of evidence establishes the important influence of a range of job and workplace characteristics. These are, ultimately, of greater policy interest than the personal characteristics of employees themselves, since the characteristics of the job or workplace are less fixed. There is then scope for various stakeholders (policy makers, employers and employees themselves) to initiate changes in job design and HR practices which may promote higher levels of SWB within the workforce. However, evidence on the effects of particular employer practices on SWB is more mixed.

Individual, job and workplace characteristics are inextricably linked. Further, SWB at work is also influenced by experiences outside of work, and also by the SWB of co-workers.

In this chapter we first briefly discuss relationships between personal characteristics and SWB, before reviewing the evidence on the influence of job and workplace characteristics. We discuss the role of employer practices, which may impact on SWB through their effect on job and workplace factors. Finally, we highlight some of the other influences that may also affect SWB.

Personal characteristics

A person's level of SWB at work is likely to be affected, in part, by the characteristics that they bring into the workplace. These personal characteristics (which are not always separable) include the following:

- Gender: studies have shown women to have greater job satisfaction than men, although also greater levels of anxiety and depression (Warr, 2007: 291-294).
- Age: job satisfaction is typically highest among older employees, with some studies indicating a J-shaped relationship, with high job satisfaction among the youngest employees, declining through the middle years, before rising again with age (e.g. Clark et al., 1996; Birdi et al., 1995).
- Personality: each of the 'big five' dimensions of personality (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) have been shown to correlate with job satisfaction, though in different ways; for example, neuroticism is negatively correlated with job satisfaction while the highest positive correlations are observed for conscientiousness and extraversion (Judge et al., 2002, provide a meta-analysis).
- Genes: studies of job satisfaction among twins have pointed to a genetic component to SWB (Arvey et al., 1994).
- Ability: research into the relationship between SWB and education (as a proxy for ability) has pointed to lower SWB among more educated workers (Warr, 1992; Clark, 1996), controlling for job complexity.

Many of these individual characteristics are clearly related to one another; personality, for example, may relate to the genetic component of wellbeing (Ilies and Judge, 2003).

Individual characteristics are also inextricably linked to job and workplace factors. Some individual characteristics may be correlated with certain job features; for example, the jobs held by older employees may typically offer more autonomy or income⁹. Furthermore, individuals differ in their values and preferences, which can shape their judgements about their experiences of work. As a consequence, an employee's SWB will reflect not only the actual characteristics of their job (such as how much they are paid), but also the value which they place upon different aspects of their job (such as how important their rate of pay is to them). In a similar way, individuals also differ in their expectations; if an individual has lower expectations of their job, they may rate their job satisfaction more highly than someone who expects more from their work. Lower expectations among women, for example, are cited as one possible explanation for their apparent higher job satisfaction than men (Clark, 1997). In these ways, individual-specific traits can result in different employees reporting differing levels of SWB in situations which could objectively be considered to be the same. This has the implication that, in thinking about job and workplace changes that may raise SWB, employers and policymakers need to bear in mind that there may be differing effects for different groups of workers. Any analysis of the factors driving SWB at work therefore needs to take account of individual traits as well as job and workplace characteristics.

Job and workplace characteristics

An individual's characteristics may make them more likely to choose to work in a particular workplace, which may reflect differences in values or preferences. Economic theory suggests that individuals seeking jobs apply to those workplaces where they identify attributes which should raise their utility and therefore their SWB¹⁰. However, demand for the most desirable jobs is likely to exceed supply, so that not all individuals are able to work in jobs which are conducive to increased SWB. While those in employment typically experience greater health and wellbeing than those who are unemployed, research has suggested there are differing mental health benefits to entering employment depending on the nature of the job (Llena-Nozal, 2009). Previously inactive individuals who enter non-standard forms of employment (including temporary contracts, working irregular hours, etc) are found to experience smaller gains in mental health than those entering standard forms of employment.

For those in employment, a variety of facets of the job or workplace may be considered to have an effect on employees' SWB. There are two main theoretical models that have set out to explain the relationship between job characteristics and employee wellbeing: the demand-control model and the effort-reward imbalance model. The demand-control model (Karasek, 1979) identifies the critical role of demands and control in determining wellbeing, with wellbeing lowest in those jobs which combine high levels of demand with low levels of control. The effort-reward imbalance model (Siegrist, 1996) focuses also on demand (effort), but suggests that wellbeing will be lowest where there is the largest mismatch between effort and rewards (which are considered not only in terms of pay, but also as esteem and job security or career prospects).

⁹ Factors typically associated with greater SWB at work, as discussed in the next section.

¹⁰ For example, Prendergast (1999) argues that employers use incentive pay, in part, to signal to workers that they will pay a premium for greater ability/effort. Therefore those individuals who are of higher ability, or have a preference for effort, will sort into firms offering performance pay, while others will sort into firms offering fixed wages.

Warr (2007) provides a comprehensive account of the job characteristics that affect SWB, which includes those job features identified within the demand-control model and the effort-reward imbalance model, as well as some additional factors. Warr's framework identifies the following factors as being relevant for SWB:

- Job demands
- Opportunity for personal control
- Variety
- Environmental clarity
- Opportunity for skill use
- Supportive supervision
- Opportunity for interpersonal contact
- Fairness
- Availability of money
- Physical security
- Career outlook
- Significance

Typically, each of the above characteristics is positively associated with SWB such that more of each characteristic (e.g. greater control) is associated with greater SWB. The one exception is job demands; as job demands rise, typically SWB falls, *ceteris paribus*. This implied linear relationship is, however, an over-simplification and Warr identifies potential non-linear relationships for some characteristics. For example, employees who have more variety in their work are likely to experience greater SWB. However, very high levels of variety may start to impact negatively upon SWB, if an employee is frequently required to switch attention between different tasks, impairing their concentration and focus. For other aspects, such as physical security, while insufficient security is likely to be detrimental to SWB, when a certain level of security has been reached, no further gains in SWB may be expected.¹¹ Further, while each of the characteristics listed above is expected to exert an independent influence on SWB, the presence of some of these characteristics are correlated with one another. Jobs which offer low levels of variety for example, may well also be those that provide lower levels of control and opportunities for skill use.

¹¹ This is Warr's 'vitamin analogy' (Warr, 1987).

Below we describe the relationship between each of these job characteristics and employees' SWB (although we combine some characteristics together in the discussion). Employers have the opportunity to influence these various job facets to some extent by the practices they adopt, and hence to influence their employees' SWB. Further examination of the role of employer practices, and in particular, 'systems' of practices, is provided later in this chapter. In the discussion of job characteristics below, we also consider some specific practices relating to particular job features.

Job demands and environmental clarity

Job demands can be thought of not only in terms of the amount or volume of work an employee is required to complete, but also the number and difficulty of the mental and physical tasks required, whether the tasks form a coherent whole, the extent to which tasks are compatible with one another (including demands outside of work) and whether tasks are congruent with an employee's felt emotions. These various forms of demand may influence SWB through differing mechanisms. Employees asked to complete numerous and/or complex tasks may feel under time pressure and unable to complete work of sufficient quantity or quality. Individuals required to outwardly express an emotion that they do not feel (such as remaining calm in the face of a trying customer) may suffer emotional strain.

Many studies have shown high job demands to be associated with lower SWB, in terms of both lower job satisfaction and greater job-related anxiety (e.g. Karasek, 1979, de Jonge et al., 2001, Wood, 2008; see Warr (2007): 164-167, for a summary of results from several other studies). This is also true of job-related emotional exhaustion, which is closely related to anxiety but a slightly broader construct (e.g. Lee and Ashforth, 1996, who provide a meta-analysis). However, typically studies do not find a significant relationship between high demands and job-related depression (Warr, 2007: 167). More recent work by van Wanrooy et al. (2013) has shown job-related depression to be higher among employees who felt that their job required them to work very hard or never had enough time to get their work done.

Working hours are one way in which job demands have been measured in empirical studies. Bardasi and Francesconi (2004) find job satisfaction is higher among part-time than full-time employees. Van Wanrooy et al. (2013) find job-related contentment is higher among those working less than 30 hours per week, compared with those working between 30 and 47 hours; however, they find no significant difference for overall job satisfaction. Booth and van Ours (2008) find job satisfaction is not related to hours worked for men, but is higher among women who work part-time compared with women in full-time jobs. Wooden et al. (2009) suggests it is not the actual number of hours worked that is important, but the mismatch between hours worked and employees' preferences. Hours of work do not fully capture the intensity of work; studies which have looked at broader measures of work intensity (such as employees' reports of whether their job requires that they work hard) have found that increases in work intensification have contributed to lower job satisfaction (Green, 2006).

Demands can also arise as a result of competing pressures from work and life outside; such work-home conflict is also associated with lower job satisfaction (see, for example, the review by Eby et al., 2005). Flexible working practices can provide one means through which employees can manage conflict between their work and lives outside. Some studies have pointed to positive effects on employee wellbeing of flexible work

(e.g. Hayman, 2010, Hyman and Summers, 2004), although there are some differences according to types of flexible working practices. Qualitative evidence by Kelliher and Anderson (2010) on the effects of remote working and reduced hours working, finds that while both are associated with greater job satisfaction, they are also associated with greater work intensity, suggesting this may be because workers reciprocate for the opportunity to work flexibly by working harder. One of the most robust studies to date on the relationship between flexible working and job satisfaction is the study by Bloom et al (2013), which finds a positive effect of working from home on job satisfaction. While this study is based on one particular company in one country (a call centre of a travel agency based in China), its design (using a randomised controlled trial) gives strong weight to the findings. Exploring whether such effects are also found in different countries and in different workplace contexts would be valuable.

The task requirements of a job form one part of job demands. SWB is influenced not only by the requirements themselves, but also by the extent to which the task requirements of a job are clear and predictable, termed 'environmental clarity'. In a meta-analysis by Jackson and Schuler (1985), clarity in terms of role ambiguity was correlated with better SWB in terms of both overall job satisfaction and job-related anxiety. Environmental clarity also comprises the availability of feedback on performance. This can be in the form of performance appraisal, which can act to improve SWB by enabling employees to be more effective in their work and providing a form of recognition.

Control and variety

Karasek (1979) pointed to the importance of job control in determining wellbeing at work. Many studies since have provided further evidence of the positive relationship with SWB (e.g. Janssen et al., 2004, Wilson et al., 2004, Wood, 2008, Carr and Mellizo, 2013).

In terms of differing relationships with different aspects of SWB, low levels of job control have been shown to have a greater association with depression than anxiety (Warr, 2007: 144). Studies have also shown a stronger relationship with job satisfaction than with anxiety. Some have pointed to varying relationships with different facets of job satisfaction, for example, Payne et al. (1999) find job control shows a stronger association with intrinsic, rather than extrinsic, job satisfaction (as do Kinicki et al., 2002, in a review of the literature).

One important mechanism by which control enhances SWB is by allowing employees to manage the demands placed on them by their job. This is the core of the Karasek demand-control model (Karasek, 1979), which finds that SWB is lowest in those jobs which combine both high demands and low control. Many studies have tested and supported the Karasek model (de Lange et al., 2003, provides a review). Using the 2004 WERS, Wood (2008) finds higher demands are associated with lower job satisfaction and greater anxiety, while the opposite is true for control. Moreover, control helps to counteract or 'buffer' the negative effect of demands. Similar findings emerge from the primary analysis of the 2011 WERS (Van Wanrooy et al., 2013).

As well as the control an individual has over their own job, Warr (2007: 148) also highlights the control an individual has in relation to the broader organisation, or their participation in organisational decision-making. There is some evidence to suggest that job satisfaction is higher in employee-owned companies, which may in part derive from a greater sense of autonomy among employees (McQuaid et al., 2013). Involvement in

decision-making may be through direct involvement or through unions or other forms of representation. Unions or other forms of representation, or employee 'voice', may have a positive effect on SWB, if they result in beneficial change, or the prevention of undesired change. Employees may also simply feel better because they have been involved in the process. Unions may also act as a form of social support¹². However, employees may also experience reduced SWB, if they feel frustrated that their views are not listened to, or their desired changes are not implemented. Wood (2008) finds informative and consultative management (as perceived by employees) are associated with better SWB in terms of both job satisfaction and job-related anxiety. However, he finds no significant association for union membership. Bryson et al (2013) do find that unions play an important role in moderating the negative effect of organisational changes on job-related anxiety. They found that involving workers who were covered by unions in the introduction of change resulted in no adverse effect on their anxiety. On the other hand, among uncovered workers, anxiety increased regardless of whether employees were involved in the introduction of the change or not. Bryson et al. (2010) find that the relationship between union membership and job satisfaction differs according to whether employees are covered by collective bargaining. While previous studies have shown job satisfaction to be lower among union members, their findings show this only to be the case for employees who are not covered by bargaining arrangements. In contrast, among covered employees, no significant differences are found once selection effects are taken into account.¹³

Jobs which offer low levels of control may also provide low levels of variety. A lack of variety is undesirable in itself, but it is also likely to be associated with lower SWB at work because it is found in jobs with other unfavourable characteristics (Warr, 2007: 184). Existing studies have found lower job variety is associated with lower job satisfaction even when controlling for other job characteristics (O'Brien, 1982; Roxburgh, 1996).¹⁴ Some studies have looked at the relationship with different aspects of job satisfaction; Kinicki et al. (2002) find for example, that variety shows a stronger association with satisfaction with the work itself, rather than other facets, such as satisfaction with promotion opportunities. Matthieu et al (1993) found variety was more strongly associated with satisfaction with opportunity for personal growth than for pay satisfaction.

Studies of the relationship between variety and SWB have focused on jobs offering low variety, so little empirical evidence is available on impacts of high variety. However Warr (2007: 186-187) hypothesises that jobs involving a high level of variety may well have unfavourable consequences for wellbeing, if employees are frequently required to switch from one task to another.¹⁵

¹² We discuss social support in more detail later in this chapter.

¹³ That is, once one accounts for unobservable differences between members and non-members in covered occupations.

¹⁴ Such as skill utilisation, influence, job demands, and social support.

¹⁵ Warr cites one study in support of this hypothesis; which found high levels of variety were disruptive for employees' working patterns (Wyatt et al., 1928). We are not aware of any more recent studies exploring the effects of very high levels of variety on employee well-being.

Opportunity for skill use

Warr's (2007) framework sets out two ways in which skills influence SWB at work; firstly, the extent to which an employee is able to make use of their existing skills, and secondly, the opportunities they have to develop new skills.

Jobs which require higher levels of skill utilisation are not necessarily associated with greater SWB *per se*, rather, it is the match between an individual's skills and those required for the job that is key (Green, 2006). Allen and van der Velden (2001), for example, find that self-rated skill underutilisation is strongly correlated with low overall job satisfaction, controlling for a range of other job characteristics. Using the Skills and Employment Survey, Green and Zhu (2010) distinguish between 'Real over-qualification' and 'Formal over-qualification'¹⁶; they find that employees experiencing 'Real over-qualification' are more dissatisfied with their jobs. In analysis of the 2011 WERS, Van Wanrooy et al. (2013) find that employees who felt they were over-qualified for their job reported lower levels of job-related enthusiasm and job satisfaction, but higher levels of job-related contentment (compared to those who thought their skill levels were about right). Employees who felt their skills were below those required for the job reported lower levels of SWB on all three measures.

In terms of opportunities to develop skills, Wilson et al (2004) find employees' perceptions of their opportunities for doing so were a key positive determinant of their job satisfaction. In a company-level analysis, Patterson et al (2004) find that average perceptions of skill development were positively correlated with overall job satisfaction.

The provision of training is one way in which employers can give individuals the opportunity for skill development and receipt of training has been found to show a positive association with job satisfaction¹⁷. Jones et al. (2009) find employees who had received any training in the previous year reported greater satisfaction with a variety of facets of their jobs. However, very short amounts of training (less than one day) were associated with lower satisfaction for some aspects of the job than receiving no training at all. The authors hypothesise that this may reflect differences in types of training, with very short spells of training perhaps reflecting forms of training associated more with compliance (such as meeting health and safety requirements) rather than enhancing skills. Jones et al. also find some differences according to demographic characteristics, with training having a greater impact on job satisfaction (in terms of the number of domains affected) for men rather than women. Georgellis and Lange (2007) also find evidence of differences by gender in their study for Germany; using the German Socioeconomic Panel, they find a positive association between employer-sponsored training and job satisfaction for men, but not for women. Many studies on the relationship between training and SWB focus on job satisfaction. Using the 2011 WERS, Van Wanrooy et al. (2013) find employees who had received training in the year prior to the survey reported higher job satisfaction and lower job-related depression than those who had not received any training, controlling for a range of individual, job and workplace

¹⁶ 'Real over-qualification' refers to being both overqualified and over-skilled for a job, while 'formal over-qualification' is defined as being overqualified but where skills are fully utilised.

¹⁷ Training often forms one of the practices considered under the umbrella of 'human resource management'; these systems of practices are discussed later in this chapter.

characteristics. However, there was no statistically significant relationship with job-related anxiety.

Supervision, interpersonal contact and fairness

Social support within the workplace was added to the original demand-control model developed by Karasek (Karasek and Theorell, 1990), on the basis that social support offers a means through which employees can better cope with the negative effects of high job demands (Wood, 2008). Social support at work can comprise both support received from managers or supervisors and that received from co-workers. Unions can also provide a form of social support.

Many studies have shown a relationship between supportive supervision and job satisfaction. In a meta-analysis, Judge et al. (2004) find a positive correlation between 'leader consideration' and overall job satisfaction. While many studies have focused on job satisfaction, Wood (2008) finds that employees who report more supportive management experience both greater levels of job satisfaction and less job-related anxiety. While higher levels of support are associated with greater SWB, at the lower end of the spectrum, there is likely to be an important difference for SWB between a lack of support and actually experiencing negative behaviour. Tepper (2000) find 'abusive supervision' is related to lower overall job satisfaction and greater emotional exhaustion¹⁸.

Co-workers can also provide an important form of support at work, and several studies have pointed to a positive relationship between co-worker support and SWB at work. Moyle (1995), for example, finds a positive relationship between social support and overall job satisfaction, even when controlling for other job features and demographic characteristics. Totterdell et al. (2006) find lower social support to be associated with greater depression, although not anxiety. Some studies have suggested a non-linear relationship between support and SWB; de Jonge et al (2000) found individuals were least happy at low levels of support but found some negative effects were also present at very high levels.

As for the role of supervisors, the absence of good relations with co-workers is unlikely to have the same implications for SWB as the existence of negative contact, such as bullying or aggressive behaviour. Unsurprisingly, Einarsen and Mikkelsen (2003), in a review of the literature, find bullying is related to lower job satisfaction, greater anxiety and greater depression. It has also been suggested that support from co-workers may be important in coping with unfair treatment at work; Sloan (2012) finds co-worker support moderates the negative relationship between unfair treatment by a supervisor and job satisfaction.¹⁹

Interpersonal contact can include not only contact with others in the workplace but also contact with customers or the general public. For employees whose jobs involve contact with customers or the general public, the nature of these relationships may also impact

¹⁸ The authors define abusive supervision as "the sustained display of hostile verbal and nonverbal behaviours, excluding physical contact" (Tepper, 2000: 178).

¹⁹ Although it does not play a significant role in buffering the negative effects of unfair treatment by customers or other co-workers.

on their SWB. Employees reporting unfair treatment by customers have lower levels of job satisfaction and higher levels of psychological distress (Sloan, 2012).

As suggested above, support can play an important role in counteracting negative effects from unfair treatment at work. Fair treatment at work is not solely connected with treatment by supervisors, though Fevre et al (2011) find that managers and supervisors are the origin of the majority of unreasonable treatment. An employee who feels they are being unfairly treated, or discriminated against, is likely to have lower SWB as this in itself is negative. But employees may also be sensitive to the fair treatment of their co-workers, even if they themselves are not experiencing unfairness. The fair treatment of employees is often considered in terms of two dimensions (Warr, 2007: 135): distributional fairness, that is, whether employees feel the outcomes from their employer's actions are fair (so, for example, whether they feel that the amount of pay received is fair), and procedural fairness, which is concerned with whether the procedures that determine these outcomes are fair (for example, whether they feel procedures for pay-setting, and reviewing employee pay, are fair). Both distributional and procedural fairness have been shown to relate positively to job satisfaction (Wilson et al., 2004; Colquitt et al., 2001, provide a review); and negatively to job-related emotional exhaustion (Tepper, 2000). Disciplinary and grievance procedures are feasibly one way in which employers can address issues of fairness in the workplace.

Another aspect of fairness relates to the organisation's morality in society, that is, an employee's SWB may be influenced by whether, for example, they consider their organisation to be acting in a socially responsible and ethical manner. This may be one reason underlying greater apparent SWB among employees working in the non-profit sector (Benz, 2005).

Money

Unsurprisingly, higher income is associated with greater satisfaction with pay. Several studies have also shown a relationship between earnings and overall job satisfaction, although the magnitude of the association is generally lower (for example, Clark, 1996). Pay can be expected to impact on SWB by affecting an individual's spending power, but also because it may form a part of recognition.²⁰ Warr (2007: 117) hypothesises that SWB may be more influenced by variations in pay among lower earners than among higher earners, perhaps because additional pay is of less importance to higher earners. While some limited evidence is given in support of this point (Simoens et al., 2002), Warr acknowledges that further investigation of this association is needed.

While most research into the relationship between pay and SWB has focused on job satisfaction, Bryson et al (2012), using the 2004 WERS, additionally explore the relationship between wages and job-related anxiety. Similarly to earlier studies, they find higher wages are associated with greater job satisfaction. However, higher wages are also found to be associated with greater job-related anxiety. The authors find this relationship holds after controlling for a range of individual, occupational and workplace characteristics, as well as the level of effort required by the job. As this result is robust to the inclusion of effort measures, the authors conclude that this relationship is not the result of compensating wage differentials - that is, higher wages do not appear to be

²⁰ See also the later discussion on significance.

compensating for the stressful nature of a job. Rather, they suggest that the results are supportive of 'gift exchange' theory - that is, workers reciprocate with more effort when paid higher wages, such that higher wages induce job-related anxiety. Pay forms one of the elements of reward considered as part of Siegrist's effort-reward imbalance model, which suggests that employee wellbeing is lower where effort at work is not adequately compensated for by rewards. De Jonge et al. (2000) find that employees required to exert high levels of effort for low rewards show greater levels of emotional exhaustion and job dissatisfaction (as well as a greater probability of psychosomatic health complaints and physical health complaints). Several other studies have also found support for the effort-reward imbalance model (Van Vegchel et al., 2005, provide a review).

There is also an important comparative element to the relationship between pay and job satisfaction, with workers typically more satisfied if they are paid more highly than their comparators²¹ (Green, 2006; Brown et al., 2008). Bryson et al (2012) find that workers' pay satisfaction is higher the more their co-workers earn and the better their own position in the wage distribution within the workplace.

Employees' SWB may be affected not only by how much they are paid, but how they are paid.²² Employees in jobs where pay is related to performance may have higher SWB at work if performance pay provides the opportunity to earn more. Evidence for the UK, using the British Household Panel Survey (BHPS), found performance pay to be associated with greater satisfaction among higher earners but lower satisfaction among lower earners (McCausland et al., 2005). More recent UK evidence, also using the BHPS (Green and Heywood, 2008) explored the relationship between performance pay and satisfaction with a range of aspects of the job, finding that employees in performance pay jobs report greater satisfaction with pay, hours and job security, as well as higher overall job satisfaction. Employees who are more risk-averse may however prefer fixed pay systems, as the greater uncertainty in earnings under a variable pay system may lower their SWB. Corneliussen et al (2011), using the German Socio-Economic Panel, explicitly take into account employees' preferences for risk. Overall, they find job satisfaction is higher among those in performance pay jobs compared with those earning fixed rates, but no significant difference remains once earnings are controlled for. However, employees in performance pay jobs who display greater tolerance for risk do show higher satisfaction compared with those in performance pay jobs who are more risk-averse.

Physical security

The physical security of the job includes factors such as the safety of work practices and the adequacy of equipment as well as the pleasantness of the work environment. Poor physical security may have a direct effect on SWB, but may also have an indirect impact, where poor work conditions impact on physical health, which in turn is also likely to affect SWB. It may also be associated with other job characteristics, perhaps reflecting low control among employees over the security of their environment, or because it is perceived as reflecting a lack of supervisor concern (Warr, 2007: 121-122).

²¹ The studies referenced here focus on comparing pay with others in the same workplace. However, it may be that individuals are making comparisons with others outside the organisation.

²² As for training, performance pay is another practice typically considered under systems of HRM.

Most studies of the relationship between physical security and SWB focus on job satisfaction, rather than anxiety or depression. Several studies have provided evidence that poorer working conditions are associated with lower overall job satisfaction (e.g. Huang and van der Vliert (2004), using employees' ratings of factors such as temperature and ventilation, and Kirjonen and Hanninen (1986), who in longitudinal analysis find improvements in the quality of the work environment were associated with reductions in job-related stress). Research has typically looked at jobs offering low levels of physical security, rather than differences among environments providing higher quality working conditions. However, this is likely to be with good reason; Warr (2007: 123) hypothesises that the effects on SWB occur at lower levels - once a certain level of security is reached, there is no further gain to be had in terms of SWB by increasing this further.

Health and safety practices are often traditionally thought of in terms of preventing risks to physical health, such as reducing rates of injury and accidents, although recognition of their importance in mental health and wellbeing more generally has increased. In their review of the evidence on the relationship between managerial practices and employee wellbeing, Grant et al. (2007) state that while health and safety practices have been found to positively affect health, research has also pointed to potential negative effects on SWB, with workers feeling such practices may restrict their autonomy over their work, and hence lowering their job satisfaction.

Career outlook and significance

Warr considers career outlook to comprise two main elements; the level of security afforded by a job and the future prospects that it offers, particularly in terms of opportunities for promotion.

Faced with greater job insecurity, workers are likely to experience lower SWB as they have greater uncertainty about future plans. Lower job security has been found in several studies to be associated with lower overall job satisfaction, for example, Green (2006), where job security is measured by employees' perceived risk of job loss, and in a meta-analysis by Sverke et al. (2002), in which the studies included covered varying measures of job security, though all related to employees' subjective assessment of job security. Brown et al. (2008) find that improvements in perceived job security were important in explaining the rise in satisfaction with sense of achievement in the late 1990s and early 2000s. Certain forms of employment may also be associated with greater insecurity; Bardasi and Francesconi (2004) find lower levels of job satisfaction among employees in temporary work, compared to those on permanent contracts. Llena-Nozal (2009) finds that improvements in mental health are smaller among individuals who enter non-standard employment, compared with those who enter standard employment. Employees who consider their jobs offer greater prospects for the future are also likely to enjoy higher SWB. This may arise because they feel they have greater opportunities for progression within their own workplace, or because they feel it increases their chances of obtaining a job elsewhere. Clark (1996) showed job satisfaction to be positively related to promotion prospects.

The significance of a job includes the significance that it has for oneself and also the value of a job to society, both of which are important for SWB (Warr, 2007: 89). Pay, as discussed earlier, can provide one means by which employees feel they are recognised for their work. Employees' assessments of the importance of their job have been found to relate to overall job satisfaction (e.g. Ahgo et al., 1993). However, how an individual

perceives the significance of their job is likely to be strongly related to their values and preferences and in practice is a difficult concept to measure.

Employer practices

In the above discussion of the relationship between various job characteristics and SWB, we have highlighted some of the evidence on related practices. However, the relationship between practices and SWB is not necessarily clear-cut. A particular practice may well influence more than one of the job characteristics described above. For example, practices which aim to give employees' more involvement may raise autonomy, which, as discussed earlier, is typically associated with higher SWB. At the same time, such practices may also increase the level of demands placed on employees, which would generally lower SWB. The balance of these effects is not clear and is also likely to be influenced by other factors.

There may also be issues if a practice is not implemented for all employees in a workplace. For example, the introduction of flexible working for a particular group of employees may enhance SWB among the group to whom it is available, but may raise perceptions of unfair treatment among employees who are not granted the same option. Further, the formal existence of a practice may on its own not be sufficient to create improvements in SWB, for example, if employees feel unable to take advantage of flexible working if they feel other colleagues would disapprove, or that it may harm their promotion prospects.

Practices may have differing effects on SWB dependent upon other workplace characteristics, such as workplace size. Storey et al. (2010) find that greater formality of management practices was associated with lower job satisfaction in small and medium-sized enterprises (SMEs). Saridakis et al. (2013) find that formal HR practices may help to increase organisational commitment in SMEs where employee satisfaction is low, but do not have significant effects in SMEs where employee satisfaction is already high.

Any process of change, such as the introduction of a practice, can itself lead to anxiety. This however would generally be expected to be a temporary phenomenon, as over time, workers typically adjust, or those for whom it causes the most unhappiness will leave (Freeman, 1978; Kahneman et al., 1999). Employers may be able to mitigate negative effects of organisational change by involving employees in the process of change (Bryson et al., 2013), although this may be contingent upon other factors²³.

Much of the literature, particularly the psychological literature, is focused at the job and task level, as described above. In the industrial relations literature, a considerable amount of research has focused on systems of practices that might surround a job or a group of workers. We turn our attention to the consequences of such practices for SWB below.

²³ Here the involvement of employees was only effective in moderating the negative effects of organisational change on job-related anxiety where employees were in a unionised workplace.

Human resource management

Much of the literature on HR practices focuses on the broad set of practices variously described as human resource management (HRM), high involvement management (HIM) or high performance work systems (HPWS). Van de Voorde et al. (2012) note that there is no precise set of such practices, but that they generally include those relating to training, recruitment and selection, performance management, teamwork, incentive pay, job security, participation and communication. In practice, empirical studies draw on a range of measures of such practices, often driven by data availability.

Some studies have considered how these individual practices affect SWB (as in the studies discussed above on training and performance pay, for example). Often however these practices are analysed as a set; motivated by the idea that it is the system of practices as a whole that is important in understanding the consequences for employees. In reality, practices do not operate in isolation from one another. Indeed, some studies have shown that effects on SWB are only found when several practices co-exist. White and Bryson (2013) for example, find that HRM practices only have a positive effect on intrinsic job satisfaction once the level of HRM within a workplace has reached a certain level of intensity. Van de Voorde et al. (2012) also find HRM systems tend to have a greater effect on wellbeing than individual practices.

Overall there is mixed evidence on the relationship between HRM and SWB at work. Two competing hypotheses are evident: 'mutual gains' and 'conflicting outcomes' (Wall and Wood, 2005; Van de Voorde et al., 2012). Under the 'mutual gains' approach, HRM practices are beneficial for employee wellbeing as well as leading to gains in firm performance. The 'conflicting outcomes' hypothesis also assumes that HRM is beneficial for firm performance, but, largely through increasing work intensification, has a negative effect (or at best no effect) on employee wellbeing.

Appelbaum (2002), in a review of the existing literature, concluded that the evidence on the relationship between HRM and employee wellbeing was not clear. Brown et al. (2008) make a similar point with regard to job satisfaction, noting that some studies have argued that HRM practices, such as involvement schemes, have led to an increase in work intensity and thus lowered job satisfaction (Green, 2006). In contrast, others have argued practices such as direct participation and information sharing have increased employee satisfaction (Guest, 2002). In their own analysis, using data from the 1998 and 2004 WERS, Brown et al. find little evidence of an association between formal HRM practices²⁴ and job satisfaction in terms of sense of achievement, influence and pay. Of the three satisfaction measures, only satisfaction with sense of achievement increased between 1998 and 2004; however, this was only weakly related to HRM practices, with improvements in perceived job security, the employment relations climate and managerial responsiveness playing a much more important role. It may be the case that factors such as the employment relations climate mediate the link between HRM and SWB. In pooled cross-section analysis, the authors find some individual HRM practices were associated with greater pay satisfaction (training that covered teamwork, communication or problem-solving and workplaces with a preference for internal

²⁴ They consider nine measures grouped into three categories: 'task practices' (team-working, functional flexibility and quality circles); 'individual supports' (briefing groups, information disclosure and HR training) and 'organisational supports' (job security guarantees, financial participation and presence of an internal labour market).

recruitment). HIM practices only had a positive effect on satisfaction with sense of achievement when individuals considered they had a high degree of influence over their work.

Many studies of the relationship between HRM practices and wellbeing focus on job satisfaction. Wood and de Menezes (2011) explore the relationship between high performance work systems (HPWS) and both job satisfaction and job-related anxiety using the 2004 WERS. They distinguish four dimensions of HPWS, including HIM, but also the role of enriched jobs (defined as the extent to which employees have autonomy in their job), employee voice and motivational supports. Wood and de Menezes argue that these components should be considered separately, as they may not necessarily be simultaneously present. They find no significant relationship between high involvement management and job satisfaction, while enriched jobs, and consultative and informative management are positively associated with satisfaction. Enriched jobs and informative management are also found to be associated with better wellbeing in terms of lower anxiety, however, high involvement management is associated with greater anxiety.

Van de Voorde et al. (2012) provide a recent review of the literature on the relationship between HRM, wellbeing and organisational performance. There is a vast literature on the relationship between HRM and organisational performance, which is beyond the scope of the current review, as our focus is on the factors that determine SWB, and the relationship between SWB and workplace performance, rather than the general literature on the determinants of workplace performance. However, Van de Voorde et al.'s review provides useful insights into the HRM and wellbeing literature, and they find the majority (nearly 70 per cent) of studies in their review indicate a positive relationship between HRM and wellbeing²⁵. Examining results by type of wellbeing however, the authors conclude that the evidence points to HRM being beneficial for employee wellbeing in terms of happiness (and also relationships), but not in terms of health (considered as stressors and strain experienced in the job).

One concern in analyses of the relationship between high involvement management and SWB, is that there may be selection effects, with 'healthier' workers sorting into those jobs that have HIM. If this is not accounted for, any positive effects of HIM on SWB may be over-stated, as these employees may have greater SWB regardless of the presence of HIM. Bockerman et al. (2012), in a study for Finland, deal with this issue by controlling for workers' sickness absence histories, and still find a positive relationship between HIM and subjective wellbeing (in terms of job satisfaction and work-related tiredness). HIM was also associated with fewer accidents at work, but also more short-term absences (though no relationship was found with longer-term absences). The authors also explore the effects of different HIM 'bundles' - and do find one bundle - the combination of incentive pay and team working - did show a negative relationship with wellbeing in terms of self-assessed health, work-related tiredness and self-assessed working capacity (though no significant relationship with job satisfaction). However, as this analysis was conducted in another country, we cannot assume that the same findings also apply within the UK. Further evidence suggesting caution in assuming that results can be transferred across countries is provided by Godard (2010), who finds the impact of alternative work practices on employee outcomes differs in Canada and England, suggesting that differing

²⁵ They consider 54 data points across 36 studies.

historical and institutional environments across countries are likely to be important. In Canada, 'traditional' HR practices were associated with better outcomes for workers, while most 'alternative work practices' were not²⁶. In contrast, in England, the traditional HR practices had little effect, while alternative work practices played a greater role.

Finally, it may be the case that any relationship between HRM practices and employee outcomes is non-linear. That is, it may be that effects on wellbeing are only apparent once a number of practices are in place, or, that while there are benefits up to a certain point, after this, further increases may be detrimental to wellbeing. Some evidence in support of a non-linear relationship is given by White and Bryson (2013), who find that HRM intensity is linked to employees' intrinsic job satisfaction (defined here as satisfaction with sense of achievement, influence, initiative, and the work itself)²⁷. Their results show that an impact is only apparent once a fairly large number of HRM practices are in place.²⁸ Godard's (2001) study of alternative work practices also considered non-linearity, finding that where such practices were used at a moderate level, there were positive effects on a range of employee outcomes, including job satisfaction, but at high levels of implementation, such practices were associated with increased levels of work stress. Brown et al. (2008) also raise the idea of non-linearity, and report a negative effect on satisfaction with influence in workplaces with high levels of 'task practices', defined as team-working, functional flexibility and quality circles.

Other influences

In addition to the individual, job and workplace characteristics discussed above, there are also social influences on an individual's level of SWB in the workplace. These arise through spillovers from one worker to another ('emotional contagion'), whereby the SWB of Worker A may be affected by their exposure to Worker B's views of a situation or to Worker B's demonstrated level of SWB (see Felps et al., 2006, for a discussion of how one negative member of a team can impact upon the rest of a group). This might arise because of conscious processes of social comparison and conformity, or through unconscious 'mimicking' (Barsade, 2002). Studies of work settings have found evidence for these relationships: Totterdell et al. (1998) found that trends in employees' feelings were linked to the collective mood of the rest of their work team, controlling for shared work events, while Totterdell et al (2004) find convergence in SWB among groups of employees working together.

In addition to individuals' own characteristics, their experiences outside of work, including their family situation, housing, personal finances, social interactions and so on are also likely to affect their SWB at work. However measures of job-related SWB typically attempt to remove the impact of such factors outside the workplace by asking 'how much of your time has your job made you feel...' or by asking domain-specific questions (e.g. how satisfied are you with your pay, job security and so on).

²⁶ Godard defines alternative work practices as those relating to the process by which work is carried out, such as autonomous teams and job rotation; participatory schemes, such as information sharing and problem-solving groups; and variable pay systems. 'Traditional' HR practices include practices such as skill-based selection, internal job ladders, job security rights, grievance systems, and fringe benefits.

²⁷ They also consider organisational commitment, with similar findings as for intrinsic job satisfaction.

²⁸ The authors' analysis is based on an overall index of HRM practices, which they construct based on five domains, namely participation, teams, development, selection and incentives.

Finally, throughout this chapter we have focused on SWB as a fairly static concept, focusing on differences that are 'between-person'. This is in line with most of the existing literature. More recently however, there has been growing interest in 'within-person' differences in SWB, recognising that wellbeing is not constant, but fluctuates in a dynamic manner, so that an individual who, on average, has high SWB will nevertheless experience low SWB at times (Xanthopolou et al., 2012). These more dynamic feelings will also be affected by the sorts of characteristics that have been described in this chapter. However, there is less evidence to substantiate such relationships and further investigation is warranted.

Summary

An employee's SWB is clearly affected by both their individual traits, and the characteristics of the job and workplace in which they work. From a policy perspective, it is the features of the job and workplace which are of most interest, as these are the aspects which are typically less fixed. Nevertheless, an understanding of the relationship between individual characteristics and SWB is also important, not least because these shape employees' experiences of work.

An extensive literature discusses the characteristics of jobs which influence SWB at work. These include: the demands of the job; opportunity for control; variety; environmental clarity; opportunity for skill use; supervision; interpersonal contact; fairness; pay; physical environment, career outlook; and significance. Indeed many of these features are already recognised in policy and in guidance for employers (e.g. Acas, 2012). Much of the evidence focuses on SWB as measured by job satisfaction, although there is also a sizeable literature looking at measures of job-related affect, such as job-related anxiety. Little evidence to date appears to have explored the relationship between job characteristics and eudemonic aspects of wellbeing. Nevertheless, in terms of hedonic measures of SWB, many studies have identified robust associations controlling for both individual characteristics and other features of the job.

Evidence on the role of HR practices in determining SWB is less conclusive. Some studies have explored effects of individual practices, while others look at systems of practices. The original remit for this study asked which employer practices have the greatest impact on SWB. However, the current state of research evidence does not allow this question to be answered with authority.

Much of the literature relates to the impact of systems of HRM practices on SWB; here the evidence is inconclusive. Yet on closer investigation of the different studies it is perhaps not so surprising that they give rise to different results. Firstly, many studies are based on cross-sectional data, which are valuable for identifying associations but which are limited in their ability to enable causal inferences. Secondly, the way in which practices are measured differs across studies, often simply as a result of the data that are available. So different researchers are using different proxies to capture the same theoretical constructs, which may well lead to varying results. Thirdly, some studies that are methodologically strong are based on evidence gathered in other countries. While we can gain important insights from such studies, the differing cultural contexts, for example, the way in which practices operate, may well have implications for the generalisability of results to the UK. Similarly, conclusions based on studies which focus on particular settings (such as specific industries) or types of workers (such as certain occupations)

may not be transferable to other situations. In any event, it is not necessarily the case that particular practices will have the same effects in different settings; the 'optimal' practices to be adopted may well vary across different types of workplaces. In many ways, these points are analogous to those made in respect of the literature on the relationship between HRM practices and performance (Wall and Wood, 2005); a topic which has generated a vast literature, but much of which is limited in enabling definitive conclusions as a result of similar methodological limitations to those described above. On balance, the strongest UK evidence to date suggests HRM is associated with greater levels of job-related anxiety, but has slightly more favourable, or at least neutral effects, on job satisfaction. However, it is clear that there is a case for more robust studies of the impact of employer practices on a range of aspects of employee SWB.

Much of the evidence to date on the relationship between employer practices focuses on the consequences for individuals on average. Much less is known about how practices may affect different employees in different ways within the same organisation. The effects of particular practices on SWB may well differ, for example, between managers and employees, or for employees within different occupations. This is particularly important if we are to understand more about the impacts of SWB on workplace performance.

While evidence on the role of employer practices in determining SWB is mixed, it is clear that there is potential for employers to affect SWB through changes in job design and the practices they adopt. It should not be forgotten, however, that introducing change in workplaces where existing practices are often quite embedded may well prove challenging. Employers need to be aware of how the process of change itself may also affect SWB, and how this can be mitigated. Finally, it takes time to implement change and effects are unlikely to be instantaneous. This is another reason why longitudinal studies, and experimental design, would be valuable, allowing assessment of how the introduction of practices, or change, impacts on SWB over a period of time, an issue which is typically unexplored in the literature to date.

4 How can SWB affect workplace performance?

The preceding chapter has outlined a range of factors that can contribute to higher levels of SWB among employees. But do higher levels of SWB have quantifiable benefits for organisations by helping to bring about improved levels of workplace performance?

This chapter develops the conceptual framework further by examining why it might be reasonable to expect that higher levels of SWB among the workforce could lead to improved performance at the level of the workplace or firm. It also discusses the available evidence for such an effect. The chapter concludes that there is a considerable amount of evidence suggesting that SWB and job performance are positively correlated at the level of the employee, and some evidence which indicates that a causal link exists in some circumstances. However there are also reasons to think that this relationship may not necessarily be replicated at the level of the workplace and, here, the evidence is more limited. The chapter concludes that more research is needed at the level of the workplace or firm in order to generalise beyond the small number of existing studies.

Impact on the performance of individual workers

There is considerable evidence that SWB (broadly conceived) is correlated with job performance (also broadly conceived). Lyubmirsky et al (2005) undertook a meta-analysis of a large number of empirical studies which examined the relationship between measures of positive affect (such as the PANAS scales) and work-related outcomes, with these outcomes ranging from self-reported task performance and supervisor evaluations through to absenteeism and earnings. Their review covered 19 cross-sectional studies, across which they found an average correlation coefficient of +0.20. Turning to measures of job satisfaction, a meta-analysis by Judge et al (2001) covered 254 studies – most of which were cross-sectional in nature – across which they found an average correlation of +0.30.²⁹

In such cross-sectional analyses, one might clearly be sceptical about the direction of causation and concerned that the direction of causation runs, not from SWB to performance, but from performance to SWB. In other words, that good job performance raises an employee's SWB, and that there is no causal link running in the other direction. To demonstrate that a causal link exists, one first requires longitudinal data in which the

²⁹ A later meta-analysis by Harrison et al (2006) combined the results of earlier meta-analytic studies with new published studies and found positive correlations between job attitudes and four indicators of job performance (task performance, lateness, absenteeism and job turnover). However their measure of job attitudes included both job satisfaction and organizational commitment. The meta analysis by Riketta (2008) had a similarly broad focus.

sequencing of events can be determined. The meta-analysis by Lyubmirsky covered 11 such longitudinal studies, in which high levels of SWB were found to *precede* higher job performance. Here the averaged correlation across the studies was weaker, but still positive, at 0.05. In one study, for example, Staw et al (1994) studied a sample of around 270 employees over a period of 18 months and found that those employees with higher levels of positive job-related affect at the outset were more likely to experience improvements in supervisory evaluations and in their earnings over the following 18 months, after controlling for a range of other personal characteristics. In a more recent study of 75 senior managers based on an experience sampling methodology, Zelenski et al (2008) found that positive job-related affect predicted self-reported productivity over the following two months.³⁰

There may still be some considerable doubt over the robustness of the evidence from longitudinal studies, however, if there are unobserved factors which could be simultaneously generating high levels of SWB and high levels of performance, leading to an observed correlation which is not necessarily indicative of a causal relationship between the two.

Strict causal identification of an effect running from SWB to job performance is best obtained by stimulating higher levels of SWB at random among a sample of workers and examining any changes that may result in their levels of job performance. This is difficult to achieve in the real-life setting of the workplace, but such conditions have been created in controlled experimental conditions. In a recent study, Oswald et al (2014) conducted four complementary experiments and each found evidence to support the notion that levels of SWB have a causal effect on work performance. In the first two of their experiments, a comedy clip was randomly assigned to a group of student subjects as means of inducing higher levels of positive affect, and their productivity was then measured on a standardized mathematical test in which the subjects were paid for each correct answer. These students who were exposed to the clip had higher productivity in the first test than the control group who did not see the clip; in repeated measures, those students who experienced the greatest increase in SWB also registered the greatest improvement in test scores. Positive effects were also produced in a third experiment in which Oswald et al replaced the comedy clip with a gift of chocolate, fruit and drinks. In their fourth experiment, subjects who had recently experienced tragedies in their families (argued by the authors to be randomly assigned by nature) were found to exhibit lower productivity than those who had not experienced such negative events. This study clearly suggests a causal link between SWB and productivity in a piece-rate setting, although the generalisability of the findings to real-world settings has yet to be tested.

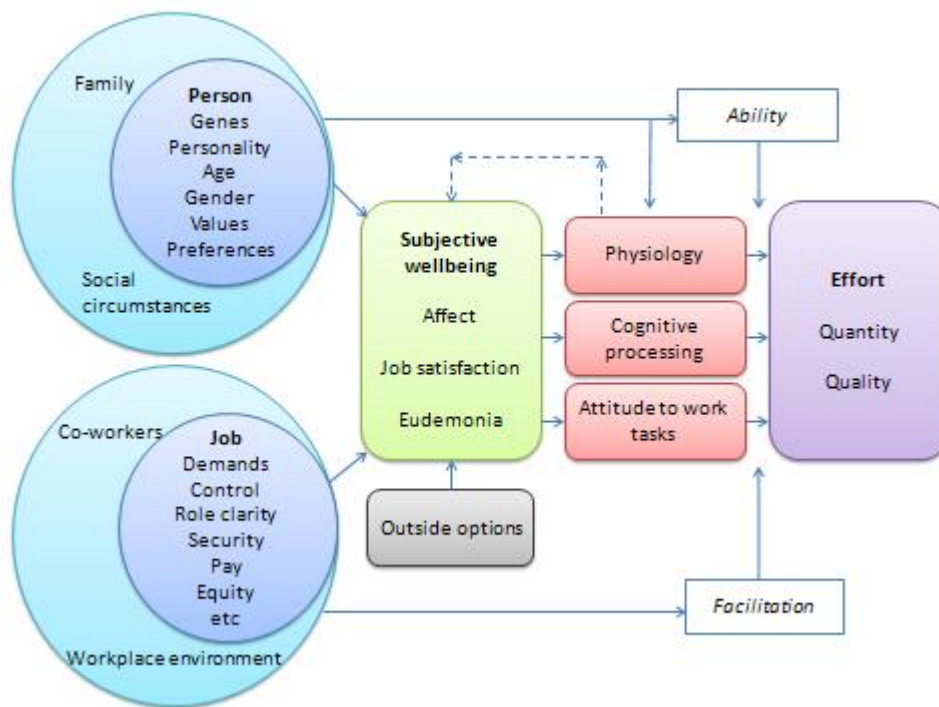
The various studies cited above thus provide substantial evidence that SWB and job performance are positively correlated, and some strong evidence that there can be a causal effect between the two, at least in certain circumstances. How might such an effect arise?

As we discuss below, one route is through a causal effect on an employee's cognitive abilities and processes. A second is through an effect on their attitudes to work in

³⁰ Positive job-related affect was a stronger predictor than negative job-related affect or job satisfaction. Experience sampling is explained in the glossary of this report.

general. A third route – which necessarily acts over the longer term – is through a causal effect of SWB on a worker's physiology and general health. Each of these outcomes (improved health, enhanced cognitive ability or greater levels of engagement) have the potential to raise the quantity and quality of effort and so, in these ways, higher levels of SWB have the potential to raise a worker's level of output or productivity. The broad relationship is depicted in Figure 4.

Figure 4: Illustration of the relationship between SWB and productivity for an individual employee



Impact of SWB on an individual's physiology

In relation to the physiological effects, it has been shown that higher SWB leads to improved cardiovascular health, improved immunity and endocrine function³¹, and speedier recovery from illness. For example, Steptoe et al (2005) studied 216 civil-servants from the Whitehall II physiobiology study and found that a measure of positive affect collected by experience sampling over the working day was negatively related to cortisol³² output during the day, and also inversely related to a measure of the participant's heart rate, after controlling for a range of other personal characteristics. Cohen et al (2003) exposed a sample of 334 healthy volunteers to a cold virus and found those who more frequently experienced positive affective feelings (e.g. happiness, pleasure, relaxedness) were less likely to go on to develop a cold.³³

³¹ The **endocrine** system is instrumental in regulating a person's metabolism, growth and development, among other things.

³² Cortisol is a hormone that is released in response to stress. One effect of cortisol is to suppress the immune system.

³³ Negative affective feelings (e.g. anxiety, depression) were not associated with the likelihood of developing a cold.

There are a number of reviews of specific elements of this literature (e.g. Boehm and Kubzansky, 2012, review the association between SWB and cardiovascular health). Diener and Chan (2011) provide an overall review of the connection between SWB and health. They review a wide range of studies, including longitudinal general-population studies and controlled experiments, and conclude that there is compelling evidence that higher levels of SWB (measured in their studies by life satisfaction and affective feelings) have a causal effect on health and longevity.

Some of these causal effects arise because levels of SWB directly affect physiological processes. SWB also has an indirect effect because individuals with higher SWB are more likely to engage in health-promoting behaviours and practices. Evidence from large-scale surveys indicates that individuals with higher SWB have healthier diets (Blanchflower et al, 2012) and are more likely to exercise and less likely to smoke (Grant et al, 2009). Higher levels of SWB also encourage more positive social relationships (see Lyubmirsky et al, 2005), which can in turn aid a person's health (Tay et al, 2013).

Such positive effects on physical health can be expected to afford a worker with greater levels of energy, which necessarily has the potential to raise the worker's effort (and thus their level of output). Improved health is also likely to reduce levels of involuntary absence from work and reduce the probability of quits due to ill-health.

Impact of SWB on cognitive processes

In relation to cognitive processes, it has been shown that higher SWB is associated with increased levels of creativity and problem-solving. There are a number of experimental studies demonstrating this relationship (Isen et al, 1987, provide one review) and a recent meta-analysis (Lyubmirsky et al, 2005) indicates that a positive correlation exists in both experimental and cross-sectional data. Experimental research has also suggested that individuals with higher SWB process complex information more speedily (Oswald, 2014) and have a wider span of attention (Hockey, 1986; Fredrickson and Branigan, 2005). In these ways, higher SWB may improve the effective output of the worker by raising their level of task performance.

The mechanisms through which higher SWB influences cognitive processing are not clearly understood, but Oswald et al (2014) propose a model of internal resource-allocation by the worker in which higher SWB allows the employee to devote more attention and effort to solving problems at work because the worker has to spend less time worrying about other aspects of their life.

There are instances, however, in which positive SWB may not be beneficial. For instance, negative affect has been found to increase attention to detail, with happy individuals appearing to base judgements more readily on prior assumptions (Warr, 2007: 422). Higher SWB may thus be counter-productive in work situations where precision and a careful analytical approach are vital. There are also some experimental studies which suggest that higher SWB may induce risk-taking (ibid.) and, again, this may be counter-productive in some work situations.³⁴

³⁴ Studies of seat-belt use in the United States, however, find contradictory evidence, as happier individuals are found to be more likely to wear a seat belt (Goudie et al, 2012). This is in accordance with economic theory, which would

Impact of SWB on work attitudes

Higher SWB has been found to be associated with greater levels of collaboration and co-operation. Indeed, in the meta-analysis conducted by Lyubomirsky et al (2005), the association between positive affect and improved social relationships emerged as one of the strongest they investigated.³⁵ In relation to work activities, a number of studies have examined the relationship between SWB and 'extra-role' behaviours such as assisting colleagues and volunteering to undertake additional tasks, with a meta-analysis finding a strong positive correlation of +0.38 between measures of job satisfaction and so-called 'organizational citizenship behaviour' (Organ and Ryan, 1995). Penney and Spector (2005) also found a negative relationship between job satisfaction and peer-reported measures of uncivil behaviour among a sample of university students. These work-related studies do not necessarily indicate a causal relationship of SWB on pro-social behaviour, although laboratory experiments conducted outside of a work context (e.g. Isen, 1970; Cunningham, 1988) suggest that such a causal link may well exist in general.

There are again some reasons to suspect that the effects of higher SWB in promoting sociability may not always be productivity enhancing, however. It is possible to imagine situations in which excessive sociability towards work colleagues may impair an individual's own performance by attracting a high number of requests for assistance (Staw et al, 1994). It is also possible to conceive of situations in which higher levels of collaboration or co-operation may hinder one's ability to conduct negotiations with customers or clients to one's own advantage. These points suggest heterogeneous effects which are not easy to predict.

Other evidence on the impact of SWB on work attitudes comes in the form of studies which show a link between SWB and either absenteeism or quits. In meta-analyses, Farrell and Stamm (1988) and Hackett (1989) both found negative correlations of between 0.10 and 0.30 between absenteeism (whether measured in terms of frequency or days lost) and different measures of SWB (job satisfaction, anxiety-contentment and depression-enthusiasm). Other studies have shown that this relationship is robust to the introduction of controls for the job content and demographic characteristics of the worker (e.g. Brooke and Price, 1989) and that the relationship does not merely exist in cross-section, with changes in SWB being shown to be accompanied by changes in the rate of absenteeism over time (e.g. Hardy et al, 2003). Comparisons between measures of SWB suggest that feelings of depression (indicating Low-activation + Unpleasant affect: the lower-left quadrant in Figure 2) are most strongly associated with absence behaviour.

One limitation of studies of absenteeism is that it is typically difficult to separate voluntary and involuntary absenteeism, such that the mechanisms by which higher SWB are affecting absence (whether via health or motivation) are not always clear. However in either case, absenteeism necessarily incurs costs for the employer if lost effort cannot be recouped and if there are transaction costs involved in managing absence events.

suggest that happier individuals have more to lose from engaging in behaviour which raises the likelihood of personal losses (De Neve, 2013: 13). It may be that happier individuals are more likely to take risks when the chances of personal loss or harm are low.

³⁵ They also examined the relationship between positive affect and a person's positive perception of themselves and others, their ability to negotiate and resolve conflict, their physical wellbeing and their levels of creativity and problem solving.

Similar concerns apply to studies of employee turnover, although, again, any turnover incurs costs for employers – costs which can be substantial if the employee proves difficult to replace. In a study using the 2001 Skills Survey, Green (2010) showed that employees with lower SWB were less likely still to be in the same job 15 months later. Green was not able to distinguish between voluntary and involuntary turnover, but he was able to compare the predictive power of different measures of SWB (job satisfaction, anxiety-contentment and depression-enthusiasm) and found job satisfaction to be the stronger predictor. One study which was able to focus exclusively on voluntary turnover was Clark's (2001) study of voluntary quits using the British Household Panel Survey. In his study, low job satisfaction was found to be a significant predictor of voluntary turnover in the next year after controlling for demographic and occupational characteristics.

Issues at the level of the individual

As indicated in the previous discussion, the evidence positing a link between SWB and employee job performance is reasonably strong, containing a mix of general-population studies with some longitudinal evidence and also laboratory experiments which robustly identify causal effects. There are a number of issues which remain relatively under-developed however.

The first is the potential for non-linear effects. It is possible the effect of SWB on employee performance may not be linear, and that employee behaviours or work attitudes may be most heavily affected when levels of SWB are particularly high or low. This possibility was raised in Chapter 2 with the proposition that positive and negative affect are distinct elements of the affect circumplex (see Figure 1). There is also some empirical evidence to support the idea of non-linear effects. For instance, in Green's (2010) study of absenteeism, the propensity to quit was increased only among workers who reported themselves dissatisfied with their jobs: there was no difference in quit behaviour between those who reported themselves satisfied and those who said they were neither satisfied nor dissatisfied. Relatively few other studies investigate the possibility of non-linear effects.

The second issue concerns the dimensionality of SWB. It was noted earlier (see also Warr, 2007: 411-417; Fisher, 2009: 385) that the greatest amount of evidence exists in respect of the effects of job satisfaction. Fewer studies examine the implications of the other dimensions of affect depicted in Figure 1 (pleasure vs activation) or the implications of eudemonia. Activation is particularly interesting as intuition suggests – and some studies (e.g. Takeuchi et al, 2005; Warr et al, 2013) confirm – that a moderate level of activation, anxiety or tension is likely to be beneficial for some aspects of job performance.³⁶ Indeed, returning to the issue of non-linearities, Warr (2007: 416) suggests that the relationship between anxiety and job performance may take the shape of an inverted U (since demands which are too high will lead to emotional exhaustion or job-related burnout – see Lee and Ashforth (1996)). Relatively few studies have considered multiple measures of SWB and examined the inter-relationship between them; the study by Green (2010) – discussed above – is one exception that sought to compare the predictive power of different measures.

³⁶ This may help to explain the positive association between job-related anxiety and wages that has been identified by Bryson et al (2012).

This of course recognises that high SWB (measured in terms of positive affect) is not the only means by which employers can induce effort on the part of employees. Close monitoring and negative incentives (e.g. threats of disciplinary action or job loss) are alternative means of motivating employees (see Cooke, 2000), and these are likely to be associated with lower feelings of SWB among workers. Such approaches may not prove to be a viable option in the long run for employers who rely on the recruitment and retention of workers from a small pool (e.g. those with scarce skills), but they are likely to prove viable for employers who have access to a large pool of labour willing to work under these conditions. In other words, it may be quite feasible to generate high productivity from workers with low SWB in a situation of labour market monopsony. To our knowledge, the heterogeneity of the SWB-performance relationship across different labour market situations has not been investigated.

The third issue is the possibility of heterogeneous effects. The evidence on the impact of SWB on cognitive processes and work attitudes would suggest that higher levels of SWB can raise a worker's productive capacity. However it is clear that this potential has to be harnessed within the workplace, and there may be barriers which prevent increased levels of SWB from being translated into increased output at the level of the individual worker. For instance, one can expect that the effect of higher SWB in raising levels of creativity, aiding problem-solving and improving social interactions will generate greater returns for employees in jobs with a substantial degree of autonomy and those that involve team work or customer interactions. In jobs where work tasks are routine and output is not dependent on social interactions with others, the opportunities for higher SWB to raise worker productivity will be more confined to energy-related effects (e.g. raising physical endurance).³⁷ Equally, the employee must also view it as *beneficial* to utilise any higher level of SWB in pursuit of higher levels of work output: the alternative is to utilise their enhanced productivity to maintain output constant and to reduce the intensity of their work or to enjoy more leisure time. And so the employer is charged with finding ways, not only with raising employees' SWB, but also with finding ways to convert any increased potential into productivity-enhancing behaviours.

These various issues serve to emphasise the importance of examining the links between SWB and performance in real-world settings and at a group level: that is at the level of the workplace or organisation.

Impact of SWB on workplace performance

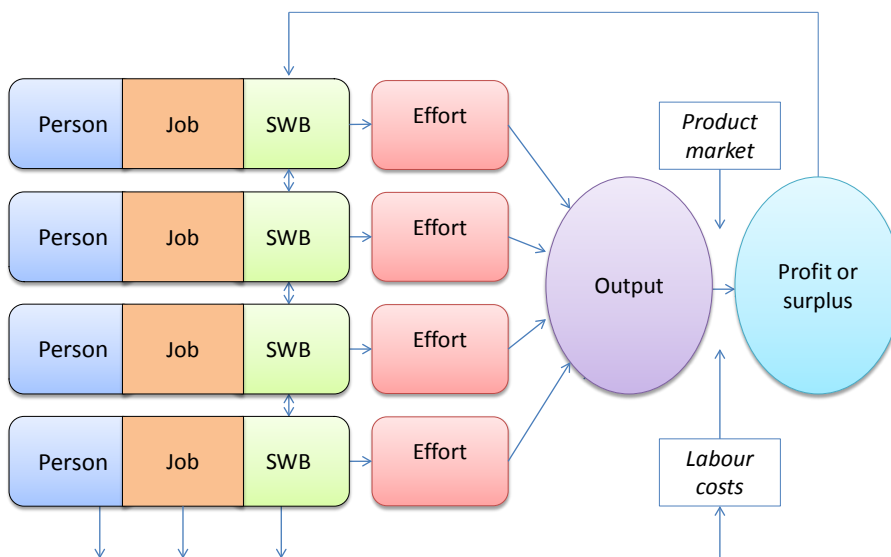
When one moves up to the level of the workplace, one can imagine that it might not necessarily follow that a positive relationship between SWB and job performance seen at the individual level will translate into a positive relationship at the level of the workplace or organisation.

One reason is the potential for spillover effects, as discussed in the previous chapter. As workplaces and organisations are social entities in which workers interact, the level of wellbeing of Worker A may well affect the level of wellbeing of Worker B, and so worker wellbeing can affect workplace performance not only through its potential effect on the

³⁷ Further opportunities to raise SWB in such jobs may, however, come from efforts to re-design jobs in ways that accentuate the job characteristics highlighted in Chapter 3, e.g. by increasing levels of variety and task control.

worker's own output, but also through its potential effect on the output of work colleagues (see Figure 5).

Figure 5: Illustration of the relationship between SWB and performance for a workplace or firm



Note: Ignores the role of capital

Furthermore, if there are non-linearities in the relationship between SWB and output at the worker level, then high SWB among some workers may not cancel out low SWB among others: it may then be more important to avoid low SWB among all workers than to achieve a high (but dispersed) average level of SWB. For instance, Felps et al (2006) propose a model – supported by a review of research on organisations – in which the negative affect and behaviour of one group member elicits negative feelings in other members of the group, and whereby these more widespread negative feelings then impair levels of co-operation and creativity within the group as a whole.

In addition, the workers within a workplace may make differing contributions to aggregate output, because of variations in their ability and their span of control. Consequently, the contribution of all workers may not matter equally for the performance of the workplace, and so it may matter *who* has high or low SWB. In certain settings, one may need to invest most in the wellbeing of those at the apex of the hierarchy or those at the core of the production process, if it is the productivity of these workers that is critical to the performance of the firm.

Turning to impact on financial performance, one must consider the financial benefits and costs of raising employees' SWB, over and above any impact on productivity. It may be costly for employers to implement policies, practices and monitoring systems aimed at improving or maintaining SWB. The productivity-enhancing effects of raising SWB must therefore at least equal these additional costs if initiatives to raise SWB are not to harm the financial performance of the workplace or firm.

The costs of raising SWB do not have to be offset solely by increased productivity, however. They may also be offset if employees – faced with different job offers in the labour market – accept a lower wage (a compensating wage differential) in exchange for higher SWB.³⁸ In addition, employers may benefit in cost terms from raising SWB if any associated improvements in workers' attitudes to work reduce supervisory costs (through a reduced need for monitoring), or if improvements in workers' physical health and work attitudes reduce absenteeism and quits, since the process of managing absenteeism and staff turnover necessarily involves transaction costs on the part of the employer.

Evidence of a link between SWB and workplace performance

In the following paragraphs we consider the evidence for a link between employees' SWB and levels of workplace or firm performance. At the outset, however, it can be noted that the difficulties of identifying robust, causal relationships – which were highlighted to some degree in the discussion of job-level performance – are writ large once one moves up to the more aggregate level of the workplace or firm. First there are a greater number of possible factors which may explain any observed relationship (particularly as one moves further away from the point of production to consider the impact of SWB on financial outcomes such as profitability). Second the practical difficulties of conducting controlled experiments in real workplaces or firms, or even of obtaining repeated measures over time to create longitudinal datasets, mean that causality is more difficult to establish.

Correlations between SWB and workplace or firm-level productivity have been found by Harter et al (2002) and Patterson et al (2004). Harter et al studied the association between a broad measure of employee SWB encompassing job satisfaction and job-related affect (but also including indicators of commitment/engagement) across 8,000 business units in 36 companies. They found that higher levels of SWB were associated with higher productivity (and also with higher profits). In a study of 42 manufacturing companies, Patterson et al (2004) found that overall job satisfaction was positively correlated with company productivity in the subsequent year.

Some of the possible mechanisms by which these relationships might arise were discussed in the preceding section (see pages 51-57). However one that has received particular attention in some parts of the literature is the contention that higher workforce wellbeing may raise productivity by encouraging employees to engage in greater levels of pro-social behaviour with customers. This in turn improves the customers' experience, which has the potential to generate additional sales. This proposed causal chain lies at the heart of the 'service profit chain' model of Heskett et al (1997). Simon and De Varo (2006) provide evidence of this linkage mechanism in their study of around 200 large consumer goods and services firms in the US, whilst Yee et al (2008) also find support for the model in their study of around 200 small retail outlets in Hong Kong. However a small-scale test of the model in six stores of a large UK supermarket chain (Silvestro, 2002) found a negative correlation between employee satisfaction and store productivity (albeit in cross-section). It has then been suggested that the benefits of high SWB may be more likely to feed through to workplace performance in environments (unlike large-

³⁸ Research by Bryson et al (2012) suggests a positive relationship between wages and job satisfaction, but also a positive relationship between wages and levels of job-related anxiety.

scale retail outlets) where employee-customer interactions are particularly influential in driving sales (Silvestro, 2002: 43).³⁹

The studies by Yee and Simon and De Varo are nonetheless notable because they suggest (and indeed Yee's study directly indicates) that the impact of employee satisfaction can feed through to levels of profitability in the workplace (the 'bottom line'). Other studies which indicate a positive relationship between workforce wellbeing and workplace or firm profitability include Koys' (2001) study of 28 retail stores, in which employees' average level of job satisfaction was positively correlated with store profitability in the following year, and Harter et al's (2010) study of around 2,000 business units in 10 large organisations in which the broad measure of employee SWB discussed above in respect of Harter et al (2002) was found to be positively correlated with business-unit profitability in the next period. Such associations have also been found in non-profit organisations, including schools (e.g. Ostroff, 1992; Currell, et al, 2005) and hospitals (e.g. Robertson et al, 1995).

A key limitation of most of these studies is that they are limited in the extent to which they address the twin concerns raised at the beginning of this section, namely: unobserved heterogeneity (the existence of unobserved factors driving the relationship between SWB and workplace performance); and endogeneity (good performance bringing personal rewards for employees which may, in turn, raise their SWB)..

One study which suggests that the former may be particularly important is that of Bartel et al (2011). They investigate the relationship between employee attitudes and workplace performance across 193 branches of a US bank. Their measure of employee attitudes again extends somewhat beyond our concept of SWB to include measures of job quality and commitment. However they have data on employee attitudes and workplace performance at two points in time (two years apart). They find that branches in which employees have more favourable attitudes have better sales performance and are less likely to close down, but they find that the link between attitudes and sales can be explained by other, unobserved characteristics of the branches (so-called workplace 'fixed-effects'). In other words, there is no independent effect of employee attitudes on sales in their sample.

In respect of possible endogeneity, it seems likely at the level of the worker that good performance can bring personal rewards (positive feedback, bonuses or promotions), which may in turn have an effect on the worker's SWB. Similarly, the performance of the workplace or firm seems likely to affect the SWB of its employees. To see this, one need only consider the anxiety that is typically caused by potential redundancies – a key focus of the literature on psychosocial risks in the workplace. Some studies seek to investigate the possibility of reverse causality by examining the relative strength of the causal linkages in either direction. Harter et al (2010) for example find that company performance is predictive of employee attitudes, but that the predictive association is stronger in the other direction. More conclusive evidence, however, would come from experimental studies, or those which convincingly address the endogeneity issue through quasi-experimental methods.

³⁹ Simon and De Varo (2006)

Proudfoot et al (2009) present the results of the only experimental intervention that we are aware of in this area. They randomly allocated 81 employees from a sample of 136 workers in a British insurance firm to a training programme comprising seven three-hour sessions, based around cognitive behavioural training principles. The aim of the training was to improve employees' levels of self-esteem and job satisfaction, and to reduce their levels of psychological distress, with the consequent aim of raising productivity and reducing employee turnover. At a follow-up three months after the intervention, Proudfoot et al found that SWB had improved among the intervention group relative to the control group. They also found a lower level of employee turnover in the intervention group. Participants' productivity (measured in terms of their sales figures versus the average for their division) also improved in the two-years after training.

A clear limitation of Proudfoot et al's study, however, is that it lacks external validity, being based on a small number of employees in a single firm. Large-scale experiments involving representative samples of firms are extremely impractical, but Bockerman and Ilmakunnas (2012) use quasi-experimental methods to convincingly demonstrate a causal impact of employee SWB on workplace productivity in a representative sample of Finnish manufacturing plants. They use a single, overall job satisfaction measure from the European Community Household Panel Survey over the period 1996-2001 and match employees' responses on this measure to data on the productivity of the employees' workplace that is available from an administrative database. Their baseline estimate found that a one point increase (on a six-point scale) in the average level of job satisfaction among workers at the plant increases the level of value-added per hour worked two years later by 3.6 percentage points, after controlling for other factors. This estimate rose to 9 percentage points in a two-stage estimation approach designed to account for unobserved establishment-level heterogeneity.⁴⁰ However tests on their data indicated that job satisfaction was, in part, influenced by the level of productivity in the plant (i.e. job satisfaction was not exogenously determined). Employees' satisfaction with their housing situation was thus used as an instrumental variable to purge the job satisfaction measure of any resulting bias arising from this endogenous relationship.⁴¹ The positive effect of job satisfaction on workplace productivity remained under the instrumental-variables approach, thereby providing a robust indication of a causal effect – at least in this particular sample (Finnish manufacturing plants).

Summary and conclusions

It is generally accepted that success makes people happy, but in this chapter we have argued that there are good reasons to expect that causality can run in the other direction, such that employees with higher SWB will perform at a higher level in their jobs and, moreover, that inducing higher SWB among employees has the potential to raise their

⁴⁰ In the first stage, Bockerman and Ilmakunnas estimate a productivity equation comprising all observed time-varying characteristics of the plant except job satisfaction, and extract the residual (that part which remains unexplained). The average residual for each plant is then regressed on the average job satisfaction in the plant over the period 1996-2001.

⁴¹ The technique of using instrumental variables to take account of endogeneity and remove the bias of reverse causality is explained in the glossary. The identification assumption is that satisfaction with housing, whilst correlated with job satisfaction, can reasonably be excluded from the analysis of workplace labour productivity since any association would only operate through its links to job satisfaction. Using an instrumental variable also helps to purge the job satisfaction indicator of any measurement error.

performance. The possible mechanisms through which this effect might arise include positive effects of SWB on employees' health, cognitive processes and attitudes to work tasks.

We have shown that there are a considerable number of studies which show a correlation between SWB and job performance at the level of the individual. Some longitudinal and experimental studies also show that this link may be causal in certain situations. However we have also outlined some circumstances under which this causal link may not arise (e.g. situations in which employees have limited autonomy). We have also highlighted some of the limitations in the employee-level evidence, including a general lack of studies that are able to compare the different dimensions of SWB (i.e. job-related affect, job satisfaction and eudemonic wellbeing). These limitations inhibit our understanding of the heterogeneity of the relationship between SWB and job performance at the level of the employee.

Moving up to the level of the workplace or firm, we have discussed reasons why the extensive - and ultimately persuasive – employee-level evidence may not translate into higher levels of performance for the workplace or firm as a whole. These include the possibility of spillover effects from small numbers of highly-disaffected employees, and the greater opportunities for other factors to intervene when the cause (employee SWB) becomes more distant from the possible effect (e.g. firm profits). We have also acknowledged that robust evidence of a causal link is more difficult to obtain at this level, when experimental and longitudinal research methods are more difficult to apply. However we have discussed a small number of studies which have demonstrated the presence of a causal link in certain circumstances. More research of this nature is needed in order to be able to move to greater levels of generalisation. This is the primary motivation for our analysis of WERS, reported in the following chapter.

5 New Evidence from the Workplace Employment Relations Survey

In this Chapter we present new evidence on the links between employee subjective wellbeing (SWB) and workplace performance. We do so using the 2011 Workplace Employment Relations Survey (WERS). The analysis, which contributes to the literature in a number of ways, establishes a clear, robust positive association between mean employee job satisfaction at the workplace and its performance.

Introduction

It is apparent from both the conceptual framework presented earlier and the accompanying theory that one might anticipate a positive relationship between employee wellbeing and workplace performance. The literature review indicated that there is some empirical evidence of a positive association between individual employees' wellbeing and their performance as measured by increased output and lower absence rates. It is also apparent that certain aspects of employee subjective wellbeing (SWB) are linked to lower quit rates, which reduce recruitment costs and enable firms to recoup training and other human capital investments through long-term contracts. However, there are very few studies linking wellbeing at workplace-level to workplace performance. The most notable exception is Bockerman and Ilmakunnas (2012) who, as noted in the previous chapter, focused on representative panel data for manufacturing firms in Finland. They found that mean workplace job satisfaction was independently associated with subsequent value-added per employee. They also provide convincing evidence that the relationship is causal, such that higher levels of employee job satisfaction led to higher labour productivity.⁴² However, there was no such relationship between mean workplace job satisfaction and sales per employee, either in the manufacturing sample or among firms at large. Thus the empirical evidence supporting a link between employees' SWB and their workplace's performance is fairly limited.

In a second notable study mentioned in the previous chapter, Bartel et al. (2011) analysed the effects of employee attitudes to their working environment on sales per employee in the 193 branches of a single large commercial bank. Although they focused on attitudes such as organisational commitment, rather than SWB, their investigation used techniques akin to the ones we use in this chapter. They showed that employee positive attitudes varied significantly across branches and that the mean employee attitudes at the workplace were positively associated with branch sales per employee. However, changes in employee attitudes were not associated with changes in branch productivity, leading them to conclude that branch-specific factors generate better

⁴² See page 63 for a discussion of their results and technical approach.

outcomes for employees (positive attitudes) and for the employer (higher productivity), but that the two are not causally related.

This chapter summarises results from an analysis of the links between employee wellbeing and workplace performance in Britain using the 2011 Workplace Employment Relations Survey (WERS). An introduction to WERS is provided in Appendix B. The aim of the analysis was to explore whether there is any association between aspects of employee wellbeing, on the one hand, and workplace performance on the other, having accounted for other features of workplaces and employees that may confound any SWB-performance link. Full details of the analyses can be found in Appendix C. Below we provide an overview of the analysis and summarise the key results before concluding with some reflections on how the results add to what we know about the role played by SWB in workplace performance.

Overview of the analysis

We use a range of statistical methods to assess the relationship between the level of employee SWB at a workplace and workplace performance. Employees provide measures of their wellbeing which, when aggregated, can be used to characterize workplaces according to the wellbeing of their employees. WERS collects information on employees' satisfaction with nine aspects of their job, namely pay, sense of achievement, scope for using initiative, influence over the job, training, opportunity to develop skills, job security, involvement in decisions and the work itself. It also collects information on job-related affect - specifically job-related anxiety, contentment, depression and enthusiasm.

A number of measures of workplace-level employee SWB were constructed with these items. The key measures were the overall average (mean) level of employee job satisfaction incorporating satisfaction with all the nine aspects of the job listed above; the average level of non-pecuniary job satisfaction (all excluding pay); the average level of pay satisfaction; the average number of job aspects with which employees were "very satisfied"; the average number of job aspects with which employees were "very dissatisfied"; and measures of job-related affect including the average level of job-related anxiety.

Workplace performance was measured using the manager's subjective assessment of the workplace's financial performance, labour productivity, and the quality of the output/service. Those assessments were made relative to the industry average. The analysis explored each of the dimensions separately and also combined them into a "workplace performance additive scale" designed to assess overall workplace performance.

The analysis was carried out using data from workplaces that took part in the 2011 WERS (the cross-sectional analyses) and workplaces that took part in the 2004 WERS and were followed up in the 2011 WERS (the panel survey). The purpose of the 2011 cross-sectional analyses was to examine the extent to which a workplace's performance in 2011 was accounted for by the level of employee SWB at the workplace in 2011. The objective of the panel survey was to explore how changes in workplace performance between 2004 and 2011 were linked to changes in the level employee SWB at the workplace between those two years. The panel survey also assessed whether the level

of employee SWB in 2004 was predictive of workplace closure by 2011. The two types of analyses were carried out to complement one another because each had its strengths and weaknesses.

Results

The results from the WERS analyses are presented in two parts. The first set of results is based on cross-sectional analyses of the 2011 survey. The second set of results is based on analyses of the 2004-2011 panel survey.

The results from the cross-sectional analyses can be summarised as follows:

- The average level of employee job satisfaction among employees at the workplace is positively correlated with all four workplace performance measures (financial performance, labour productivity, and the quality of output/service, relative to the industry average, and the workplace performance additive scale constructed from the three measures to assess overall workplace performance).
- Workplaces with "very satisfied" employees have higher labour productivity, higher quality of output, and higher overall performance. Workplaces with "very dissatisfied" employees have lower financial performance and lower overall performance on the additive scale.
- Non-pecuniary aspects of job satisfaction are positively correlated with overall workplace performance, the quality of output (and, less robustly, with labour productivity) whereas pay satisfaction is positively associated with workplace financial performance but not with other performance measures.
- Job-related affect is not correlated with workplace performance, regardless of the measure used.

The results from the panel analyses can be summarised as follows:

- Increases in the average level of job satisfaction at the workplace are associated with increases in all four workplace performance measures.⁴³
- Increasing average non-pecuniary job satisfaction is positively associated with changes in all four workplace performance measures. Increasing pay satisfaction, on the other hand, shows varied associations with the performance measures, depending on the model specification, but it is never positively associated with performance measures.
- Workplaces with rising job dissatisfaction experience deterioration in all four performance measures, whereas workplaces with an increase in "very satisfied" employees experience rising quality of output or service and an

⁴³ Although mean job satisfaction is not statistically significant in all the labour productivity models run on this sample.

increase in the additive performance measure, but not financial performance or labour productivity.

- Changes in job-related affect are not associated with workplace performance, regardless of the measure used, although there is some evidence that an increase in employees reporting "ill-being" most or all of the time is associated with deteriorating quality of output or service and a decline in the additive performance scale, at least in some models.
- Neither job satisfaction nor job-related affect in 2004 are predictive of workplace closure by 2011.

There is therefore a clear positive statistically significant relationship between mean job satisfaction at the workplace and workplace performance. Employee job satisfaction is positively associated with workplace financial performance, labour productivity and the quality of output and service. Workplaces experiencing an improvement in job satisfaction – measured at the mean, or measured in terms of an increase in the proportion "very satisfied" or a reduction in the proportion "very dissatisfied" – also experience an improvement in performance. By contrast, there is no association between job-related affect and workplace performance. The association between mean employee job satisfaction and better workplace performance in the cross-sectional and panel analyses is robust to various estimation methods and model specifications, as indicated in Appendix C. In particular, it is worth noting that panel analyses reveal the association between job satisfaction and workplace performance is not due to reverse causation in the form of changes in workplace performance driving changes in employee SWB. We tested for reverse causation by developing models to predict employees' SWB in 2011 with workplace performance in 2004. None of the performance measures were statistically significant thus revealing no evidence of reverse causality. These findings support the contention in our earlier conceptual framework and theoretical review suggesting that the arrow of causation runs from SWB to workplace performance, rather than in the other direction.

Summary and Conclusions

We find a positive statistically significant relationship between mean job satisfaction at the workplace and workplace performance. This finding is present in both the cross-sectional and panel analyses and is robust to various estimation methods and model specifications. Employee job satisfaction is positively associated with workplace financial performance, labour productivity and the quality of output and service. Workplaces experiencing an improvement in job satisfaction between 2004 and 2011 – measured at the mean, or measured in terms of an increase in the proportion "very satisfied" or a reduction in the proportion "very dissatisfied" – also experience an improvement in performance between the two years. By contrast, there is no association between job-related affect and workplace performance.

These findings are important because this is the first such study for Britain. They are consistent with the proposition that employers who are able to raise employees' job satisfaction may see improvements in the performance of their workplace. These improvements are apparent in profitability (financial performance), labour productivity and the quality of output or service.

Although we cannot state definitively that the link is causal, we have carried out exhaustive tests to confirm that the findings are robust and consistent with the causal relationship suggested by the conceptual work in this area summarised earlier. There is therefore a *prima facie* case for employers to consider investing in the wellbeing of their employees.

It is important to note that the link we find is between job satisfaction and workplace performance. It is not apparent for other aspects of employee subjective wellbeing such as job-related affect. This WERS analysis thus suggests that there is no clear case for employers investing in these other aspects of employee wellbeing – although equally we find no clear disadvantage to doing so.

These are encouraging findings but the scope of the analyses has not allowed us to explore the processes that could have been instrumental in forging the link between employee SWB and workplace performance. Further work is required to develop insights into how employers can facilitate the positive outcomes revealed in this chapter.

6 Key findings and policy implications

In this Chapter we briefly outline the approach taken in the study and then go on to summarise the findings from the literature review and empirical analyses. We also highlight the implications of the findings for policy makers and employers.

The approach taken in the study

The study consisted of three main substantive stages. In the first stage of the study, we sought to develop a conceptual framework around subjective wellbeing (SWB) and its possible links to workplace performance. Within this conceptual framework, we sought to describe the different approaches to the definition and measurement of SWB, drawing heavily on the existing psychological literature which points to its multi-dimensional nature. The framework also considered the factors that affect employees' levels of SWB at the workplace. It then went on to consider the potential ways in which employees' SWB might affect their job performance, and the likelihood that such effects will aggregate in such a way as to form a causal link between employees' SWB and the overall performance of their workplace or firm.

The second stage of the study comprised a review of the existing research literature on the two broad questions of which employee characteristics, job characteristics and employer practices affect employees' levels of SWB at work, and whether employees' SWB has a causal impact on individual or workplace performance.

The third and final stage of the study involved new empirical analysis of the links between employees' SWB and workplace performance, based on the 2011 Workplace Employment Relations Survey (WERS). These linked employer-employee data contain multiple measures of employees' SWB and provide the basis for a robust investigation of the SWB-performance link in British workplaces. Using various multivariate regression techniques we sought to isolate the independent relationship between SWB at the workplace and workplace performance.

Key findings and policy implications

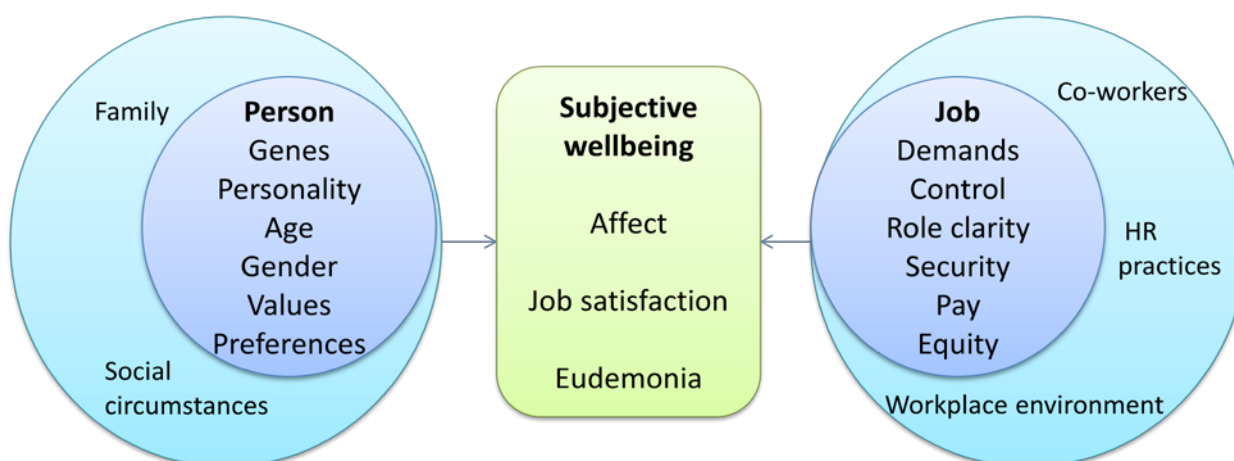
How do we conceptualise and measure wellbeing in the workplace?

There are two broad – but complementary – approaches to the conceptualisation and measurement of SWB. Hedonic approaches focus on the type of affective feelings that a person experiences (e.g. anxiety or contentment) and also on the adequacy of those feelings (e.g. whether the person is satisfied with certain aspect of their life). In contrast to these hedonic approaches, the eudemonic approach to SWB focuses on the extent to which a person experiences feelings that are considered to demonstrate good mental health (e.g. the extent to which they feel a sense of purpose).

Most research into employees' SWB has adopted the hedonic approach, with job satisfaction being the most frequently studied aspect of job-related SWB. The study of job-related affect has a more recent history, but a growing body of empirical research investigates this dimension of SWB. The eudemonic approach to SWB has been less frequently operationalised in organisational research. The term SWB is used hereafter as a catch-all for research in any of these three areas, although the focus of particular research studies is highlighted within the main body of the report.

What employee characteristics, job characteristics and employer practices affect SWB in the workplace?

An individual's SWB at work is influenced both by their own characteristics, and those of the job and workplace in which they are employed (see Figure). From a policy perspective, it is the features of the job and workplace (i.e. those on the right-hand side of the Figure) which are of most interest, as these are typically more amenable to policy influence. Nevertheless, an understanding of the relationship between individual characteristics and SWB is also important, not least because these shape employees' experiences of work.



An extensive literature discusses the characteristics of jobs which influence SWB at work. SWB tends to be higher when employees have autonomy over how they do their job, variety in their work, clarity over what is expected of them, opportunities to use their skills, effective supervision, higher pay and clear career prospects. SWB tends to be lower when the demands of the job are particularly high. These relationships are fairly well-established in the existing literature. Employers therefore have the potential to influence the SWB of their employees through changes in job design.

However, relationships between the broader HR practices adopted by a workplace and its employees' SWB are less clear-cut. Practices may well influence more than one aspect of an employee's job, some of which act to improve SWB, and others which serve to reduce it. There may also be different effects for different employees within a workplace.

Much of the literature relates to the impact of systems of human resource management (HRM) practices on SWB; here the evidence is inconclusive. Evidence for the UK to date points to a positive correlation between HRM and job-related anxiety, but also a positive, or at least neutral, impact on job satisfaction. However, it is clear that there is a case for more robust studies of the impact of employer practices on a range of aspects of SWB.

How can SWB affect workplace performance?

There is a considerable amount of evidence to indicate that there is a positive association (a correlation) between SWB and an employee's job performance. Moreover there is some evidence which indicates that higher levels of SWB may lead to (cause) higher levels of job performance in some circumstances.

The empirical literature indicates three causal mechanisms through which higher levels of SWB can bring about higher job performance. The first is by affecting employees' cognitive abilities and processes – enabling them to think more creatively and to be more effective at problem-solving. The second is by affecting employees' attitudes to work – raising their propensity to be co-operative and collaborative. The third is by improving employees' physiology and general health – improving their cardiovascular health and their immunity and enabling speedier recovery from illness.

However there are also reasons to think that the relationship between SWB and job performance at the level of the employee may not necessarily be replicated at the level of the workplace. One reason is that low levels of SWB among a small number of workers may spill over to negatively affect levels of SWB (and thus levels of job performance) among the wider workforce.

Whilst there are some studies which do show a robust causal impact of employees' SWB on the performance of the workplace or firm, the evidence is more limited at this level. The review concludes that more research is needed at the level of the workplace or firm in order to generalise beyond the small number of existing studies.

Findings from analysis of the 2011 Workplace Employment Relations Survey

Statistical analyses were conducted using the 2011 Workplace Employment Relations Study to explore the relationship between SWB and performance at workplace level, thereby contributing new evidence to the literature.

The level of employee SWB in the workplace was measured in terms of the two most studied aspects of SWB: job satisfaction and job-related affective feelings (WERS did not collect data on the eudemonic approach to SWB). WERS offered measures of nine dimensions of job satisfaction, identifying the employee's degree of satisfaction with their pay, sense of achievement, training receipt, job autonomy, skill development opportunities, job security, scope for initiative, involvement in decision-making and their satisfaction with the work itself. It offered six indicators of job-related affect, covering the frequency with which the employee feels tense, depressed, worried, gloomy, uneasy and miserable. Workplace performance was measured using the manager's subjective assessment of the workplace's performance relative to the industry average on three dimensions: financial performance, labour productivity and the quality of the output/service.

The analysis was carried out using data from workplaces that took part in the 2011 WERS (the cross-sectional analyses) and workplaces that took part in the 2004 WERS and were followed up in 2011 (the panel survey). The cross-sectional analyses examined the extent to which a workplace's performance in 2011 could be accounted for by the level of employee SWB at the workplace in 2011. The panel analyses explored whether changes in workplace performance between 2004 and 2011 were linked to changes in the level of employee SWB at the workplace between those two years. The panel survey also assessed whether the level of employee SWB in 2004 was predictive of workplace closure by 2011.

The analyses showed a clear, positive, statistically significant relationship between the average level of job satisfaction at the workplace and workplace performance. This finding was present in both the cross-sectional and panel analyses and was robust to various estimation methods and model specifications. Employee job satisfaction was found to be positively associated with workplace financial performance, labour productivity and the quality of output and service. Workplaces experiencing an improvement in job satisfaction – whether measured in terms of the average level of satisfaction in the workforce, or measured in terms of an increase in the proportion "very satisfied" or a reduction in the proportion "very dissatisfied" – also experience an improvement in performance. By contrast, there was no association between job-related affect and workplace performance. These findings are significant because this is the first such study for Britain. The job satisfaction-performance finding is consistent with the recent study for Finland by Bockerman and Ilmakunnas (2012).

Considering the findings in more detail, the results from the cross-sectional analyses can be summarised as follows:

- The average level of job satisfaction among employees at the workplace was positively correlated with all four workplace performance measures, namely: labour productivity, quality of output, financial performance and an additive scale formed from these three individual measures.
- Workplaces with "very satisfied" employees had higher labour productivity, higher quality of output, and higher overall performance. Workplaces with "very dissatisfied" employees had lower financial performance and lower overall performance on the additive scale.
- Non-pecuniary aspects of job satisfaction were positively correlated with overall performance, the quality of output (and, less robustly, with labour productivity) whereas pay satisfaction was positively associated with workplace financial performance but not with other performance measures.
- Job-related affect was not correlated with workplace performance, regardless of the measure used.

The results from the panel analyses can be summarised as follows:

- Increasing overall mean employee job satisfaction was associated with increases in all four workplace performance measures.

- Increasing mean non-pecuniary job satisfaction was positively associated with changes in all four workplace performance measures. Increasing pay satisfaction, on the other hand, was not significantly linked to changes in financial performance and quality and, in some models, it was associated with reductions in labour productivity and the additive performance scale.
- Workplaces with rising job dissatisfaction experienced deterioration in all four performance measures, whereas workplaces with an increase in the mean score for "very satisfied" employees experienced rising quality of output or service and an increase in the additive performance measure, but not financial performance or labour productivity.
- Changes in job-related affect were not correlated with workplace performance, regardless of the measure used, although there was some evidence that an increase in the mean employees reporting "ill-being" most or all of the time was associated with deteriorating quality of output or service and a decline in the additive performance scale, at least in some models.

These findings are consistent with the proposition that employers who are able to raise employees' job satisfaction may see improvements in the performance of their workplace. These improvements are apparent in profitability (financial performance), labour productivity and the quality of output or service.

Although we cannot state definitively that the link is causal, the findings are robust to tests for reverse causation and persist *within* workplaces over time, so that we can discount the possibility that the results are driven by fixed unobservable differences between workplaces. Thus the results are consistent with the causal relationship suggested by conceptual work in this area.

What are the implications of the study's findings for policy makers and employers?

First, there is a *prima facie* case for employers to consider investing in the wellbeing of their employees on the basis of the likely performance benefits. The study sets out a conceptual framework indicating the ways in which raising employees' SWB may improve performance, and also presents evidence which is consistent with there being a causal relationship between the two. Specifically, if the average employer is able to raise their employees' SWB, the theory and available evidence suggest that they are likely to see improvements in the performance of their workplace.

It should be noted, however, that the evidence of a causal link between the job-related affect measure of SWB and workplace performance is limited, and indeed the WERS analysis conducted here finds no such association. Thus there appears to be no clear case yet for employers to invest in that dimension of employee wellbeing – although equally we find no clear disadvantage to doing so.

Equally, there are likely to be routes to commercial success that employers can pursue without regard to employees' SWB. We find no link between employees' SWB and workplace closure probabilities, suggesting workplaces can continue to trade and,

perhaps even prosper, whether employees' SWB is high or low. Thus the "low road" may be a viable option for some employers, although we do find clear evidence that an increase in job dissatisfaction within a workplace is linked to deteriorating workplace performance.

There is, of course, also a rationale for promoting employee SWB based on benefits that go beyond the private returns to employers, since the wider society can benefit from citizens who are "happier". There are spillovers to employees' family life, their participation in social activities and their consumption of government services (most obviously welfare services and health care). A higher level of job-related SWB might then be considered a goal in itself – a point reflected in broader arguments about moving beyond purely economic measures such as GDP when considering levels of national progress. Nevertheless, judging by the descriptive information presented in Appendix C of this report, most employees in Britain appear reasonably satisfied with most aspects of their jobs and they are not suffering in large numbers from particularly adverse SWB. The percentages saying they are depressed or anxious most of the time are low.

As regards policy responses, it is apparent from the literature review that we do not yet fully understand what it is about jobs and the working environment that change employees' SWB. Some things we know quite a lot about. For example, higher pay leads to higher job satisfaction, but even here the relationship is not linear, tailing off at higher pay levels. The complexity of the job satisfaction concept is illustrated by the pay satisfaction literature which emphasises the importance not only of pay levels but also pay relativities. Moreover, even if employers and policy makers were to promote certain policies or practices that, on average, engender greater employee SWB, this does not mean that this will lead to improved SWB everywhere or that, even if it did, this would translate into improved workplace performance for all. There is likely to be substantial heterogeneity across workplaces and employees such that different policies might work better for some employers than others. Policy initiatives should therefore be carefully evaluated so that this heterogeneity can be better understood.

Bibliography

Acas (2012) *Health, work and wellbeing*. Advisory, Conciliation and Arbitration Service.

Ahgo, A.O., Mueller, C.W. and Price, J.L. (1993) "Determinants of employee job satisfaction: An empirical test of a causal model", *Human Relations*, 46: 1007-1027.

Allen, J. and van der Velden, R. (2001) "Educational mismatches versus skill mismatches: effects on wages, job satisfaction and on-the-job search", *Oxford Economic Papers*, 3, 434-452.

Allin P (2007) "Measuring societal wellbeing", *Economic and Labour Market Review*, 1, 10: 46-52.

Angrist, J. D. and Pischke, J-S. (2009) *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press.

Appelbaum, E. (2002). 'The impact of new forms of work organization on workers', in G. Murray, J. Belanger, A. Giles and P. Lapointe (eds.), *Work and Employment Relations in the High-Performance Workplace*, London: Routledge.

Arvey, R.D., McCall, B.P., Bouchard, T.J., Taubman, P. and Cavanagh, M.A. (1994) "Genetic influences on job satisfaction and work values", *Personality and Individual Differences*, 17,: 21-33.

Bakker A and Demerouti E (2008) "Towards a model of work engagement", *Career Development International*, 13: 209-223.

Bardasi E. and Francesconi M. (2004) "The impact of atypical employment on individual wellbeing: Evidence from a panel of British workers", *Social Science and Medicine*; 58: 1671-1688.

Barsade, S.G. (2002) "The ripple effect: Emotional contagion and its effect on group behavior", *Administrative Science Quarterly*, 47: 644-675.

Bartel, A. P., Freeman, R. B., Ichniowski, C. and Kleiner, M. M. (2011) "Can a workplace have an attitude problem? Workplace effects on employee attitudes and organizational performance", *Labour Economics*, 18, 411-423.

Benjamin D, Heffetz O, Kimball M and Rees-Jones A (2012) "What do you think would make you happier? What do you think you would choose?", *American Economic Review*, 102, 5: 2083-2110.

Benz, M. (2005) "Not for the profit, but for the satisfaction? Evidence on worker wellbeing in non-profit firms", *Kyklos*, 58, 2: 155-176.

Birdi, K.S., Warr, P.B. and Oswald, A. (1995) "Age differences in three components of employee wellbeing", *Applied Psychology: An International Review*, 44: 345-373.

Blanchflower D, Oswald A and Stewart-Brown S (2012) "*Is psychological wellbeing linked to the consumption of fruit and vegetables?*" Working Paper No. 996. Economics Department, University of Warwick. Forthcoming in *Social Indicators Research*.

Bloom, N. Liang, J., Roberts, J. and Ying, Z. (2013) "Does Working from Home Work? Evidence from a Chinese Experiment", NBER Working Paper No. 18871, March 2013.

Bockerman P, Bryson A and Ilmakunnas P (2012) "Does high involvement management improve worker wellbeing?", *Journal of Economic Behaviour and Organisation*, 84, 2: 660-680.

Bockerman, P. and Ilmakunnas, P. (2012) "The Job Satisfaction-Productivity Nexus: A Study Using Matched Survey and Register Data", *Industrial and Labor Relations Review*, 65, 2: 244-262.

Boehm J and Kubzansky L (2012) "The heart's content: the association between positive psychological wellbeing and cardiovascular health", *Psychological Bulletin*, 138: 655-691.

Bond, T. N. and Lang, K. (2014) *The Sad Truth About Happiness Scales*, NBER Working Paper No. 19950.

Booth, A.L. and van Ours, J.C. (2008) "Job satisfaction and family happiness: The part-time work puzzle", *Economic Journal*, 118, 526:F77-F99.

Brayfield A and Rothe H (1951) "An index of job satisfaction", *Journal of Applied Psychology*, 35, 5: 307-311.

Brooke P and Price J (1989) "The determinants of absenteeism: an empirical test of a causal model", *Journal of Occupational Psychology*, 62: 1-19.

Brown A, Charlwood A and Spencer D (2012) "Not all that it might seem: why job satisfaction is worth studying despite it being a poor summary measure of job quality", *Work, Employment and Society*, 26, 6: 1007-1018.

Brown A, Forde C, Spencer, D and Charlwood A (2008) "Changes in HRM and job satisfaction, 1998–2004: evidence from the Workplace Employment Relations Survey", *Human Resource Management Journal*, 18, 3: 237-256.

Brown, G. D. A., Gardener, J. and Oswald, A. J. (2008) Does Wage Rank Affect Employees' Well-being? *Industrial Relations: A Journal of Economy and Society*, Volume 47, Issue 3, pages 355–389, July 2008.

Bryson A and McKerron (2013) "Are you happy while you work?", CEP Discussion Paper No. 1187.

Bryson A, Barth E and Dale-Olsen H (2012) "Do higher wages come at a price?", *Journal of Economic Psychology*, 33, pp. 251-263.

Bryson A, Barth E and Dale-Olsen H (2013) The Effects of Organizational Change on Worker Well-Being and the Moderating Role of Trade Unions, *ILRReview*, 66, 4.

Bryson, A. (2004) 'Union effects on workplace closure, 1990-1998', *British Journal of Industrial Relations*, Vol. 42, 2: 283-302.

Bryson, A., Cappellari, L. and Lucifora, C. (2010) "Why So Unhappy? The Effects of Unionization on Job Satisfaction", *Oxford Bulletin of Economics and Statistics*, 72: 357–380.

Bryson, A. and Wilkinson, D. (2002) *Collective bargaining and workplace performance: an investigation using the Workplace Employee Relations Survey 1998*, Employment Relations Research Series No. 12, Department of Trade and Industry Research Series.

Carr, M.D. and Mellizo, P. (2013) "The relative effect of voice, autonomy, and the wage on satisfaction with work", *International Journal of Human Resource Management*, 24, 6: 1186-1201.

Clark A (2001) "What really matters in a job? Hedonic measurement using quit data", *Labour Economics*, 8: 223-242.

Clark, A.E. (1996) "Job satisfaction in Britain", *British Journal of Industrial Relations*, 34: 189-217.

Clark, A.E. (1997) "Job satisfaction and gender: Why are women so happy at work?", *Labour Economics*, 4: 341-372.

Clark, A.E., Oswald, A. and Warr, P. (1996) "Is Job Satisfaction U-shaped in Age", *Journal of Occupational and Organizational Psychology*, 69:57-81.

Cohen S, Doyle W, Turner R, Alper C and Skoner D (2003) "Emotional style and susceptibility to the common cold", *Psychosomatic Medicine*, 65: 652-657.

Colquitt, J.A., Conlon, D.E., Wesson, M.J., Porter, C.O.L.H. and Ng, K.Y. (2001) "Justice at the millennium: A meta-analytic review of 25 years of organizational justice research", *Journal of Applied Psychology*, 86: 425-445.

Cooke F (2000) "Human resource strategy to improve organisational performance: a route for British firms?", ESRC Future of Work Programme, Working Paper No. 9.

Cooper-Hakim A and Viswesvaran C (2005) "The construct of work commitment: testing an integrative framework", *Psychological Bulletin*, 131, 2: 241-59.

Cornelissen, T., Heywood, S. and Jirjahn, U. (2011) "Performance pay, risk attitudes and job satisfaction", *Labour Economics*, 18: 229-239.

Cunningham M (1988) "What do you do when you are happy or blue? Mood, expectancies and behavioural interest", *Motivation and Emotion*, 12: 309-331.

Currell S, Towler A, Judge T and Kohn L (2005) "Pay satisfaction and organizational outcomes", *Personnel Psychology*, 58: 613-640.

- de Jonge, J., Dormann, C., Janssen, P.P.M., Dollard, M.F., Landeweerd, J.A. and Nijhuis, F.J.N. (2001) "Testing reciprocal relationships between job characteristics and psychological wellbeing: A cross-lagged structural equation model", *Journal of Occupational and Organizational Psychology*, 74: 29-46.
- de Jonge, J., Reuvers, M.M.E.N., Houtman, I.L.D., Bongers, P.M. and Kompier, M.A.J. (2000) "Linear and non-linear relations between psychosocial job characteristics, subjective outcomes and sickness absence: Baseline results from SMASH", *Journal of Vocational Behaviour*, 64: 131-149.
- de Lange, A.H., Taris, T.W., Kompier, M.A.J., Houtman, I.L.D. and Bongers, P.M. (2003) "The Very Best of the Millennium": Longitudinal Research and the Demand-Control-(Support) Model", *Journal of Occupational Health Psychology*, 8, 4: 282-305.
- De Neve J, Diener E, Tay L and Xuereb C (2013) "The objective benefits of subjective wellbeing", CEP Discussion Paper No. 1236.
- Deaton, A. (2012) "The financial crisis and the wellbeing of Americans", *Oxford Economic Papers*, 64: 1-26.
- Deepchand, K., Drever, E., Gilby, N., Prestage, Y., Prudon, S., Tipping, S. and Wood, M. (2013) *Workplace Employment Relations Study (WERS) 2011/12 Technical Report*, NatCen, London.
- Diener E and Chan M (2011) "Happy people live longer: subjective wellbeing contributes to health and longevity", *Applied Psychology: Health and Well-being*, 3: 1-43.
- Dolan P and Kahnemann D (2008) "Interpretations of utility and their implications for the valuation of health", *The Economic Journal*, 118: 215-234.
- Dolan P, Layard R and Metcalfe R (2011) "Measuring subjective wellbeing for public policy: recommendations on measures", Centre for Economic Performance Special Paper No. 23.
- Easterlin, R. A. (1994) "Will Raising the Incomes of All Increase the Happiness of All?", *Journal of Economic Behaviour and Organization*, 27, 1: 35-47.
- Easterlin, R.A. (1974) "Does economic growth improve the human lot? Some empirical Evidence", in David PA, Reder MW (Eds.), *Nations and households in economic growth: Essays in Honor of Moses Abramowitz*. New York: Academic Press; p. 89-125.
- Eby, L.T., Caspar, W.J., Lockwood, A., Bordeaux, C. and Brinley, A. (2005) "Work and family research in IO/OB: Content analysis and review of the literature (1980-2002)", *Journal of Vocational Behaviour*, 66: 124-197.
- Einarsen, S. and Mikkelsen, E.G. (2003) "Individual effects of exposure to bullying at work". In S. Einarsen, H. Hoel, D.Zapf and C.L. Cooper (eds.) *Bullying and emotional abuse in the workplace*. London: Taylor & Francis.

Farrell D and Stamm C (1988) "Meta analysis of the correlates of employee absence", *Human Relations*, 41: 211-227.

Farrington D (2003) "Methodological quality standards for evaluation research", *The ANNALS of the American Academy of Political and Social Science*, 587: 49.

Felps W, Mitchell T and Byington E (2006) "How, when and why bad apples spoil the barrel: negative group members and dysfunctional groups", *Research in Organizational Behaviour*, 27: 175-222.

Fevre, R., Lewis, D., Robinson, A. and Jones, T. (2011) *Insight into ill-treatment in the workplace: patterns, causes and solutions*.

Fisher C (2009) "Happiness at work", *International Journal of Management Reviews*, 12, 4: 384-412.

Forth, J and McNabb R (2008) "Workplace Performance: A Comparison of Subjective and Objective Measures in the 2004 Workplace Employment Relations Survey", *Industrial Relations Journal*, 39, 2: 104-123.

Fredrickson B and Branigan C (2005) "Positive emotions broaden the scope of attention and thought-action responses", *Cognition and Emotion*, 19: 313-332.

Freeman, R (1978) "Job satisfaction as an economic variable", *American Economic Review* 68 (2):135-14.

Georgellis, Y. and Lange, T. (2007) "Participation in continuous, on-the-job training and the impact on job satisfaction: longitudinal evidence from the German labour market", *International Journal of Human Resource Management*, 18:6, 969-985.

Godard, J. (2001) "High performance and the transformation of work? The implications of alternative work practices for the experience and outcomes of work", *Industrial and Labor Relations Review*, 54,4: 776–805.

Godard, J (2010) "What's Best for Workers? The Implications of Work and Human Resource Practices Revisited," *Industrial Relations*, 49, 3: 465-487.

Goudie R, Mukherjee S, De Neve E, Oswald A and Wu S (2012) "Happiness as a driver of risk-avoiding behaviour", CEP Discussion Paper No. 1126.

Grant N, Wardle J and Steptoe A (2009) "The relationship between life satisfaction and health behaviour: a cross-cultural analysis of young adults", *International Journal of Behavioural Medicine*, 16: 259-268.

Grant, A., Christianson, M. and Price, R. (2007) "Happiness, health or relationships? Managerial practices and employee wellbeing tradeoffs", *Academy of Management Perspectives*, August: 51-63.

Green F (2010) "Well-being, job satisfaction and labour mobility", *Labour Economics*, 17, 6: 897-903.

- Green, C. P. and Heywood, J.S. (2008) "Does performance pay increase job satisfaction?", *Economica*, 75: 710–728.
- Green, F. (2006) *Demanding Work: The Paradox of Job Quality in the Affluent Economy*, Princeton, NJ: Princeton University Press.
- Green, F. and Zhu, Y. (2010) "Overqualification, job dissatisfaction, and increasing dispersion in the returns to graduate education", *Oxford Economic Papers*, 62, 4: 740–763.
- Guest, D. (2002) "Human resource management, corporate performance and employee wellbeing: building the worker into HRM", *Journal of Industrial Relations*, 44: 335–358.
- Hackett R (1989) "Work attitudes and employee absenteeism: a synthesis of the literature", *Journal of Occupational Psychology*, 62: 235–248.
- Hamermesh, D. S. (2011) *Why Attractive People are More Successful*, Princeton University Press.
- Hardy G, Woods D and Wall T (2003) "The impact of psychological distress on absence from work", *Journal of Applied Psychology*, 88: 306–314.
- Harrison D, Newman D and Roth P (2006) "How important are job attitudes? Meta-analytic comparisons of integrative behavioural outcomes and time sequences", *Academy of Management Journal*, 49, 2: 305–325.
- Harter J, Schmidt F, and Hayes T (2002) "Business-unit relationship between employee satisfaction, employee engagement and business outcomes: a meta-analysis", *Journal of Applied Psychology*, 87: 268–279.
- Harter J, Schmidt F, Asplund J, Killham E and Agrawal S (2010) "Causal impact of employee work perceptions on the bottom line of organisations", *Perspectives on Psychological Science*, 5, 4: 378–389.
- Hayman, J. (2010) "Flexible Work Schedules and Employee Well-Being". *The New Zealand Journal of Employment Relations – Special Issue on Occupational Stress*, 35, 2: 76–87.
- Helliwell J and Barrington-Lee C (2010) "Measuring and understanding subjective wellbeing", NBER Working Paper No. 15887.
- Heskett, J.L., Sasser Jr., W.E., Schlesinger, L.A., (1997) *The Service-Profit Chain, How Leading Companies Link Profit and Growth to Loyalty, Satisfaction and Value*. The Free Press, New York.
- Hockey G (1986) "Changes in operator efficiency as a function of environmental stress, fatigue and circadian rhythms", in K Boff, L Kaufman and J Thomas (eds) *Handbook of Perception and Performance*, Volume 2, New York: Wiley.

Huang, X. and van der Vliert (2004) "Job level and national culture as joint roots of job satisfaction", *Applied Psychology: An International Review*, 53, 329-348.

Hyman, J. and Summers, J. (2004) "Lacking balance? Work-life employment practices in the modern economy", *Personnel Review*, 33: 418-29.

Ilies, R. and Judge, T.A. (2003) "On the heritability of job satisfaction: the mediating role of personality", *Journal of Applied Psychology*, 88: 750-759.

Isen A (1970) "Success, failure, attention and reaction to others: the warm glow of success", *Journal of Personality and Social Psychology*, 15: 294-301.

Isen A, Daubman K and Nowicki G (1987) "Positive affect facilitates creative problem solving", *Journal of Personality and Social Psychology*, 52: 1122-1131.

Jackson, S. E. and Schuler, R.S. (1985) "A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings", *Organizational Behaviour and Human Decision Processes*, 36: 16-78.

Janssen, P.P.M., Peeters, M.C.W., de Jonge, J., Houkes, I. and Tummers, G.E.R. (2004), "Specific relationships between job demands, job resources and psychological outcomes and the mediating role of negative work-home interference", *Journal of Vocational Behaviour*, 65: 411-429.

Jones, M. K., Jones, R. J., Latreille, P. L. and Sloane, P. J. (2009) "Training, Job Satisfaction, and Workplace Performance in Britain: Evidence from WERS 2004", *Labour*, 23: 139-175.

Judge TA, Thoresen CJ, Bono JE and Patten GK (2001) "The job satisfaction-job performance relationship: A qualitative and quantitative review", *Psychological Bulletin* 127(3): 376-407.

Judge, T.A., Heller, D. and Mount, M.K. (2002) "Five-factor model of personality and job satisfaction: a meta-analysis", *Journal of Applied Psychology*, 87: 530-541.

Judge, T.A., Piccolo, R.F. and Ilies, R. (2004) "The forgotten ones? The validity of consideration and initiating structure in leadership research", *Journal of Applied Psychology*, 89: 36-51.

Kahneman, D., Diener, E. and Schwarz, N. (1999) *Well-being: The Foundation of Hedonic Psychology*, New York: Russell Sage Foundation.

Kahnemann D, Krueger A, Schkade D, Schwarz N and Stone A (2004) "A survey method for characterizing daily life experience: the day reconstruction method", *Science*, 306, 1776-80.

Karasek, R.A. (1979) "Job demands, job decision latitude and mental strain: Implications for job design", *Administrative Science Quarterly*, 24: 285-308.

Karasek, R.A. and Theorell, T. (1990) *Healthy Work*. New York: Basic Books.

- Kelliher, C. and Anderson, D. (2010) "Doing More with less? Flexible Working Practices and the Intensification of Work", *Human Relations*, 63, 1: 83-106.
- Kinicki, A.J., McKee-Ryan, F.M., Schriesheim, C.A. and Carson, K.P. (2002) "Assessing the construct validity of the Job Descriptive Index: A review and meta-analysis", *Journal of Applied Psychology*, 87, 14-32.
- Kirjonen, J. and Hänninen, V. (1986) "Getting a better job: Antecedents and effects", *Human Relations*, 39: 503-516.
- Koys D (2001) "The effects of employee satisfaction, organizational citizenship behaviour and turnover on organizational effectiveness: a unit-level longitudinal study", *Personnel Psychology*, 54: 101-114.
- Layard R. (2011) *Happiness: Lessons from a New Science*, 2nd edition, Penguin Books.
- Lee R.T. and Ashforth, B.E. (1996) "A meta-analytic examination of the correlates of the three dimensions of job burnout", *Journal of Applied Psychology*, 81: 123-133.
- Lincoln J and Kalleberg A (1990) *Culture, Control and Commitment: A Study of Work Organization and Work Orientations in the United States and Japan*. Cambridge: Cambridge University Press.
- Llena-Nozal, A. (2009) "The effect of work status and working conditions on mental health in four OECD countries", *National Institute Economic Review*, 209:72-86.
- Lyubmirsky S, King L and Diener E (2005) "The benefits of frequent positive affect: does happiness lead to success?" *Psychological Bulletin*, 131, 6: 803-855.
- Machin S. and Stewart M. (1996) "Trade Unions and Financial Performance", *Oxford Economic Papers*, 49: 213-241.
- Machin, S. and Stewart, M. (1990) "Unions and the financial performance of British private sector establishments", *Journal of Applied Econometrics*, 5: 327-350.
- Mairesse, J. and Greenan, N. (1999) "Using employee-level data in a firm-level econometric study" in John C. Haltiwanger, Julia I. Lane, James R. Spletzer, Jules J.M.Theeuwes, and Kenneth R. Troske (Eds.), *The Creation and Analysis of Employer-Employee Matched Data*, pp. 489–512. Amsterdam: North-Holland
- Maslach, C., Schaufeli, W.B. and Leiter, M.P. (2001) "Job burnout", *Annual Review of Psychology*, 52, 397-422.
- Matheiu, J.E., Hofman, D.A. and Farr, J.L. (1993) "Job perception-job satisfaction relations: an empirical comparison of three competing theories", *Organisational behaviour and human decision processes*, 56, 370-387.
- May D, Gilson R and Harter L (2004) "The psychological conditions of meaningfulness, safety and availability, and the engagement of the human spirit at work", *Journal of Occupational and Organizational Psychology*, 77, 1: 11-27.

McCausland, W., Pouliakas, K., Theodossiou, I. (2005) "Some are punished and some are rewarded: a study of the impact of performance pay on job satisfaction", *International Journal of Manpower*, 26, 636–659.

McQuaid, R., Hollywood, E., Bond, S., Canduela, J., Richard, A. and Blackledge, G. (2013) *Health and wellbeing of employees in employee owned businesses*, Final report to Employee Ownership Association. Edinburgh Napier University: Employment Research Institute.

Meyer J and Allen N (2007) "A three-component conceptualization of organizational commitment: Some methodological considerations", *Human Resource Management Review*, 1: 61-98.

Moyle, P. (1995) "The role of negative affectivity in the stress process: Tests of alternative models", *Journal of Organizational Behaviour*, 16: 647-668.

O'Brien (1982) "The relative contribution of perceived skill utilisation and other perceived job attributes to the prediction of job satisfaction: A cross-validation study", *Human Relations*, 35, 219-237.

O'Donnell G, Deaton A, Durand M, Halpern R and Layard R (2014) *Well-Being and Policy*, London: Legatum Institute.

OECD (2013) *OECD Guidelines of Measuring Subjective Well-Being*, Paris; OECD Publishing.

Organ D and Ryan K (1995) "A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behaviour", *Personnel Psychology*, 48: 775-802.

Ostroff C (1992) "The relationship between satisfaction, attitudes and performance: an organization-level analysis", *Journal of Applied Psychology*, 77: 963-974.

Oswald, A. J., Proto, E. and Sgroi, D. (2014) "Happiness and Productivity", University of Warwick mimeo. Forthcoming in the *Journal of Labor Economics*.

Patterson M, Warr P and West M (2004) "Organizational climate and company productivity: the role of employee affect and employee level", *Journal of Occupational and Organizational Psychology*, 77: 193-216.

Payne, R.L., Wall, T.D., Borrill, C. and Carter, A. (1999) "Strain as a moderator of the relationship between work characteristics and work attitudes", *Journal of Occupational Health Psychology*, 4: 3-14.

Penney L and Spector P (2005) "Job stress, incivility and counterproductive work behaviour (CWB): the moderating role of negative affectivity", *Journal of Organizational Behaviour*, 26: 777-796.

Porath C, Spreitzer G, Gibson C and Garnett F (2012) "Thriving at work: towards its measurement, construct validation, and theoretical refinement", *Journal of Organizational Behaviour*, 33, 2: 250-275.

Prendergast, C. (1999) "The provision of incentives in firms", *Journal of Economic Literature*, 37, 1: 7-63.

Proudfoot J, Corr P, Guest D and Dunn G (2009) "Cognitive-behavioural training to change attributional style improves employee wellbeing, job satisfaction, productivity, and turnover", *Personality and Individual Differences*, 46: 147-153.

Remington N, Fabrigar L and Visser P. (2000) "Re-examining the circumplex model of affect", *Journal of Personality and Social Psychology*, 79, 2: 286-300.

Rich B, Lepine J and Crawford E (2010) "Job engagement: antecedents and effects on job performance". *Academy of Management Journal*, 53, 617-635.

Riketta M (2008) "The causal relation between job attitudes and performance: a meta-analysis of panel studies", *Journal of Applied Psychology*, 93: 472-481.

Robertson A, Gilloran A, McGlew T, McKee K, McNley A and Wright D (1995) "Nurses' job satisfaction and the quality of care received by patients in psychogeriatric wards", *International Journal of Geriatric Psychiatry*, 10: 575-584..

Roxburgh, S. (1996) "Gender differences in work and wellbeing: effects of exposure and vulnerability", *Journal of Health and Social Behaviour*, 37, 265-277.

Russell J (1980) "A circumplex model of affect", *Journal of Personality and Social Psychology*, 39, 6: 1161-1178.

Russell J (2003) "Core affect and the psychological construction of emotion", *Psychological Review*, 110, 1: 145-172.

Ryff C (1989) "Happiness is everything, or is it? Explorations on the meaning of psychological wellbeing", *Journal of Personality and Social Psychology*, 57:1069-1081.

Ryff C and Keyes C (1995) "The structure of psychological wellbeing revisited", *Journal of Personality and Social Psychology*, 69, 4: 719-727.

Saridakis, G., Muñoz Torres, R. and Johnstone, S. (2013) "Do Human Resource Practices Enhance Organizational Commitment in SMEs with Low Employee Satisfaction?", *British Journal of Management*, 24: 445–458.

Schaufeli W and Bakker A (2003) *The Utrecht Work Engagement Scale: Preliminary Manual*, Version 1, Occupational Health Psychology Unit, Utrecht University.

Siegrist, J. (1996) "Adverse health effects of high-effort/low-reward conditions", *Journal of Occupational Health Psychology*, 1: 27-41.

Silvestro R (2002) "Dispelling the modern myth: employee satisfaction and loyalty drive service profitability", *International Journal of Operations and Production Management*, 22, 1: 30-49.

- Simoens, S., Scott, A. and Sibbald, B. (2002) "Job satisfaction, work-related stress and intentions to quit of Scottish GPs", *Scottish Medical Journal*, 47(4): 80-86.
- Simon D and De Varo J (2006) "Do the best companies to work for provide better customer satisfaction?", *Articles and Chapters*, Paper 105, Cornell University ILR School.
- Sloan, M. (2012) "Unfair treatment in the workplace and worker-wellbeing: The role of co-worker support in a service work environment", *Work and Occupations*, 39, 1: 3-34.
- Staw B, Sutton R and Pelled L (1995) "Employee positive emotion and favourable outcomes at the workplace", *Organization Science*, 5: 51-71.
- Steptoe A, Wardle J and Marmot M (2005) "Positive affect and health-related neuroendocrine, cardiovascular and inflammatory processes", *PNAS: Proceedings of the National Academy of Sciences*, 102: 6508-6512.
- Stevenson, B. and Wolfers, J. (2008) "Economic Growth and Subjective Well-being: Reassessing the Easterlin Paradox", *Brookings Papers on Economic Activity*, 1-87.
- Stiglitz J., Sen A. and Fitoussi J.P. (2009) *Report by the Commission on the Measurement of Economic Performance and Social Progress*.
- Storey, D., G. Saridakis, S. Sen-Gupta, P. Edwards and R. Blackburn (2010) "Management formality and employee evaluations of work", *Human Resource Management*, 49, pp.305–329.
- Sverke, M., Hellgren, J. and Näswall, K. (2002) "No security: A meta-analysis and review of job insecurity and its consequences", *Journal of Occupational Health Psychology*, 7: 242-264.
- Takeuchi R, Wang M and Marinova S (2005) "Antecedents and consequences of psychological workplace strain during expatriation: a cross-sectional and longitudinal investigation", *Personnel Psychology*, 58, 4: 925-948.
- Tay L, Tan K, Diener E and Gonzalez E (2013) "Social relations, health behaviours and health outcomes: a survey and synthesis", *Applied Psychology: Health and Well-being*, 5, 1: 28-78.
- Tennant R, Hiller L, Fishwick R, Platt S, Joseph S, Weich S, Parkinson J, Secker J and Stewart-Brown S (2007) "The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): development and UK validation", *Health and Quality of Life Outcomes*, 5: 63 (November).
- Tepper, B.J. (2000) "Consequences of abusive supervision", *Academy of Management Journal*, 43: 178-190.
- Tinkler L and Hicks S (2011) *Measuring Subjective Well-Being*, Supplementary Paper, Office for National Statistics.
- Totterdell, P., Kellett, S., Teuchmann, K. and Briner, R.B. (1998) "Evidence of mood linkage in work groups", *Journal of Personality and Social Psychology*, 74: 1504-1515.

Totterdell, P., Wall, T., Holman, D., Diamond, H. and Epitropaki, O. (2004) "Affect networks: A structural analysis of the relationship between work ties and job-related affect", *Journal of Applied Psychology*, 89: 854-867.

Totterdell, P., Wood, S. and Wall, T. (2006) "An intra-individual test of the demands-control model: A weekly diary study of psychological strain in portfolio workers", *Journal of Occupational and Organizational Psychology*, 79,: 63-84.

Van de Voorde K, Paauwe J and Veldhoven M (2012) "Employee wellbeing and the HRM-organizational performance relationship: a review of quantitative studies", *International Journal of Management Reviews*, 14: 391-407.

van Vegchel N, de Jonge J, Bosma H, Schaufeli W (2005) "Reviewing the effort-reward imbalance model: drawing up the balance of 45 empirical studies", *Social Science and Medicine*, 60(5): 1117-31.

van Wanrooy, B., Bewley, H., Bryson, A., Forth, J., Freeth, S., Stokes, L. and Wood, S. (2013) *Employment Relations in the Shadow of Recession: Findings from the 2011 Workplace Employment Relations Study*, Palgrave MacMillan.

Wall, T. and Wood, S. (2005) "The romance of HRM and business performance, and the case for big science", *Human Relations*, 58, 4: 429-462.

Wanous J, Reichers A and Hudy M (1997) "Overall job satisfaction: How good are single-item measures?", *Journal of Applied Psychology*, 82, 2: 247-252.

Warr, P (1987) *Work, unemployment and mental health*. Oxford: Oxford University Press.

Warr, P (2007) *Work, Happiness and Unhappiness*, Mahwah, NJ: Lawrence Erlbaum Associates.

Warr P and Inceoglu I (2012) "Job engagement, job satisfaction, and contrasting associations with person-job fit", *Journal of Occupational Health Psychology*, 17, 2: 129-138.

Warr P, Binl U, Parker S and Ingeoglu I (2013) "Four-quadrant investigation of job-related affects and behaviours", *European Journal of Work and Organizational Psychology*, 23, 3: 343-363.

Warr, P (1992) "Age and occupational wellbeing", *Psychology and Aging*, 7: 37-45.

Watson D, Clark L and Tellegen A (1988) "Development and validation of brief measures of positive and negative affect: The PANAS scales", *Journal of Personality and Social Psychology*, 54, 6:1063-1070.

White M and Bryson A (2013) "Positive employee attitudes: how much human resource management do you need?", *Human Relations*, 66, 3: 385–406.

Wilson, Dejoy, Vandenberg, Richardson and McGrath (2004) "Work characteristics and employee health and wellbeing: Test of a model of healthy work organisation", *Journal of Occupational and Organisational Psychology*, 77, 565-588.

Wood, S. (2008) "Job characteristics, employee voice and wellbeing in Britain", *Industrial Relations Journal*, 39, 2: 153-168.

Wood, S. and de Menezes, L.M. (2011) "High involvement management, high performance work systems, and wellbeing", *International Journal of Human Resource Management*, 22, 7: 1586–1610.

Wood, S., Van Veldhoven, M., Croon, M. and de Menezes, L. (2012) "Enriched job design, high involvement management and organisational performance: the mediating roles of job satisfaction and wellbeing", *Human Relations*: 1-27.

Wooden, M., Warren, D. and Drago, R. (2009) "Working Time Mismatch and Subjective Well-being", *British Journal of Industrial Relations*, 47, 1:147-179.

Wyatt, S., Fraser, J.A. and Stock, F.G.L. (1928) *The comparative effects of variety and uniformity in work*. Report 52, London: Industrial Health Research Board.

Xanthopolou D, Bakker A and Ilies R (2012) "Everyday working life: explaining within-person fluctuations in employee wellbeing", *Human Relations*, 65, 9: 1051-1069.

Yee R, Yeung A and Edwin Cheng T (2008) "The impact of employee satisfaction on quality and profitability in high-contact service industries", *Journal of Operations Management*, 26: 651-668.

Zelenksi J, Murphy S and Jenkins D (2008) "The happy-productive worker thesis revisited", *Journal of Happiness Studies*, 9: 521-537.

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Appendix A: List of Search Terms

Search terms in respect of job-related subjective wellbeing

Wellbeing OR well-being	Pleasant affect
Job satisfaction	Unpleasant affect
Happiness	Anxiety-contentment
Positive affect	Depression-enthusiasm
Negative affect	

Search terms in respect of human resource practices

Communication	Management style
Consultation	Pay
Employ* practices	Performance management
Equality OR Diversity OR Equal opportunity*	Team*work
Family-friendly OR Work-life balance	Training OR Skill development
Flexible working	Work*environment
Health and safety	Working conditions
High involvement management	Working hours OR Working time
High performance work system	Workplace culture OR management culture
HR* practices	Workplace practices
Human resource* practices	

Search terms in respect of workplace or organisational performance

Closure	Sales
Financial performance	Shareholder returns
Productivity	Survival
Profit	

Web of Science subject categories

Behavioural Sciences	Psychology, Developmental
Business	Psychology, Educational
Business, Finance	Psychology, Experimental
Economics	Psychology, Mathematical
Humanities, Multidisciplinary	Psychology, Multidisciplinary
Industrial Relations and Labour	Psychology, Psychoanalysis
Management	Psychology, Social
Psychology	Social Issues
Psychology, Applied	Social Sciences, Biomedical
Psychology, Biological	Social Sciences, Interdisciplinary
Psychology, Clinical	Sociology

Appendix B: The Workplace Employment Relations Survey

Origins and aims

The 2011 WERS was the sixth in a series of surveys which aims to provide a nationally representative account of the state of employment relations and working life inside British workplaces. The survey series was jointly sponsored by the Department for Business Innovation and Skills (BIS), the Economic and Social Research Council (ESRC), the Advisory, Conciliation and Arbitration Service (Acas), the UK Commission for Employment and Skills (UKCES) and the National Institute of Economic and Social Research (NIESR). Previous surveys were conducted in 1980, 1984, 1990, 1998 and 2004.

The purpose of each survey in the series has been to provide large-scale, systematic and dispassionate evidence about numerous aspects of employment relations across almost every sector of the economy in Britain. In both cases, this evidence is collected with the following objectives:

- to provide a mapping of employment relations practices in workplaces, and to monitor changes in those practices over time;
- to inform policy development, and to stimulate and inform debate and practice;
- to provide a comprehensive and statistically reliable dataset on workplace employment relations that is made publicly available for research.

Units and coverage

The principal unit of analysis for WERS is the establishment or workplace. A workplace is defined as comprising the activities of a single employer at a single set of premises. Examples include a single branch of a bank, a car factory or a school.

The scope of the 2011 WERS Cross-Section Survey extended to cover all workplaces with 5 or more employees, located in Great Britain (England, Scotland and Wales) and engaged in activities within Sections C (Manufacturing) to S (Other Service Activities) of the *Standard Industrial Classification (2007)*. The survey covered both private and public sectors. In total, the population of workplaces in scope for WERS 2011 employed 90 per cent of all employees in Britain.

The 2011 WERS also incorporated a panel element which attempted a new interview at all of those workplaces from the 2004 Cross-Section Survey that remained in existence at the time of the 2011 WERS. The purpose of the panel survey was to investigate the changes that took place in those workplaces in the intervening seven years.

Methods

The core element of 2011 WERS was a 90-minute face-to-face interview with the senior person at the workplace who had day-to-day responsibility for industrial relations, employee relations or personnel matters. This face-to-face interview was preceded by the mailing of a short self-completion questionnaire to the sampled workplace. This self-completion questionnaire comprised questions about the composition of the workforce, for which the management respondent may have had to refer to records in order to provide an accurate answer. The answers to this self-completion questionnaire were collected during the course of the face-to-face interview. The main management interview was followed with further surveys of employee representatives, employees and financial managers.⁴⁴

For the survey of employees, sampling was conducted at the workplace after obtaining the manager's consent, with the interviewer drawing a random sample of 25 employees from a complete list of those employees on the payroll at that workplace. If there were fewer than 25 employees at the workplace, then a census was attempted. The employee survey instrument comprised a short self-completion questionnaire that was distributed to the specified employees by a nominated person at the establishment (commonly the management respondent or their personal assistant) and which, once completed, was returned by each surveyed employee either to a central collection point at the workplace or, more commonly, by post to the survey agency.

Fieldwork for the 2011 WERS began in March 2011 and came to a close in June 2012. The median management interview took place in September 2011.

Achieved samples and response rates

The table below provides a summary of the achieved samples and response rates for the 2004 and 2011 WERS surveys. Successful completion of the main management interview was a requirement of participation in either survey. The response rates shown for the Survey of Employees are for employees in workplaces that returned at least one employee questionnaire.

Table 2: Achieved samples for the 2004 and 2011 WERS

	Achieved samples		Response rates	
	WERS 2004	WERS 2011	WERS 2004	WERS 2011
Management interview	2,295	2,680	64	46
Survey of employees	22,451	21,981	61	54

⁴⁴ The survey of employee representatives is not used in this report. Data from the Financial Performance Questionnaire was examined but the sample sizes proved insufficient to generate robust results.

Among the 2,680 productive workplaces in 2011, some 989 were panel workplaces that had previously been interviewed in 2004. The management response rate among this group of panel workplaces was 52 per cent. Some 600 of these 989 workplaces generated employee questionnaires in both 2004 and 2011 (providing 7,943 employee responses in 2004 and 7,324 employee responses in 2011).

Further information on WERS 2011

Further information about the 2011 survey, including full questionnaires, the First Findings report and key tables are provided on the GOV.UK website at:

<https://www.gov.uk/government/publications/the-2011-workplace-employment-relations-study-wers> .

The survey data from WERS 2011 can be accessed with full documentation from the UK Data Service:

<http://discover.ukdataservice.ac.uk/catalogue/?sn=7226&type=Data%20catalogue>.

Appendix C: Analyses of the Workplace Employment Relations Survey

This appendix describes the analyses of the links between employee subjective wellbeing (SWB) and workplace performance that are discussed in Chapter 4. The analyses are based on data from the 2004 and 2011 Workplace Employment Relations Surveys (WERS) and establish a clear, robust positive association between employee job satisfaction and workplace performance.

Why WERS?

WERS is ideally suited to the task for the reasons outlined in Box 1. A fuller description of the data set is presented in Appendix B.

Box 1: Important Features of the 2011 Workplace Employment Relations Survey

- Nationally representative data linking employees to workplaces
- Multiple measures of employee wellbeing
- Workplace panel data with wellbeing and performance in 2004 and 2011
- Multiple measures of workplace performance

Because the WERS data are so rich, the analysis presented in this chapter is able to contribute to existing knowledge about the effects of SWB on workplace performance in a number of ways. First and foremost, WERS surveys between 1 and 25 employees per workplace. In the majority of cases multiple employees are surveyed so that we can characterize workplaces according to the wellbeing of their employees. In our analyses, we examine links between workplace performance and average (mean) employee wellbeing and variance in employee wellbeing (using the coefficient of variation, which is simply the standard deviation divided by the mean). Furthermore, there are indications in the empirical literature that the effects of wellbeing on performance may not be symmetrical: the link between workplace performance and – say – the mean of "very dissatisfied" employees may not simply be the flipside of the mean of "very satisfied" employees. We therefore construct measures which distinguish between workplaces with particularly high or low wellbeing (such as the mean of "very dissatisfied" employees).

Second, our findings should have high external validity because, unlike many of the careful studies undertaken in particular sub-sectors of the economy or among certain types of employee, WERS is nationally representative. It is also a high quality survey with good employer and employee response rates, reducing concerns regarding non-response biases. These concerns are addressed further through the use of survey sampling and non-response weights which are applied throughout the analyses.

Third, in contrast to most studies, WERS contains a number of SWB measures which relate to Warr et al's (2013) conceptual framework. They include measures of satisfaction with an array of job characteristics, elements of the anxiety-contentment scale and, in 2011, the depression-enthusiasm scale. WERS does not cover all the dimensions of affect identified in Figure 1 because in 2011 it misses the HAPA and LAPA quadrants of the framework, but this is a much more complete set of SWB measures than ordinarily appears in a national survey. Bockerman and Ilmakunnas (2012), for example, had to be content with a single job satisfaction item. As we shall see, this proves important because different measures of SWB have different associations with workplace performance.

Fourth, the workplaces surveyed for the 2004 WERS were followed up in 2011. The managerial and employee questionnaires completed for this panel survey are identical to the surveys completed in the main survey allowing us to track *changes* in both workplace performance and employee wellbeing. We attach particular weight to the findings from the panel analysis because it can tackle some of the issues that may confound attempts to draw causal inferences about the links between employee SWB and workplace performance.

Fifth, WERS contains a number of measures by which to judge workplace performance. Most of the analysis presented focuses on the manager's estimation of the workplace's performance relative to the industry average. These estimates are available for three performance metrics: financial performance, labour productivity, and the quality of output. For a subset of workplaces we also have accounting-type measures of productivity (sales per employee and value-added) and profitability (the price-cost margin) taken from the Financial Performance Questionnaire. We also use the panel data set to examine links between employee wellbeing in 2004 and the probability of workplace closure by 2011, workplace closure being an indicator of particularly poor performance. The review of the literature suggests any effects of employee wellbeing on workplace performance will have their most direct impact on the quantity and quality of output via labour productivity. It might be harder to imagine employees' SWB having a clear discernible impact on workplace closure since so many other considerations come into play. As we shall see, associations between employee SWB and workplace performance do vary across performance measures.

The remainder of this appendix is split into three main sections. The first presents evidence on the links between SWB and workplace performance from a cross-sectional analysis of the 2011 Workplace Employment Relations Survey. The second section presents evidence on the SWB-performance link from the 2004-2011 WERS Panel. Both sections describe the data and analytical methods used before presenting results. The final section concludes with some reflections on how the results add to what we know about the role played by SWB in workplace performance.

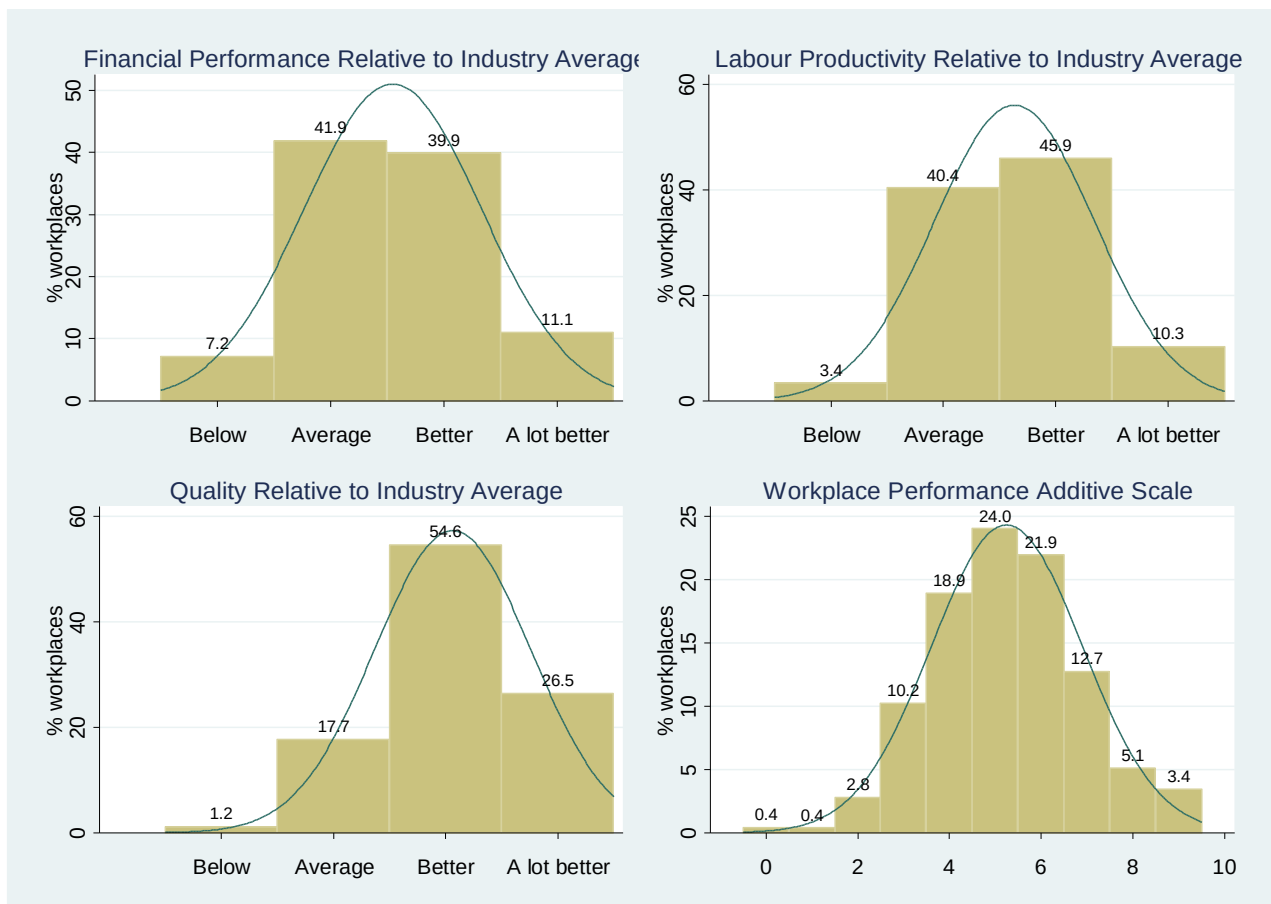
Employee Wellbeing and Workplace Performance: An Investigation using the 2011 Cross-sectional Workplace Employment Relations Survey

The question addressed in this section is: to what extent can the variance in workplace performance in 2011, as indicated by the measures presented below, be accounted for by variance in employees' subjective wellbeing in 2011? The aim is to establish whether there is any statistically significant association between workplace performance and employees' wellbeing, variously defined, and, if there is, to establish how robust the association is to the introduction of controls which may account for the seeming association, and to alterations to the way in which the analysis is conducted. First we describe the performance measures. Second we present the subjective wellbeing measures. Third we describe the procedures used to identify the correlation between wellbeing and performance. Finally we present results from the cross-section analysis.

Measuring Workplace Performance

In 2011 the managerial respondents to the survey were asked: "Compared with other workplaces in the same industry how would you assess your workplace's...financial performance; labour productivity; quality of service or product?" They chose one of five responses presented to them on a show card ranging from "a lot better than average" to "a lot below average". The distribution of responses is presented in the Figure 6 below.

Figure 6: Workplace Performance Measures, 2011 Cross-Section



The figure shows the distribution of workplace performance in response to these questions having weighted the data so that they are representative of the population from which the sample was drawn. The percentage of managers saying their workplace performance was "a lot below average" was very small, so these responses have been combined with those saying "below average". The distributions for financial performance and labour productivity are quite similar: the vast majority of managers say their workplace is performing at the average for the industry or "better than average", with respondents split roughly evenly between these two categories. A small minority – one-sixth in the case of financial performance and one-in-seven in the case of labour productivity – think their workplace is performing either "a lot better than average" or "below average". The distribution for the quality of product or service looks a little different: the distribution is shifted to the right relative to financial performance and productivity because a greater proportion think of themselves as performing relatively well compared to the industry average.

Although there is some bunching of responses in the middle of the performance distribution, there is still substantial variance in managers' evaluations permitting us to investigate possible links between workplace performance and employees' wellbeing.

When investigating workplace influences on performance it is more conventional to rely on accounting measures such as sales per employee and value added per employee. They have the advantage of being measured along a cardinal scale against which one can readily quantify correlations with other workplace factors, such as the average of employee wellbeing at the workplace. Although WERS collects such measures with its Financial Performance Questionnaire (FPQ) we prefer to focus on the subjective measures of workplace performance for two reasons. First, a much higher percentage of workplace managers feel able to provide an answer along the ordinal scale presented in the show card. Eighty-seven per cent are able to do so on all three subjective performance measures, whereas the number of responses to the FPQ is low ($n=545$, which is 20 per cent of the respondents to the management questionnaire). Second, earlier studies have validated the subjective performance measures, confirming that they are predictive of subsequent workplace closure, for example, and are associated with other workplace features in the way theory might predict (Forth and McNabb, 2008; Machin and Stewart, 1990, 1996). In contrast the managers responsible for employment relations who complete the WERS managerial questionnaire find it difficult to obtain the information necessary to provide accurate responses to the FPQ. For instance, they are often only able to provide information at the firm level, rather than workplace level. Consequently, the accounting measures of performance are prone to sizeable measurement error.⁴⁵

The three subjective workplace performance measures are positively and significantly correlated such that those scoring high (low) on one indicator tend to score high (low) on the other two.⁴⁶ Thus, although distinct, these three measures may relate to a single

⁴⁵ We experimented with models using the FPQ data. The SWB measures were not strongly correlated with accounting measures of performance. However, further research is needed with the FPQ data and, in particular, the production of robust performance measures, to confirm this result.

⁴⁶ The correlation coefficients in the weighted data are: financial performance and labour productivity 0.44; financial performance and quality 0.25; labour productivity and quality 0.33. They are all statistically significant at the 1 per cent level.

underlying workplace performance scale.⁴⁷ We therefore constructed an additive scale from three performance items. We summed the items then subtracted 3 such that the scale ran from 0 ("below average" performance on all three items) to 9 (performance "a lot better than average" on all 3 items). The distribution of workplaces along this scale is presented in the bottom right hand quadrant of Figure 6. Performance on this measure is fairly normally distributed with one-quarter (24 per cent) of workplaces scoring 5, which is the mid-point in the distribution, although the upper tail – those scoring themselves "a lot better" or "better than average" on all three items – is a little thicker than the left tail which identifies the worst performing workplaces relative to their industry average.

The correlations between the three performance measures are, nevertheless, small enough to suggest that they capture different, albeit related, aspects of workplace performance. The labour productivity measure is akin to the quantity of output produced by employees. Although maximising the quantity of output might, conceivably, come at the expense of the quality of output or service, this appears not to be the case. Financial performance approximates profitability, rather than productivity, thus bringing in other considerations such as the costs of production.⁴⁸ This might be important when assessing links between SWB and workplace performance if, for instance, employers invest in potentially costly means of raising employee wellbeing: any productivity benefits of doing so may be offset by the costs.

Measuring Employee Wellbeing

The employees' self-completion questionnaire asks them to rate their wellbeing on fifteen different items. Nine of these items are aspects of job satisfaction, while six are aspects of job-related affect (JRA), three of which correspond to Warr's anxiety-contentment scale and three of which relate to his depression-enthusiasm scale.

The job satisfaction items are responses to the following question:

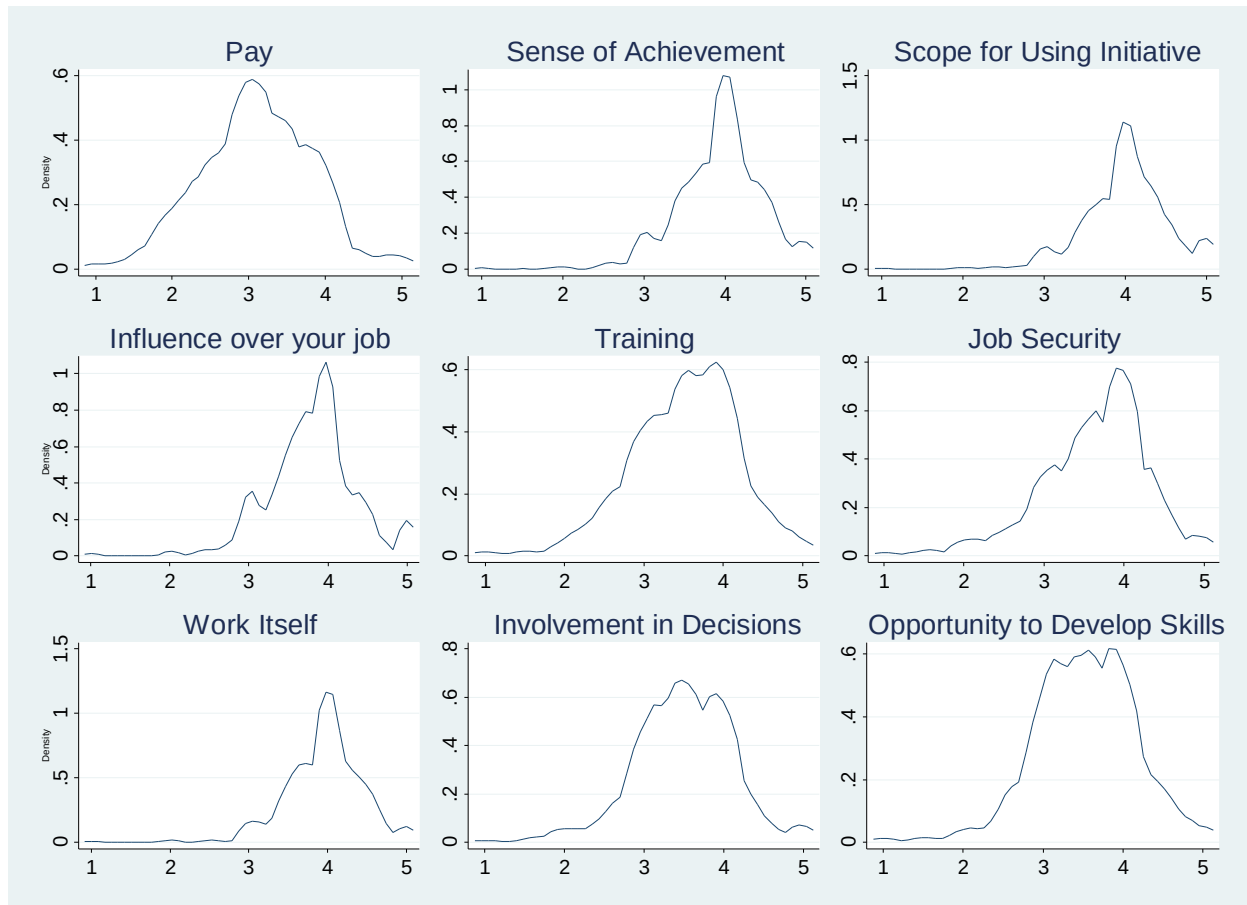
"How satisfied are you with the following aspects of your job...pay, training, development opportunities, job security, achievement, initiative, work itself, influence, decision-making?"

Responses are coded on a five-point Likert scale from "very dissatisfied" through to "very satisfied". To obtain the mean job satisfaction for a workplace, we first recoded the individual job satisfaction items into (1,5) ratings, with 1 denoting "very dissatisfied" and 5 denoting "very satisfied". The job satisfaction scores for each item were then summed across all employees in the same workplace and the total was divided by the number of employee respondents in that workplace. The distribution of these workplace means is given for each facet of job satisfaction in Figure 7.

⁴⁷ This is confirmed by a high scale reliability coefficient, or alpha, for the three performance items of 0.79.

⁴⁸ Earlier WERS asked managers what they had in mind when ranking their workplace's financial performance. The majority said "profitability" (Bryson and Wilkinson, 2002).

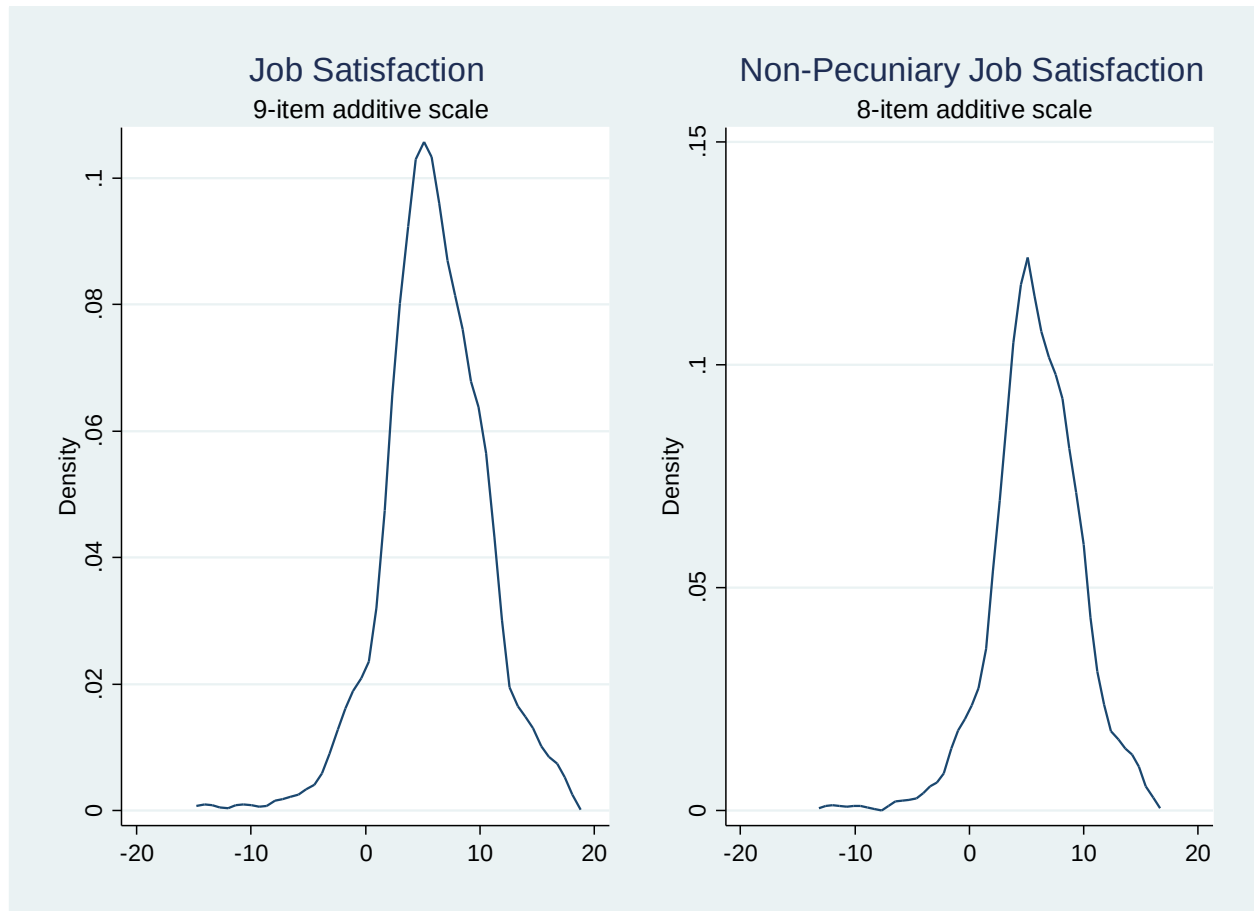
Figure 7: Distribution of Mean Workplace Job Satisfaction, Nine Facets, 2011 Cross-Section



Note: The figure is based on 1919 workplaces with non-missing job satisfaction data and is weighted to account for workplaces that return no employee questionnaires.

If all satisfied employees were grouped together in a subset of workplaces, while all dissatisfied employees were grouped together in another subset of workplaces these distributions would look u-shaped, with peaks in the tails. They do not. Instead, although the distributions for each aspect of job satisfaction look a little different, most are skewed towards the top end of the satisfaction distribution, as is so often the case when one presents job satisfaction distributions at the level of individual employees. The peak of the workplace mean job satisfaction distribution is normally around four, equivalent to an average rating of "satisfied". Only in the case of pay satisfaction is the peak of the workplace mean distribution somewhere near the middle of the satisfaction ranking. Relatively few workplaces have a mean job satisfaction score below three, as indicated by the long tails to the left of the distributions, the exception being pay satisfaction.

Figure 8: Distribution of Mean Workplace Job Satisfaction, Additive Scales, 2011 Cross-Section



The correlation between job satisfaction scores at workplace-level is quite high, ranging from as high as 0.76 for satisfaction with training and development opportunities to 0.34 for satisfaction with job security and initiative. Further statistical analysis suggested it was reasonable to combine the different items into one summary scale.⁴⁹ We therefore constructed an additive scale from the nine satisfaction items. Having recoded the individual job satisfaction items into (-2,2) ratings, with -2 denoting "very dissatisfied" and 2 denoting "very satisfied" this additive scale runs from -18 to +18. The left-hand panel in Figure 8 shows the workplace distribution of the mean of this additive scale. Relatively few workplaces are in negative territory with average scores in the "dissatisfaction" zone. Equally, few score close to the maximum 18.

The right hand figure shows the distribution in workplace mean scores for the equivalent non-pecuniary job satisfaction scale. This is identical to the overall additive scale, except it excludes pay satisfaction in recognition of the fact that it is less strongly correlated with the other job satisfaction facets and because earlier WERS studies indicate that pay

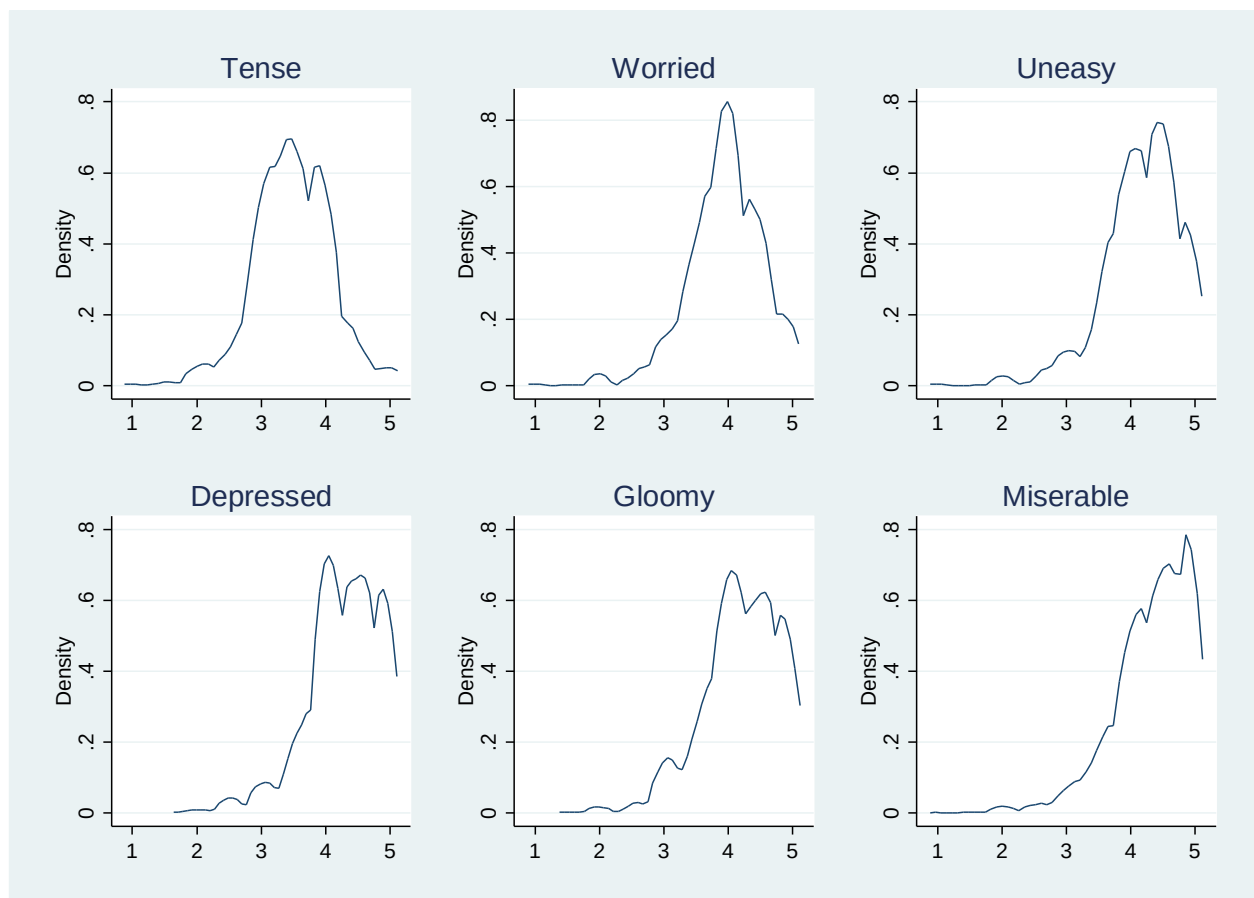
⁴⁹ Factor analysis reveals a single factor with an eigen value of 5.34 accounting for 59 percent of the variance in job satisfaction scores. Only pay satisfaction has a factor loading below 0.60. These results indicate the satisfaction variables, although distinct, nevertheless relate to a single underlying job satisfaction scale. This is confirmed by a high scale reliability coefficient, or alpha, for the nine satisfaction items of 0.90.

satisfaction "behaves" a little differently to satisfaction with other aspects of one's job (van Wanrooy et al., 2013). The distribution is similar again, with mean satisfaction scores peaking around six on a scale running between -16 and +16.

In addition to the nine job satisfaction items, employees are asked to rate their job-related affect. They are asked: "Thinking of the past few weeks how much of the time has your job made you feel....*tense*, *uneasy*, *worried*, *gloomy*, *depressed*, *miserable*?" Responses are coded along a five-point scale: "all of the time", "most of the time", "some of the time", "occasionally" and "never". We have added the emphasis in the question above: the items in italics are a subset of Warr's anxiety-contentment scale, while those that are underlined are part of his depression-enthusiasm scale.

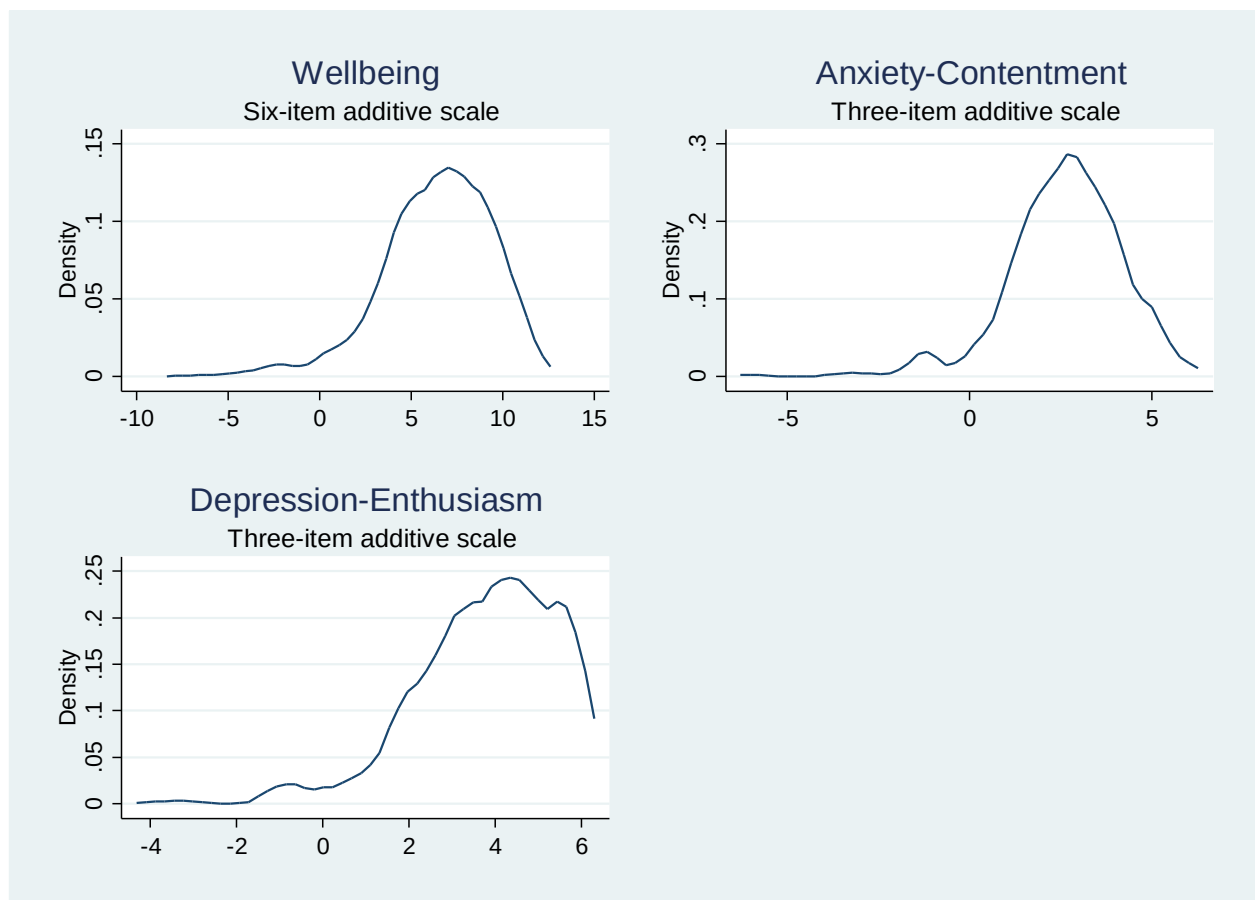
To obtain the workplace mean for each, we first recoded the individual items into (1,5) ratings, with 1 denoting "all of the time" and 5 denoting "never". The scores for each item were then summed across all employees in the same workplace and the total was divided by the number of employee respondents in that workplace. The workplace means for the separate items are presented in Figure 9. The left-hand tails to these distributions indicate that there are few workplaces characterised by high levels of depression or anxiety, although tension and worry appear more common than the other items.

Figure 9: The Distribution of Mean Workplace Job-related Affect, Six Items, 2011 Cross-Section



Rescaling responses such that -2 denotes doing a job that makes one feel negative job-related affect "all of the time" and +2 denotes "never" feeling that emotion, we summed the six items to produce a single additive job-related affect, or JRA, scale.⁵⁰ The distribution of the workplace means for this scale, which runs between -12 and +12, is presented in the top left panel of Figure 10. With a mean of over 6 and a long, shallow left tail, it is clear that, in most workplaces, most employees do not suffer on-going job-related "ill-being". If we break out the six items into their constituent subscales denoting anxiety-contentment and depression-enthusiasm, it is apparent that the distribution of mean enthusiasm is to the right of that for mean contentment.

Figure 10: The Distribution of Mean Workplace Job-related Affect, Additive Scales, 2011 Cross-Section



Method of Analysis

We seek to identify the independent association between workplace performance and employees' subjective wellbeing, taking account of other workplace factors which may be correlated with SWB and thus confound the relationship. In doing so, we run ordered probit regressions for the separate performance measures. This is appropriate since the measures used by managers to evaluate the performance of their workplace relative to

⁵⁰ Again, as in the case of the job satisfaction scale, this is supported by factor analyses which revealed a single factor with an eigen value of 4.42 accounting for 74 percent of the variance in workplace-level wellbeing. The alpha scale reliability coefficient is 0.93 for the six items.

the industry average are ordinal scales. We run ordinary least squares (OLS) estimates for the additive performance scale since this more closely approximates a continuous scale.⁵¹ All analyses are survey-weighted to account for the probability of a workplace being sampled for the survey and to account for the probability that any employee questionnaires will be returned from a sampled workplace.⁵²

There are many ways to characterise the average subjective wellbeing of employees in a workplace using the fifteen measures available in the 2011 WERS survey. Our primary analyses used the workplace mean scores presented in Box 2. These distinguish between job satisfaction, on the one hand, and job-related affect on the other. As well as the 'global' additive scales for these two dimensions of SWB we ran alternative models that "break out" aspects of job satisfaction and JRA. In the case of job satisfaction, the key distinction made is between satisfaction with pay and satisfaction with non-pecuniary aspects of the job. In the case of JRA the distinction is made between the contentment-anxiety measures and the enthusiasm-depression measures.

As noted in this report, the literature finds some evidence that the effects of SWB on individuals' performance can be asymmetrical such that the effects of being, say, very satisfied or very dissatisfied may not be apparent if one focuses solely on mean satisfaction (eg. Green, 2010). We therefore ran models incorporating workplace means for being "very satisfied" and "very dissatisfied" and, in the case of JRA, the workplace means for being "usually well" - characterised in terms of "never" feeling depression and anxiety - and "usually unwell" - characterised in terms of "always" or "mostly" feeling depression and anxiety.⁵³⁵⁴ The distribution of workplaces characterised in this way are presented in Figure 11. The mean for the "very satisfied" scale is 1.7 out of a possible score of 9 whereas the mean for the "very dissatisfied" scale is 0.3. Similarly the mean for the "very well" scale is 2.8 out of a possible score of 6 whereas the mean for the "not well" scale is 0.5.

⁵¹ None of the results presented later are sensitive to the choice of estimator. Results relating to the additive performance scale are similar if one estimates ordered probit models.

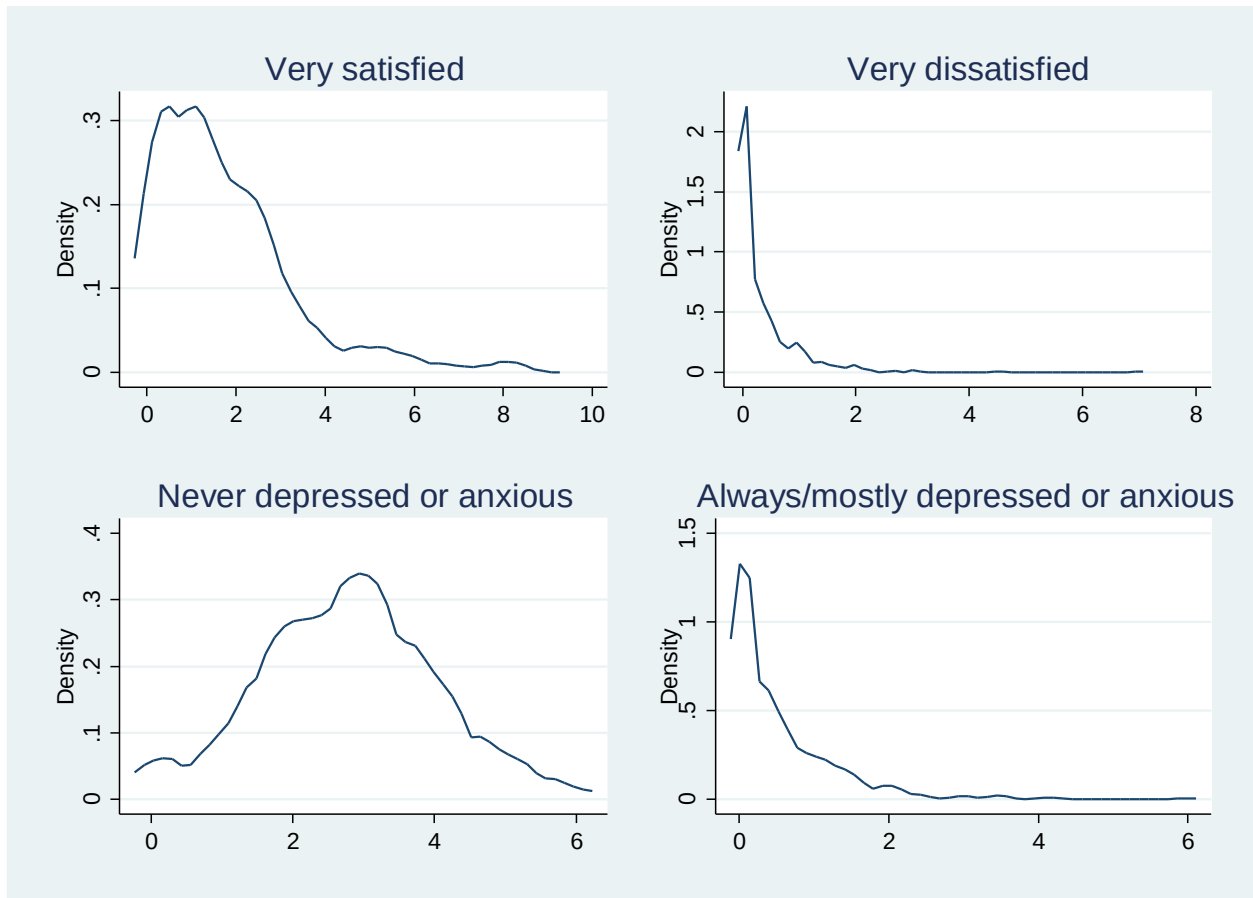
⁵² In 510 of the 2680 workplaces surveyed the manager refused to permit questionnaires to be distributed to employees. In a further 247 workplaces none of the employee questionnaires that were distributed were returned to the survey agency (Deepchand et al., 2014: Table 4.14). It is conceivable that workplace non-response to the employee survey may have been correlated with poor employment relations and thus ill-being at the workplace. If so, the completed responses paint a picture of employee wellbeing which is upwardly biased. This does not necessarily mean that the estimated relationship between wellbeing and workplace performance is biased in any way.

Nevertheless, the non-response weights can adjust for this to some extent using what is known about non-respondent workplaces to reweight the data such that the workplaces with at least one employee respondent resemble all workplaces on observable features such as the manager's perception of the climate of employment relations.

⁵³ Like the mean scores for job satisfaction and JRA, these measures were constructed by taking the scores for each employee and dividing through by the number of employees at the workplace responding to the question. For instance in the case of mean "very dissatisfied", this was simply the workplace mean for the number of times an employee says he/she was "very dissatisfied" on each of the job satisfaction items.

⁵⁴ There is another reason why there is value in characterising workplace SWB in terms of respondents' likelihood of placing themselves in the tails of the SWB distribution. This is because ranking workplaces - and, indeed, any groups including individuals - according to their mean satisfaction or job-related affect can be problematic since rankings are potentially susceptible to alternative assumptions regarding the underlying distribution of SWB. These problems do not arise when characterising workplaces according to the proportions in the tails of the SWB distributions. This is because doing so avoids the sorts of assumptions about the underlying distribution of SWB that have to be made to construct mean SWB (Bond and Lang, 2014).

Figure 11: The Distribution of Mean Workplace Job Satisfaction and Job-Related Affect, Non-Linear Measures, 2011 Cross-Section



Characterising a workplace's SWB according to the responses of a small sub-set of employees can be problematic. In principle, the random sampling of employees should ensure that there is no bias in the estimate for a workplace based on a small number of employees. We take additional precautions by weighting our analyses to account for employee non-response: this non-response weight incorporates predictors such as the climate of employment relations at the workplace which may be correlated with employee SWB and, as such, help account for potential differential non-response in workplaces where wellbeing may be particularly low. However, even if this is the case, the aggregation of a very small number of responses to produce a workplace measure can result in random measurement error and thus imprecision in estimated correlations.⁵⁵ In the WERS data the number of employee respondents per workplace ranges between 1 and 25. The median number of employees per workplace is 12. We test the sensitivity of our results to the removal of about 12 per cent of the workplace sample who have fewer than 3 employee respondents. This makes little difference to our results.

⁵⁵ Mairesse and Greenan (1999) argue that in an OLS estimation a small number of observations for each establishment downwardly biases estimates based on aggregated employee data.

Box 2: Workplace Mean Subjective Wellbeing Scores, 2011 Cross-section Models

- 9-item job satisfaction score
- 8-item non-pecuniary job satisfaction score alongside mean pay satisfaction score
- 9-item very satisfied score
- 9-item very dissatisfied score
- 6-item job-related affect score
- 3-item contentment-anxiety score
- 3-item depression-enthusiasm score
- 6-item usually well score (and their 3-item equivalents)
- 6-item usually unwell score (and their 3-item equivalents)

Analyses begin by establishing the raw correlation between the measure of workplace SWB and workplace performance. Then the control variables listed in Box 3 are incorporated to see what the correlation looks like in a *ceteris paribus* framework, that is to say, when comparing workplaces that are observationally equivalent on the dimensions entered into the model. Initially workplace SWB is captured either by job satisfaction or JRA; then the two dimensions of SWB are incorporated alongside one another to see what difference, if any, this makes to the results.

Box 3: Model Specifications, 2011 Cross-section Models

- Job satisfaction measure alone
- JRA measure alone
- Job satisfaction and JRA measures together
- As above with basic set of controls: single establishment; number of employees (6 dummies); workplace age (2 dummies); industry (12 dummies); public sector; region (11 dummies); union recognition (2 dummies); largest non-managerial occupational group (9 dummies)
- Sensitivity to additional workplace mean hourly pay
- Sensitivity to workforce composition controls
- Identical models for the 4 dependent variables: financial performance, labour productivity, quality of product/service, the additive workplace performance scale

Results

The key results from the ordered probit and OLS regressions described above are presented in Table 3 below. The table summarises results from 48 models for each of the four performance measures.⁵⁶ The SWB variables are not entered together. Rather they are entered in the following way:

- First we run models where the only SWB measure is mean employee job satisfaction. Then we run identical models replacing mean employee satisfaction with mean employee JRA. Finally both the mean job satisfaction and JRA measures are entered alongside one another.
- Second we run models breaking out SWB into four components, namely non-pecuniary job satisfaction, pay satisfaction, depression-enthusiasm and contentment-anxiety. Models are run with all four measures together.
- Third, we run models that replace the mean SWB scores with those based on the number of times employees say they were "very satisfied" or "very dissatisfied", and we did the same for JRA. These are at extremes in the SWB distribution. We begin with models that incorporate the mean for "very dissatisfied" employees, entered alone. We do the same for the workplace mean for usually unwell. Then we enter both these SWB measures together.

⁵⁶ The models with controls are always jointly statistically significant, doing a good job of accounting for the variance in workplace performance.

The same approach is adopted for the models incorporating the workplace mean for "very satisfied" employees and that for usually well.

The results can be summarised as follows:

- Overall mean employee job satisfaction is positively correlated with all four workplace performance measures.
- Workplaces with more "very satisfied" employees have higher labour productivity, higher quality of output, and higher overall performance. Workplaces with more "very dissatisfied" employees have lower financial performance and lower overall performance on the additive scale.
- Non-pecuniary aspects of job satisfaction are positively correlated with overall performance, the quality of output (and, less robustly, to labour productivity) whereas pay satisfaction is positively associated with workplace financial performance but not with other performance measures.
- Job-related affect is not correlated with workplace performance, regardless of the measure used.

Table 3: SWB and Workplace Performance Results, 2011 Cross-section

	Financial performance	Labour Productivity	Quality	Additive performance scale
<i>Means:</i>				
Job satisfaction (9 item)	+	+	+	+
Non-pecuniary job sat (8 item)	ns	ns	+	[+]
Pay Satisfaction (1 item)	+	ns	ns	ns
JRA (6 item)	ns	ns	ns	ns
Depression-enthusiasm	ns	ns	ns	ns
Anxiety-contentment	ns	ns	ns	ns
<i>Means for asymmetric effects:</i>				
Job dissatisfaction (9 item)	-	ns	[-]	-
Non-pecuniary job dissat (8 item)	ns	ns	ns	ns
Very satisfied (9 item)	ns	+	+	+
Non-pecuniary very sat (8 item)	ns	[+]	+	+
'Ill' most/all time (6 item)	ns	ns	ns	ns
'Ill' never (6 item)	ns	ns	ns	ns
Anxious scale (3 items)	ns	ns	ns	ns
Depressed scale (3 items)	ns	ns	ns	ns
Content scale (3 items)	ns	ns	ns	ns
Enthusiasm scale (3 items)	ns	ns	ns	ns

Notes: (1) + denotes a positive association with the performance measure that is robust across models that is statistically significant at a 95% confidence level. - denotes the same for negative associations. ns means 'not statistically significant'. [] denotes a finding that is robust in most, but not all, models. (2) These results relate to the ordered probit and OLS models described earlier with the control variables listed in Box 3. Models were run that included: no controls; the basic controls; the basic controls plus mean hourly wages; and the basic controls plus a dummy identifying being a workplace with mean hourly wages above the median for the sample. (3) The SWB measures are described in the text. (4) The unweighted sample sizes are as follows: financial performance, without controls N=1768, with full controls 1760; labour productivity, without controls N=1736, with full controls N=1728; quality, without controls N=1837, with full controls N=1828; additive workplace performance, without controls N=1694, with full controls N=1686.

One of the dangers in running so many estimates is that significant results are likely to emerge by chance.⁵⁷ However, there are a number of reasons to suspect that the findings relating to the overall job satisfaction measure are robust. First, other research such as Green (2010) has pointed to the importance of job satisfaction, as opposed to job-related affect, in predicting individual behaviour such as quits, so it is perhaps unsurprising to find that it is job satisfaction that also appears to matter at workplace-level. Second, Bockerman and Ilmakunnas (2012) also found a positive association

⁵⁷ We use a 95 per cent confidence interval as a threshold against which to judge statistical significance of a finding. Under this criterion one is likely to identify a statistically significant result on five occasions in one hundred.

between mean job satisfaction and workplace performance in their study for Finland. Third, the finding is robust across a range of models in the WERS cross-sectional data.⁵⁸

When entered alongside mean non-pecuniary job satisfaction, mean pay satisfaction is positively associated with workplace financial performance. This association is robust to a range of model specifications. It is also apparent in alternative models which replace the additive scales with the workplace mean satisfaction for the nine separate job facets.⁵⁹

It is not straightforward to quantify the size of the SWB "effect" on workplace performance because both the performance and SWB measures are based on ordinal scales. However, the coefficients underlying the results in the models reported in Table 2 are a useful approximation. The coefficients for mean overall job satisfaction in the overall additive workplace performance models are 0.07.⁶⁰ This means that an increase of 1 point in a workplace's mean overall job satisfaction scale (a scale which ranges between -18 and +18) results in an increase of 0.7 points in the workplace performance scale which runs from 0 to 9. Whether this is considered a small or a large effect is, perhaps, open to debate. One way to think about this is to measure the effect in terms of the performance change associated with a workplace moving from, say, the 25th percentile of the mean employee job satisfaction scale to the median. This entails an increase in the mean job satisfaction scale from 3.3 to 5.6, or 2.3 points on the scale. This would result in an increase of 1.6 points on the 10-point additive workplace performance scale, which is actually equivalent to one standard deviation on the additive performance scale.⁶¹

Employee Wellbeing and Workplace Performance: An Investigation using the 2004-2011 Panel Workplace Employment Relations Survey

The question addressed in this section is: how are changes in employee SWB linked to changes in workplace performance between 2004 and 2011? This type of analysis, which relies on the panel of workplaces surveyed at both points in time, has a number of advantages when compared with cross-sectional analyses of the 2011 survey. The section is structured as follows. First we note the limitations to the cross-sectional analyses presented above. Second we outline the advantages of panel analyses. Third we introduce the performance and SWB measures available in the WERS Panel. Fourth

⁵⁸ The positive association between non-pecuniary job satisfaction and the additive performance scale is statistically significant at a 95 per cent confidence level in three out of four models with controls. The negative association between job dissatisfaction and the quality of output is statistically significant at a 95 per cent confidence level with controls but is a little less precisely estimated (90 per cent CI) when introducing mean hourly wages. The positive correlation between the mean 'very satisfied' scores on non-pecuniary job aspects and labour productivity is significant at a 95 per cent confidence level without controls but is only significant at a 90 per cent confidence level with controls.

⁵⁹ The only other mean job satisfaction items that are associated with workplace performance when entered separately are satisfaction with job security - which is positively associated with workplace financial performance, labour productivity - and satisfaction with influence, which is positively associated with the quality of output or service.

⁶⁰ The coefficient is fairly stable across various model specifications.

⁶¹ 2.3 multiplied by the 0.7 coefficient.

we describe the procedures used to identify the correlation between changes in wellbeing and changes in performance. Finally we present results from the panel analysis.

The Limitations of the Cross-sectional Analyses

While there appears to be robust evidence of a statistically significant positive association between mean workplace job satisfaction and workplace performance there are three limitations to cross-sectional analyses which make interpretation of this association difficult. These limitations are identified in Box Four.

Box 4: Difficulties interpreting cross-sectional associations

- Simultaneity: are SWB and performance simultaneously determined by a third unobserved factor?
- Reverse causation: does good performance beget SWB?
- Selection: are happier workers drawn to better performing workplaces, or selected by the managers of better performing workplaces?

The simultaneity problem can arise because there is a possibility that, whichever set of control variables are used to identify the independent association between employees' SWB and workplace performance, the analyst may not observe features of the workplace that influence both employee SWB and workplace performance. This is the problem described as omitted variables bias in the literature: the analysis omits one or more variables simultaneously influencing the performance outcome and employee SWB. An example might be good management: good managers may manage in such a way as to make employees "happier" while, at the same time, driving workplace performance. This makes interpretation of cross-sectional associations difficult because the introduction of the omitted variable or variables could account for the correlation between SWB and performance, either in part or entirely.

The problem of reverse causality can undermine efforts to make causal inferences based on the association between employees' SWB and workplace performance. Although, as we showed in our conceptual framework and the theory accompanying it, there are good reasons to suspect a causal relationship running from employee SWB to workplace performance, it is plausible that good workplace performance will lead to employees becoming happier. Employees' SWB is liable to rise and fall with the fortunes of the employer, in much the same way as a nation's wellbeing rises and falls with Stock Market prices, in part because employee welfare rises with prosperity, resulting in a "feel good" factor (Deaton, 2012).

The third and final issue is one of worker selection. Employees are not randomly allocated to firms. Rather, job seekers target specific job vacancies, apply for vacancies and hope that the employer will select them from the queue of job applicants. Thus worker and employer behaviour bring about a match between an individual worker and a job. It is possible that "happier" workers are drawn to better performing workplaces, or that "happier" workers are selected by the managers of better performing workplaces. We

know, for example, that "happier" individuals are often perceived as more attractive by others and that physical attractiveness is advantageous to job applicants, raising their prospects of entering the more desirable jobs (Hamermesh, 2011). If so, this is akin to the reverse causation problem in that workers with higher SWB are drawn to successful workplaces, rather than workers with higher SWB being able to generate improved workplace performance. Of course, both processes may be at work.

We are able to tackle some of these drawbacks to cross-sectional analyses by resorting to the subset of workplaces that were sampled for the 2004 WERS and followed up in 2011 in the panel survey.

The Advantages of Panel Analyses

Nested within the 2011 WERS are 989 workplaces which were initially interviewed as part of the 2004 WERS. In both years both the managerial survey and employee self-completion survey were identical to those issued to the rest of the surveyed respondents. Box 5 summarises the key advantages of a panel analysis based on the subset of workplaces surveyed in 2004 and 2011.

Box 5: Advantages of Panel Analyses

- Accounts for fixed unobserved aspects of the workplace which might affect performance and employee SWB
- Incorporates some time-varying factors which might affect performance and SWB
- Permits us to test for the possibility that there is reverse causation
- Uses the same performance measures as the cross-sectional analysis and a subset of the SWB measures
- Extends the analysis to workplace closure

The primary advantage in using the panel survey to identify the relationship between employee SWB and workplace performance is that it is possible to account for fixed unobserved aspects of the workplace affecting performance and employee wellbeing. This is possible because we can examine *changes* in SWB and performance *within* workplaces over time, rather than comparing relationships across workplaces which might be confounded by unobservable differences between workplaces. In these panel analyses the question being addressed is: how does *change* in workplace aggregates of employees' SWB relate to change in workplace performance? In this setting one can ignore fixed workplace traits. For example, we do not need to worry about the fact that some workplaces may simply have better management than others because we are not making comparisons across workplaces - we are making them within workplaces with a given or 'fixed' propensity for good or bad management.

The second advantage of a panel analysis is that we can incorporate other changes at the workplace that might affect both SWB and performance. One example is changes in workforce composition, such as those induced by worker selection as described above. In the analysis presented below we account for changes in the number of employees at the workplace and changes in the workplace's mean hourly wage. The latter is a useful summary measure helping to capture changes in the quality of the workforce.

The third advantage of a panel analysis is that it permits us to test for the possibility that any positive association between SWB and performance may be due to performance influencing SWB, rather than the other way round. We test for this directly by investigating whether we can predict workplace SWB in 2011 as a function of the workplace's performance in 2004.

The fourth advantage of the panel analysis is that it closely parallels the cross-sectional analysis in terms of the performance and SWB measures used. All three subjective measures of workplace performance (financial performance, labour productivity and quality of output or service relative to the industry average) are all available in the panel. We also construct the additive scale based on all three, as in the case of the cross-sectional analysis. The employee SWB measures are a subset of those available in the 2011 survey: they contain eight of the nine job satisfaction items and three of the six wellbeing measures.⁶² The panel analysis therefore provides an opportunity to test the robustness of the cross-sectional results.

Finally, the panel analysis provides an opportunity to extend the analysis to the relationship between employees' SWB and workplace closure. Workplace closure is often an indicator of extremely poor performance, most obviously in the case of single-workplace organizations where workplace closure means the end of operations for the organization. An investigation of the links between SWB and workplace closure is also useful in deepening understanding of the associations found among workplaces in the panel that survive through to 2011. For example, if workplaces with particularly low employee SWB in 2004 are less likely than other workplaces to survive to 2011, failure to account for this would downwardly bias the overall estimates of the value of higher SWB for workplace performance.⁶³

Despite the clear advantages of a panel analysis in examining the links between employee SWB and workplace performance, it is not a panacea. There are some drawbacks to the panel analysis. The most important one is that it relies on a much smaller sample. With the exception of the workplace closure analysis, which is conducted for all workplaces surveyed in 2004, the panel analysis relies on non-missing data for the subjective workplace performance measures and employees' SWB in 2004 and 2011. These are only available for 441 workplaces - roughly one-quarter of the sample used for the cross-sectional analyses. These 441 cases also constitute under half of the total

⁶² These analyses are possible for the first time in WERS because, unlike previous WERS panel surveys, the 2004-2011 panel incorporates the employee survey questionnaire. This permits the aggregation of employee SWB to workplace level. We are able to track workplaces over time but the employee surveys do not contain unique identifiers for employees which means we are unable to follow particular individuals over time.

⁶³ Any such survivor bias could also affect estimates based on the cross-sectional data since workplaces surviving for shorter (longer) durations are less (more) likely to be observed at a single point in time.

panel sample. There are two implications. First, the standard errors associated with estimates of SWB effects on performance increase as sample size diminishes, such that the size of any effects needs to be larger in order to be detected as statistically significant. Second, sample attrition is greater in the panel than it is in the cross-section, partly because we are relying on the sub-set of workplaces providing SWB and performance information at two points in time. We seek to ameliorate this problem by reweighting our data to account for sample attrition based on observable workplace traits in 2004. But there is nothing we can do about attrition based on features of the workplace that are unobservable to us. This has the potential to bias the estimates based on the panel because, if the relationship between SWB and performance was different in workplaces with missing survey data, the addition of these workplaces might have produced quite different estimates.

Three other limitations to the panel analysis are notable. The first is that there is a limit to the number of time-varying factors one can incorporate into the analysis, so there remains the possibility that there are time-varying factors associated with wellbeing and performance that we are unable to pick up. The second is the difficulty accounting for differences in the initial conditions facing workplaces in 2004. The focus on within-workplace change means there is a danger in overlooking the fact that different workplaces start from different positions. For instance, they may start at different levels of employee wellbeing: those higher up the distribution may find it harder to improve on their initial position than those lower down the distribution and it is unclear whether improvement from, say, low to medium wellbeing is necessarily the same as moving from medium to high wellbeing. It is also possible that what is driving within workplace changes between 2004 and 2011 are trends in performance or wellbeing that pre-date 2004. We are able to address this issue in a limited way by incorporating a measure of employment change in the year prior to 2004 (and in the year 2010-11) which might capture part of the dynamic trend in workplace performance and wellbeing. We also run some sensitivity analyses which incorporate the 2004 measure of workplace performance to capture how the workplace was performing at the outset.

Measuring Workplace Performance

Each workplace provides information on its performance relative to the industry average in 2004 and then again in 2011 on a 4-point scale ranging from below average to a lot above average.⁶⁴ These are based on identical survey questions to those asked in the cross-section survey reported above. A workplace moving from the bottom of the scale in 2004 ("below average") to the top of the scale ("a lot above average") would score the maximum +3 points on this change variable. A workplace going in the opposite direction scores -3.

Figure 12 shows the number of workplaces moving up and down these performance scales over the period. The figure presents unweighted frequencies for the 441 workplaces in the panel. It is apparent that, while many workplaces provide the same rating in both years, producing a change score of zero, most shift around with the numbers reporting improved performance approximating the numbers reporting poorer performance.

⁶⁴ Recall, although the survey questions also include the category "a lot below average" few managers give this rating, so these responses have been combined with those saying performance was "below average".

Figure 12: Within-Workplace Changes in Performance (unweighted number of workplaces), 2004-2011, Panel Survey



The bottom right hand panel of Figure 12 shows movement along the additive change in performance scale which, as noted earlier, simply combines the scores from the changes in financial performance, labour productivity and quality of output/service. The idea behind this scale is that, although the three performance metrics capture distinct aspects of workplace performance, they are nevertheless highly correlated (with coefficients of 0.6). It is therefore reasonable to see these three measures as aspects of an underlying concept called workplace performance.⁶⁵

Table 4 shows change in workplace performance between 2004 and 2011. The figures in the table are the percentage of workplaces moving up, down or remaining at the same point in the ordinal scales having weighted the data to account for sampling probability and attrition. Roughly two-in-five workplaces score zero on the three dimensions of performance, indicating that their performance is similar at both points in time, relative to the industry average. Of those that do move, most shift one point up or down the scale with very few moving two or three points.

⁶⁵ As in the case of the cross-section data this contention is supported by a high scale reliability alpha coefficient of 0.81.

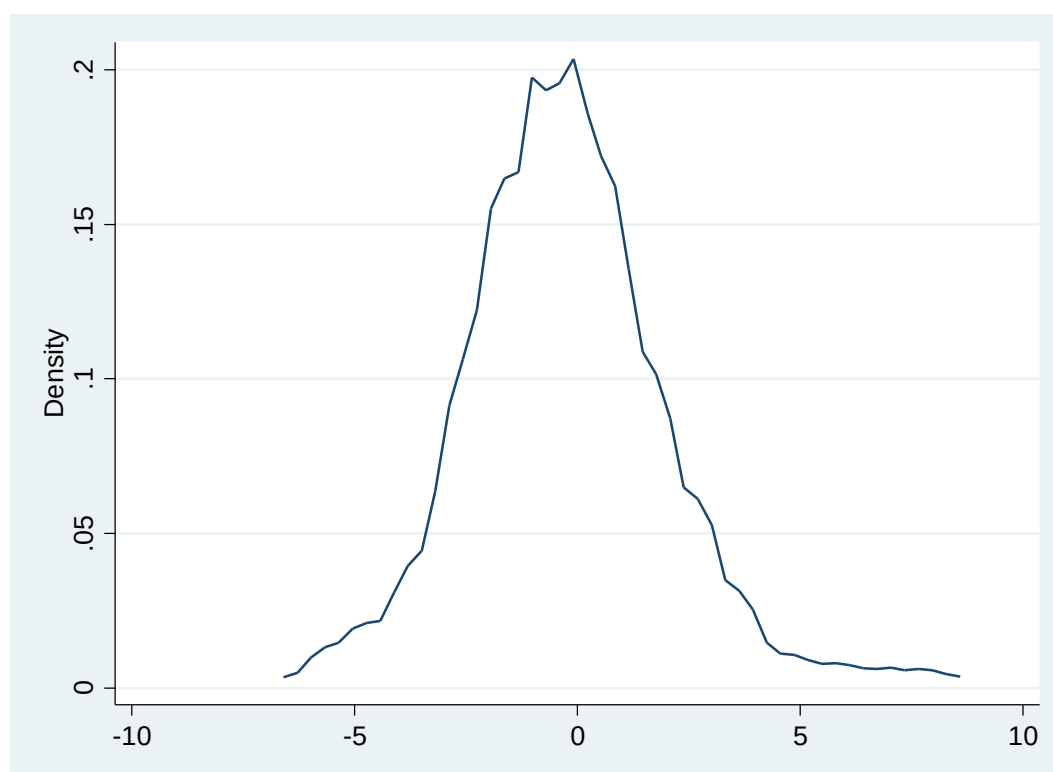
Table 4: Within-Workplace Changes in Performance (weighted percentage of workplaces), 2004-2011, Panel Survey

<i>Change in score:</i>	Financial performance	Labour Productivity	Quality
-3	1	0	0
-2	8	7	4
-1	24	28	25
0	43	38	45
1	18	22	21
2	5	4	3
3	1	1	1

Note: based on unweighted N=441 panel workplaces

Figure 13 shows the change in workplace performance as captured by the additive scale. The minimum score achievable on this scale is -9 (going from the top to the bottom of each of the three performance scales) while the maximum score is +9. In practice, the lowest observed score for a workplace was -6 and the maximum +8. One-fifth (21 per cent) of workplaces score zero, indicating their workplace performance has remained unchanged, relative to the industry average over the period. The proportion improving their performance is similar to the proportion doing less well. Most workplaces that do move tend to move by 1 or two points on the nineteen point scale.

Figure 13: Within-Workplace Change in Performance, Additive Scale, 2004-2011, Panel Survey



Interpreting movement along these scales as indicators of change in the underlying performance of workplaces is not wholly unproblematic. The ratings are ordinal rather than cardinal and those making the evaluations may not be the same manager at both points in time, so caution should be exercised when asserting that movement up or down the scale necessarily corresponds with accounting-type measures of performance such as sales per employee or profitability. That said, the validation of the cross-sectional equivalents of these measures reported earlier gives some confidence that movement in these scales is not simply noise, but provides a signal regarding the underlying direction of the workplace performance. One test of this is that we are able to explain variance in changes in workplace performance with other information in the panel such as changes in employment and changes in wages: if we are not this lends credence to the possibility that noise outweighs the signal.

The panel also contains information on workplace closure for all but a handful of the workplaces surveyed in 2004. Some 1,718 workplaces with SWB information from employees in 2004 provided information regarding their status in 2011 which identified whether or not they had closed between 2004 and 2011. Seventeen per cent had done so.⁶⁶

⁶⁶ For discussion of the correlates of workplace closure for all workplaces, irrespective of whether they provided employee survey data in 2004, see Van Wanrooy et al. (2013: 26-28).

Measuring Employee Wellbeing

The job satisfaction and wellbeing measures in the panel are identical to those presented earlier for the cross-sectional analysis, with two exceptions. Instead of nine job satisfaction items there are eight: the missing item relates to satisfaction with opportunities to develop skills. Instead of six job-related affect (JRA) items the panel contains three items measured in 2004 and 2011. These are the anxiety-contentment items, namely tense, worried and uneasy.⁶⁷ A further three anxiety-contentment items were collected in the 2004 survey but not in 2011. These relate to being calm, relaxed, and content. These items are identical in format and response codes to the other items and are used in the workplace closure analysis, since this relies solely on SWB and other measures collected in 2004 to predict closure.⁶⁸

As in the case of the workplace performance measures it is straightforward to construct measures identifying changes in SWB over time within workplaces by comparing the 2004 workplace means with the 2011 workplace means. These changes are presented in Figure 14.

Figure 14: Within-workplace Change in Employee Wellbeing, 2004-2011, Panel Survey



⁶⁷ The depression-enthusiasm items are only available in 2011, so they are absent from the panel.

⁶⁸ Therefore, if we were to summarise the SWB measures we have in our data in terms of Warr's four-quadrant model illustrated in Figure 1 we have HAUA in the panel models, and HAUA and LAPA in the closure models. We have HAUA and LAUA in the cross-section models.

Recall the job satisfaction 5-point Likert scales have been recoded such that employees saying they are "very satisfied" score 2 and those saying "very dissatisfied" score -2. Thus, on the overall job satisfaction scale which is composed of eight items it is possible for an employee to score between -16 and +16. The workplace means take the individual scores for employees and divide through by the number of employees, such that the workplace mean scores are fairly continuous. A workplace that shifts from the bottom of the ratings to the top would rise 32 points, whereas a workplace going in exactly the opposite direction would fall 32 points. In fact, as is apparent from the top left graph in Figure 12, around 10 per cent of workplaces saw little or no change in their overall mean job satisfaction score. Workplaces at the 25th percentile of the distribution experienced a decline in mean job satisfaction of 2.3 points while those at the 75th percentile experienced an increase in mean job satisfaction of 2.2 points. The biggest drop is 21 points and the biggest rise is 22 points. The distribution of changes in mean non-pecuniary job satisfaction looks similar, though a little more compressed (top right quadrant). Changes in mean workplace pay satisfaction are also centred around zero: workplaces at the 25th percentile in the distribution report a fall in mean pay satisfaction of 0.6 points while those at the 75th percentile report a rise in mean pay satisfaction of 0.5 points.

In contrast to the job satisfaction measures, there does appear to have been a small rise in wellbeing, as measured by the mean of the 3-item contentment-anxiety scale, among the workplaces surviving over the period 2004 to 2011. The median rise is 0.67 points on a scale running between -12 and 12.⁶⁹

Method of Analysis

We perform three different types of analysis to tackle the questions raised above. These are summarised in Box 6.

Box 6: Types of Analyses Conducted with the Panel Workplaces

- Estimating the probability of workplace closure by 2011 as a function of SWB in 2004
- Estimating the relationship between changes in workplace performance and employees' SWB among panel workplaces surviving between 2004 and 2011
- Estimating workplace mean SWB in 2011 as a function of workplace performance in 2004 among panel workplaces surviving between 2004 and 2011

Workplace closure is a binary outcome coded zero if the workplace survives and one if it has closed by the time of the 2011 survey. If a workplace has closed we do not know when this took place - only that it had occurred before workplaces were followed up for a

⁶⁹ For analyses of the factors associated with change in SWB in WERS between 2004 and 2011 see Van Wanrooy et al. (2013: 136-142).

panel interview in 2011.⁷⁰ Probit models were run to estimate this outcome for all workplaces surveyed in 2004 where one or more employee surveys had been completed and returned. The control variables used in these analyses are nearly identical to those listed in Box 3 above in relation to the 2011 cross-sectional analysis: the only differences are that the workplace closure models contain controls collected in 2004 and additional sensitivity checks were performed where we incorporated workplace performance in 2004 as an additional control. The SWB measures used, discussed in detail above, are listed in Box 7. Again, all the SWB measures used in the workplace closure models are recorded in the 2004 survey. Models had sample sizes ranging between 1713 and 1716 workplaces.

Box 7: Workplace Mean Subjective Wellbeing Scores, Panel Models

- 8-item job satisfaction score
- 7-item non-pecuniary job satisfaction score alongside mean pay satisfaction score
- 8-item very satisfied score
- 8-item very dissatisfied score
- 3-item job-related affect score
- 3-item never unwell score
- 3-item always/mostly unwell score
- 6-item equivalents of the job-related affect scores (workplace closure models only)

The second strand of the panel analysis seeks to identify the independent association between within-workplace changes in workplace performance and employees' subjective wellbeing. In doing so we run ordinary least squares regressions which treat changes in performance as a cardinal scale.⁷¹ All analyses are confined to the 441 workplaces with non-missing data on all performance measures in both 2004 and 2011. The models using job satisfaction variables are run on a sample of 439 workplaces whereas job-related affect is non-missing for all 441 workplaces. The time-varying controls used in the analysis are the number of employees in the workplace and the mean hourly wage of employees. In addition sensitivity analyses include the introduction of employment change in the year prior to the survey, but this leads to a reduction in sample size to 405 employees. Models with controls always account for a significant amount of the variance

⁷⁰ In a small number of cases the status of the workplace in 2011 could not be fully determined by survey interviewers. Results presented in the next section are not sensitive to how we treat this small number of cases.

⁷¹ Results presented in the next section are robust to ordered probit regressions which treat the changes in performance as ordinal.

in performance with an r-squared typically in the range of 0.10 to 0.15. The regressions are survey-weighted to account for the probability of a workplace being sampled for the survey and to account for the probability that any employee questionnaires will be returned from a sampled workplace.

We ran some additional checks on the results from these first difference models. First we ran alternative estimates which also recover the effects of changes in SWB in the workplace on changes in workplace performance having accounted for fixed unobservable differences across workplaces. These models, known as fixed effects models, incorporate dummy variables for the individual workplaces to account for fixed unobservable differences across workplaces.⁷² Second, we sought to predict levels of workplace performance in 2011 with control variables, including SWB, measured in 2004. These models incorporated the 2004 performance measure to net out the level of performance in the first period.⁷³ These are only referred to when results provide information not provided by the first difference estimates.

The third strand in the panel analysis establishes whether there is any evidence indicating reverse causality, with workplace performance influencing subsequent SWB. We run ordinary least squares models to estimate the influence of workplace performance in 2004 on mean workplace SWB in 2011, with separate models run to see whether any of the three performance measures (financial performance, labour productivity, and quality of service/output) have any influence. The dependent variables are the additive scales for mean job satisfaction (eight items) and mean job-related affect (three items). Control variables are identical to those listed in Box 3 above but they are all measured in 2004. In sensitivity analyses we also introduce the lagged dependent variable. For example, in estimating influences on mean job satisfaction in 2011 we see whether the association with workplace performance in 2004 is affected in any way by the introduction of mean job satisfaction in 2011. The sample sizes for these models range between 530 and 423 depending on the dependent and independent variables used. The proportion of variance explained by the models with controls, as indicated by the r-squared model fit, is between 0.22 and 0.34.

Results

The workplace closure models with controls were always highly jointly statistically significant confirming that it is possible to predict workplace closure with workplace features collected in WERS surveys.⁷⁴ However, none of the SWB scales were statistically significant in any of the models.⁷⁵ Our results therefore contrast with the only

⁷² These models are very similar to first difference models in a two-period panel such as the 2004-2011 WERS Panel. We also ran pooled cross-sectional estimates with a dummy variable identifying the 2011 survey to see whether the results presented earlier for the 2011 cross-section varied substantially with a reduction in sample size. The key results for the cross-section analysis did not differ in any substantial way from those presented in this section, nor from the cross-sectional analyses presented earlier.

⁷³ These models are called lagged dependent variable (LDV) models. Their value is that they seek to account for differences across workplaces in the starting value of performance. This lagged dependent variable can help capture part of differences across workplaces in pre-2004 trends in performance that might conceivably influence subsequent performance and SWB in 2004.

⁷⁴ This is apparent from other WERS studies too. See, for example, van Wanrooy et al. (2013) and Bryson (2004).

⁷⁵ When we entered the SWB measures together as separate elements of job satisfaction and wellbeing three items were statistically significant: satisfaction with job security in 2004 and feeling "tense" were both negatively associated

other study we know of this kind in which Bartel et al. (2011) study the association between the closing of branches in a large commercial bank and mean branch-level employee "positive attitudes" two years earlier. They found the bank closed branches with more negative employee attitudes.

Table 5 summarises results from 22 models for each of the four performance measures among surviving workplaces. As in the case of the cross-sectional analyses presented earlier, the SWB variables are not entered together. Rather they are entered in the following way:

- Overall mean employee job satisfaction and overall job-related affect: entered separately then alongside one another
- Non-pecuniary job satisfaction and pay satisfaction are entered together, alongside the JRA scale
- The non-linear equivalents of these terms are entered in a similar fashion. The dissatisfaction and ill-being measures are entered in one set of models, while the 'very satisfied' and ill never' measures are entered in an alternative set of models.

with workplace closure by 2011 whereas feeling 'uneasy' was associated with a higher probability of workplace closure. However, we do not attach too much weight to these results since the SWB scales were never statistically significant and because some significant effects are likely to emerge by chance when running so many models.

Table 5: First Difference Models Estimating Effects of Changes in SWB on Changes in Workplace Performance, 2004-2011 Panel

	Financial performance	Labour Productivity	Quality	Additive Performance Scale
<i>Means:</i>				
Job satisfaction	+	[+]	+	+
Non-pecuniary job sat	+	+	+	+
Pay Satisfaction	ns	[-]	ns	[-]
JRA	ns	ns	ns	ns
<i>Means for asymmetric effects:</i>				
Job dissatisfaction	-	[-]	-	-
Very satisfied	ns	ns	+	+
'Ill' most/all time	ns	ns	[-]	[-]
'Ill' never	ns	ns	ns	ns

Notes: (1) + denotes a positive association with the performance measure that is robust across models that is statistically significant at a 95% confidence level. - denotes the same for negative associations. ns means 'not statistically significant'. [] denotes a finding that is statistically significant in at least one model but not all. (2) These results relate to the first difference regression models described above. Models were run that included: no controls; time-varying controls for the number of employees at the workplace and mean hourly wages; and a model containing these time-varying controls plus the annual change in employment prior to the surveys in 2004 and 2011. (3) The SWB measures are described in the text. (4) The unweighted sample sizes are provided in the text.

The results can be summarised as follows:

- Increasing overall mean employee job satisfaction is associated with increases in all four workplace performance measures⁷⁶
- Increasing mean non-pecuniary job satisfaction is positively associated with changes in all four workplace performance measures. Increasing pay satisfaction, on the other hand, is not significantly linked to changes in financial performance and quality and, in some models, it is associated with reductions in labour productivity and the additive performance scale
- Workplaces with rising job dissatisfaction experience deterioration in all four performance measures, whereas workplaces with an increase in the mean score for "very satisfied" employees experience rising quality of output or service and an increase in the additive performance measure, but not financial performance or labour productivity

⁷⁶ Although mean job satisfaction is not statistically significant in all the labour productivity models run on this sample, it is positive and statistically significant in all models when run on the larger sample (between 597 and 549 cases depending on model specification) having retained some cases which, while non-missing on labour productivity, have missing values on financial performance or quality of output.

- Changes in job-related affect are not correlated with workplace performance, regardless of the measure used, although there is some evidence that an increase in the mean employees reporting "ill-being" most or all of the time is associated with deteriorating quality of output or service and a decline in the additive performance scale, at least in some models.

Some of these key findings reflect those from the cross-sectional analyses. In general, job satisfaction appears to be associated with improved workplace performance - also reflecting Bockerman and Ilmakunnas's (2010) findings for Finland - whereas job-related affect is generally not statistically significant. However, the effects of pay satisfaction run counter to those from the cross-sectional analyses which showed higher pay satisfaction in 2011 was associated with higher workplace performance in 2011. We therefore investigated this issue further with alternative panel models which sought to predict workplace performance in 2011 with individual job satisfaction measures in 2004, together with control variables.⁷⁷ These models revealed a strong statistically significant positive association between pay satisfaction in 2004 and higher workplace performance in 2011. This was the case for financial performance, labour productivity and quality of output or service. Furthermore, these findings were robust to the inclusion of a lagged dependent variable (that is, the 2004 equivalent of the 2011 performance dependent variable) and even to the introduction of contemporaneous SWB items measured in 2011. This is potentially important since the lagged dependent variable panel models seek to address omitted variables that relate to trends prior to the 2004 survey. The literature suggests that first differencing and the lagged dependent variable model may bound the true effect of a particular variable in which case, it is possible that the first difference estimate understates the impact of pay satisfaction whereas the lagged dependent variable model may overstate it (Angrist and Pischke, 2009). Finally, we found no evidence of reverse causality in the models seeking to predict employees' SWB in 2011 with workplace performance in 2004. None of the performance measures were statistically significant. These findings support the contention in our earlier conceptual framework and theoretical review suggesting that the arrow of causation runs from SWB to workplace performance, rather than in the other direction.

⁷⁷ The control variables, which are all measured in 2004, are: single-site organisation; establishment size (6 dummy variables); establishment age; industry (12 dummy variables); public sector; region (11 dummy variables); union recognition; largest occupational group (9 dummy variables); and mean hourly pay.

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