

WORK EFFORT AND WORKER WELL-BEING IN THE AGE OF AFFLUENCE.

By Francis Green.

The 1990s was a decade of work intensification but falling work hours in many countries. Three main questions are investigated using data drawn from nationally-representative British surveys. Did effort reach a plateau in Britain in the first half of the 2000s? Second, what has been happening to the various dimensions of worker well-being in Britain during the period, both overall and within the different sectors? Third, across the full range of jobs is there an overall negative relation of work effort with well-being, and is that relationship non-linear?

Findings are:

- There was a substantial work intensification between 1992 and 2001, but effort remained on a plateau between 2001 and 2006, while long-hours working decreased for males. Though found in all sectors, the 1990s work intensification was greatest for school teachers.
- Average well-being remained stable between 2001 and 2006.
- The association between effort and both measures of well-being is negative throughout the range of jobs. In the case of Enthusiasm-Depression, the magnitude of the marginal impact of rises in effort on well-being increases as effort becomes higher.
- The design of a job as a high-strain job (high-effort, low-discretion), compared with a low-strain job, makes a large difference to the well-being of the job-holder, relative to the existing distribution of well-being.
- This estimate puts into perspective the finding that the proportion of workers in “high-strain” jobs continues to rise, especially for women, and calls for a greater national emphasis on improved job design.

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EXECUTIVE SUMMARY

1. Introduction.

The 1990s was a decade of work intensification in many industrialised countries – most notably in Australia, Belgium, Britain, France, Ireland, Italy, Luxemburg, The Netherlands, Spain and Sweden. Workers in other countries, including the United States and New Zealand, are also likely to have experienced rising work effort in the 1990s, though the evidence is somewhat weaker. This widespread intensification has laid a significant foundation for increased stress in the workplace. The same decade also saw, however, a countervailing tendency towards a reduction in average hours of work in most countries.

This paper aims, first, to provide an update on work intensification and on the trend in working hours up to the middle of the 2000s. Second, I deliver detailed analyses using British data of how levels of required work effort and long hours are distributed across industries and occupations, and asks whether high work loads are being concentrated in specific sectors of the economy. These analyses are then put into perspective through my third objective, the provision of new estimates of the association between work effort, hours of work, and employee well-being. The distinctive feature of the analysis here is that it derives from an exceptionally rich nationally-representative data set, which provides benchmarks for the distribution of required effort and subjective well-being in the 2000s decade.

A key finding in Britain is that, whereas hours have been falling and work effort has stabilised, there has been a rise in the proportion of “high-strain” jobs, where workers have to put in high effort but are allowed relatively little autonomy. This finding is significant because psychologists have shown (and this paper confirms) that the combination of high effort and low discretion forms a potent brew for the generation of personal stress. Plausible reductions in effort combined with increases in worker discretion would lead to substantive rises in worker well-being, more so than even quite substantial cuts in working hours. The full set of key findings is summarised below.

Europe-wide evidence so far points to a continued process of work intensification in the 2000s. Thus, according to evidence from The Fourth European Working Conditions Survey, the proportion of employees in all the EU15 countries who were “working at very high speed” more than half the time rose from 43.3% in 1995, to 44.4% in 2000, then 48.5% in 2005; similarly, the proportion who were “working to tight deadlines” rose from 45.9% in 1995 to 48.3% in 2000, then 50.0% in 2005.¹

However, the picture varies across countries. While the 1990s trend towards intensification in Belgium and Spain continued during 2000-2005, several countries which had not, during the 1990s, shown evidence of work intensification now did so, including Denmark, Germany, Greece and Portugal. Only one European country – The Netherlands – is recorded to have experienced a retreat in work effort over 2000-2005. Effort was stabilised, however, in several other countries, including Austria, France, Ireland, Italy, Luxemburg, Sweden and the UK. Work effort in Britain had in fact reached a plateau by the late 1990s – there being little evidence of work intensification in the latter few years of the decade according to three separate sources. In addition, recent evidence from the Workplace Employee Relations

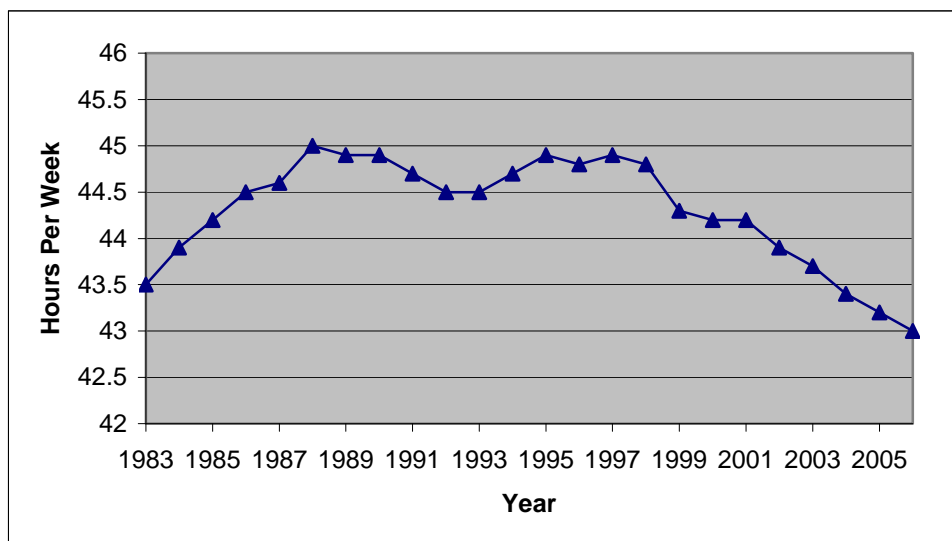
¹ These data are in a forthcoming report on working intensity and working time for the European Foundation for Living and Working Conditions.

Surveys implies neither work intensification nor a decline in effort over the period 1998 to 2004 within establishments having at least 10 workers. Thus, although there remains considerable concern that effort levels were noticeably higher in 2005 than at the beginning of the 1990s, there is at least some relief, from the point of view of employees in Britain, in the finding that matters were not getting still worse.

On top of this partially optimistic finding for Britain comes another welcome development, namely the continued (if slow) decline in weekly work hours (see Figure). As can be seen, the average hours of full-time workers peaked in 1988, then again in 1997, at 45 hours per week, and thereafter steadily declined to 43 hours in 2006. A similar decline is found in the proportions working long hours; among males, the proportion working more than 45 hours a week peaked at 39.6% in December of 1996, then fell steadily by more than 10 percentage points to 29.3% in March of 2007. This fall in working time may be seen as the resumption of a historical tendency, borne of increasing affluence, that began at the height of the excesses of the industrial revolution in the mid-19th century and has continued ever since, though with several periods of stagnation.

Average Hours Worked Per Week of Full-Time Employment.

UK 1983-2006.



Source: European Commission, Eurostat Website (<http://epp.eurostat.ec.europa.eu/portal>).
Data derived from Labour Force Survey.

Explanations for work intensification in modern economies during the 1990s have centred on the role of technology. In previous work I have proposed the concept of “effort-biased technical change” to describe how prevailing technologies have enabled work to be redesigned in ways that facilitate hard work. In formal analyses work intensification is found to be correlated with organisational and technical innovations, while case studies abound which describe how the process occurs. New technologies can also be designed to heighten surveillance techniques on workers in what has been referred to as a modern “panoptikon”. Since the new computerised technologies are found across most sectors and occupations, it is not surprising that work intensification is a pervasive phenomenon.

Many of these factors apply across all sectors, though there is in principle scope for quite some differentiation. Yet analyses to date have shed no light on whether the intensification of work has been stronger in some sectors of the British economy, or indeed whether there were some sectors that escaped the trend. One aim of this article is to examine the differences across industries and occupations.

Work intensification and trends in work hours matter, because long hours and high work effort are generally thought to be detrimental to the health and well-being of workers. The putative effect of long hours on health has normally had the most purchase on policy. Indeed, the politics that enabled the passing of the European Union Directive on Working Time was that excessive work hours was a health and safety issue, and hence was a requirement that could be voted through without unanimity among countries. Direct legal restraints on work intensification are more difficult to devise.

However, the associations between effort and well-being, and between working time and well-being, are not thought to be linear. Employees require some stimulation from external goals, and hence at low levels their well-being can be raised by extra effort and hours. Beyond a certain point the link between effort and well-being becomes first flat then negative. In practice, numerous studies find that high job demands are associated with lower job satisfaction, and lower levels of well-being, while many others find that there is a very low correlation between job satisfaction and effort. The mixed nature of findings is attributed to different studies operating at different points of the curve: some at the point where extra work effort has a neutral impact on well-being, others at the point where overload has a negative effect. Studies are scarce that span the whole range of jobs and therefore capture the putative overall non-linear link between effort and well-being.

An additional factor is that the impact of effort on well-being is found, in line with the “Demand-Control” model, to be moderated by the extent to which workers have autonomy. The impact of high effort on stress and related health disorders is greatest when workers have little control over their work, and are not involved in the organisation.

If a negative association between work effort and well-being prevails, a period of work intensification would lead, other things equal, to a decline in worker well-being. In earlier work I have shown that just such a decline is found, if one looks at the period 1992 to 2001. During this time there was a rise in Britain in a measure of work strain; at the same time, there was a fall in recorded overall job satisfaction, attributable in part to rising work effort and in part to declining task discretion. However, neither overall job satisfaction, nor work strain, can be regarded as comprehensive measures of worker well-being. A more complete picture of subjective well-being at work is provided by the two axes: Enthusiasm-Depression and Contentment-Anxiety developed by Warr. High job demands are typically found to be strongly negatively correlated with the Contentment-Anxiety scale, but the correlation with the Enthusiasm-Depression scale is small, of varying sign, and frequently insignificant. The reason for the latter finding may be that while high effort goes along with “feeling bad” it can also be associated with feelings of arousal. Evidence on the level and change of these measures of well-being is only available on a consistent, representative basis for the 2000s decade, during which time one might expect to find little change, if it is confirmed that effort has continued on a relatively high plateau, and if other determining variables have also remained stable.

The preceding discussion has thus raised three main questions in need of further investigation. First, can it be confirmed that effort reached a plateau in Britain in the first half of the 2000s decade; and, even if this is the overall verdict, are there specific sectors or occupations in which work intensification has continued or retreated during this period? Second, what has been happening to the various dimensions of worker well-being in Britain during the period, both overall and within the different sectors? Third, in the context of the full range of jobs across all of Britain, is there an overall negative relation of work effort with well-being, and is that relationship non-linear? In particular, do any detrimental effects of work effort on well-being become greater at higher effort levels? And, is any negative effect on subjective well-being stronger according to the Contentment-Anxiety axis than it is according to the Enthusiasm-Depression axis?

These questions are addressed using data drawn from four nationally-representative British surveys: the Employment in Britain Survey of 1992, and the Skills Surveys of 1997, 2001 and 2006.

Findings.

A summary of my findings is as follows:

a) Effort Trends and Variation.

- The analysis re-confirms that there was a substantial work intensification between 1992 and 2001, approximately to the same extent for males and females. Moreover, the table indicates that there was no significant change in the proportions experiencing high work effort in the 2001-6 period. It is thus confirmed, and consistent with previous findings on other data sets covering an earlier period, that work effort reached a plateau in the first part of the 2000s decade.
- The decline in long hours working during the 2001-6 period was entirely felt by males, who are in any case far more likely to be working long hours than females. For males, the fall in long-hours working was from 30% to 22%, a substantial drop in just five years.
- The intensification of effort during the 1990s took place within each industry and occupation, with the single exception of Skilled Trades, wherein work effort increased only minimally in the 1990s but substantially in the 2001-6 period. Intensification was strongest by far in the Education sector, where the share of high-effort jobs soared from just 7.3% to 29%, that is, from the lowest-ranked to the highest-ranked industry. A more-refined analysis is possible within this sector, which shows that the greatest intensification was experienced by school teachers during the 1990s, and that effort for this group has remained exceptionally high. The proportion of teachers in high-effort jobs rose from 10.0% in 1992 to 42.3% in 2001 and to 44.2% in 2006. The Hotels and Restaurants industry experienced the second largest intensification. Among occupations, the largest rises in work effort took place among Managers, Professionals and Associate Professionals.
- Cuts in long-hours working during the 2001-6 period are found for most occupations and industries, especially among those most prone to working long hours in the first place, such as Managers and Professionals. But, the cuts

in long hours working were not universal: they did not occur either in Manufacturing or in Hotels & Catering.

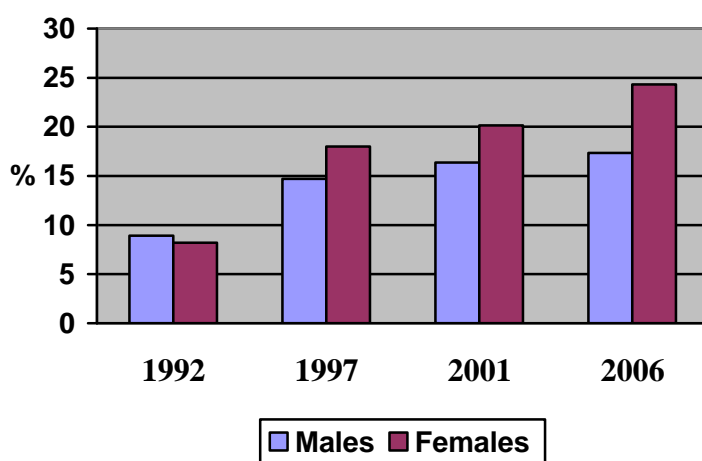
b) Well-Being Trends.

- Average well-being, measured along both the Contentment-Anxiety axis and the Enthusiasm-Depression axis, remained stable between 2001 and 2006. There were also no significant changes within individual sectors or occupations, with one exception being the Transport industry, where the proportions with low well-being fell from 20% to 11%.

c) The Association Between Effort and Well-Being.

- The association between effort and both measures of well-being is negative throughout the range of jobs. In the case of Enthusiasm-Depression, the downward impact of marginal increases in effort on well-being increases as effort becomes higher. The effect of effort on both dimensions of well-being is alleviated in jobs where there is high task discretion. A high-strain job is defined as having high required effort and low task discretion. The estimates suggest that the design of a job as a high-strain job, compared with a low-strain job, would make a big difference to the well-being of the job-holder, relative to the existing distribution of well-being. This effect is much larger than would be predicted by a large cut in work hours, for example from 40 to 30 hours a week.
- This estimate puts into perspective the finding that the proportion of workers in “high-strain” jobs continues to rise, especially for women, and calls for a greater national emphasis on improved job design.

Proportion of High-Strain Jobs , by Sex



Note: A high-strain job is defined as having high required effort and low task discretion. See text of full paper.

Introduction.

The 1990s was a decade of work intensification in many industrialised countries – most notably in Australia, Belgium, Britain, France, Ireland, Italy, Luxemburg, The Netherlands, Spain and Sweden. Workers in other countries, including the United States and New Zealand, are also likely to have experienced rising work effort in the 1990s, though the evidence is somewhat weaker (Ashkenazy et al., 2007; Green, 2001, 2006; Merllié and Paoli, 2001; Green and MacIntosh, 2001; Morehead et al., 1997; Burchell et al., 2002).² This widespread intensification has laid a significant foundation for increased stress in the workplace. The same decade also saw, however, a countervailing tendency towards a reduction in average hours of work in most countries.³

This paper aims, first, to provide an update on work intensification and on the trend in working hours up to the middle of the 2000s. Second, I deliver detailed analyses using British data of how levels of required work effort and long hours are distributed across industries and occupations, and asks whether high work loads are being concentrated in specific sectors of the economy. These analyses are then put into perspective through my third objective, the provision of new estimates of the association between work effort, hours of work, and employee well-being. The distinctive feature of the analysis here is that it derives from an exceptionally rich nationally-representative data set, which provides benchmarks for the distribution of required effort and subjective well-being in the 2000s decade.

The term “work effort” calls for conceptual clarity, since it is used to mean different things by assorted writers. I use “work effort” to refer to the intensity of mental and/or physical exertion during working time, thus distinguishing the concept from working time itself.⁴ In a simple job, involving series of equally demanding tasks, intensity could be encapsulated (negatively) by Marx’s metaphor of “porosity”, referring to the gaps of idle time during the working day. Most jobs are more complex, however, and involve overlapping tasks that place varying demands on workers.

The measurement of work effort is problematic in most practical work contexts. There being no means of directly measuring mental effort, researchers use the currency of experts’ or individuals’ reports of effort and of job demands. Both the numbers and the difficulty of job demands have been used as indicators, in specific contexts, of work overload. It is also possible, with safeguards, to use self-reports of the demands of jobs. There are two key aspects to the use of such data in social-scientific analyses. First, it is preferable to focus on required work effort, that is, on the demands of the job itself, rather than asking employees how hard they personally work. Second, it is important to ask job-demand questions across time in identical ways including identical response scales. Providing the time elapsed between surveys is not very large one can defend the assumption that changes in the distribution of responses reflects a genuine change in work effort. Here I shall utilise an index of required work effort derived from survey responses at successive time points with intervals of less than a decade. While work intensification is implied in several qualitative studies of work organisation (e.g. Erlandsson, 2007), most previous formal studies of work intensification have adopted this procedure.

² In Finland, the 1980s was the decade of rising work effort (Lehto and Sutela, 2005).

³ European Foundation for the Improvement of Living and Working Conditions (2007: 17)

⁴ The US-dominated labour economics literature usually treats working time as synonymous with effort.

Europe-wide evidence so far points to a continued process of work intensification in the 2000s. Thus, according to evidence from The Fourth European Working Conditions Survey, the proportion of employees in all the EU15 countries who were “working at very high speed” more than half the time rose from 43.3% in 1995, to 44.4% in 2000, then 48.5% in 2005; similarly, the proportion who were “working to tight deadlines” rose from 45.9% in 1995 to 48.3% in 2000, then 50.0% in 2005.⁵

However, the picture varies across countries. While the 1990s trend towards intensification in Belgium and Spain continued during 2000-2005, several countries which had not, during the 1990s, shown evidence of work intensification now did so, including Denmark, Germany, Greece and Portugal. Only one European country – The Netherlands – is recorded to have experienced a retreat in work effort over 2000-2005. Effort was stabilised, however, in several other countries, including Austria, France, Ireland, Italy, Luxemburg, Sweden and the UK (European Foundation for the Improvement of Living and Working Conditions, 2007: 58). Work effort in Britain had in fact reached a plateau by the late 1990s – there being little evidence of work intensification in the latter few years of the decade according to three separate sources (Burchell and Fagan, 2002; Gallie, 2006; Green, 2006). In addition, recent evidence from the Workplace Employee Relations Surveys implies neither work intensification nor a decline in effort over the period 1998 to 2004 within establishments having at least 10 workers (Brown et al., 2006). Thus, although there remains considerable concern that effort levels were noticeably higher in 2005 than at the beginning of the 1990s, there is at least some relief, from the point of view of employees in Britain, in the finding that matters were not getting still worse.

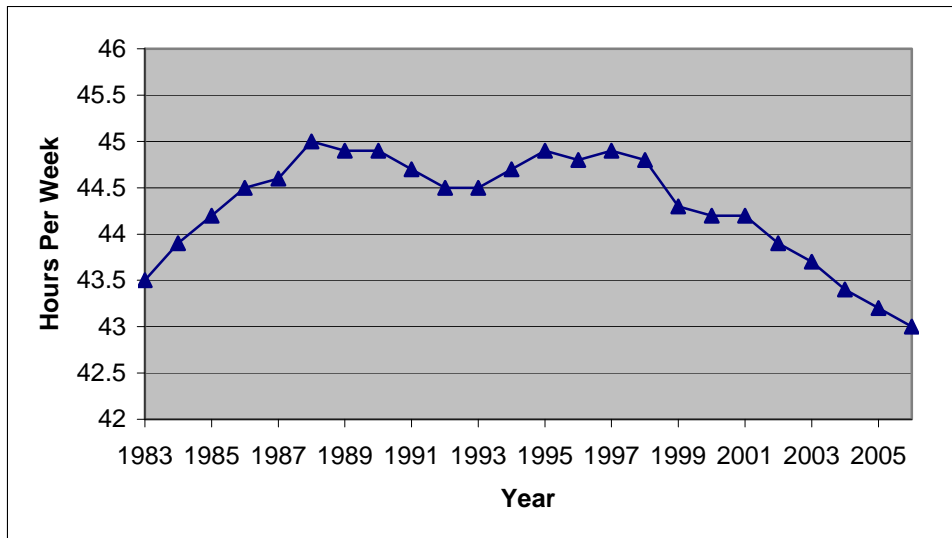
On top of this partially optimistic finding for Britain comes another welcome development, namely the continued (if slow) decline in weekly work hours (see Figure 1). As can be seen, the average hours of full-time workers peaked in 1988, then again in 1997, at 45 hours per week, and thereafter steadily declined to 43 hours in 2006. A similar decline is found in the proportions working long hours; among males, the proportion working more than 45 hours a week peaked at 39.6% in December of 1996, then fell steadily by more than 10 percentage points to 29.3% in March of 2007.⁶ The fall in working time may be seen as the resumption of a historical tendency, borne of increasing affluence, that began at the height of the excesses of the industrial revolution in the mid-19th century and has continued ever since, though with several periods of stagnation. An interruption in the decline coincided with the beginning of Margaret Thatcher’s new economic regime. The resumption in the mid-1990s pre-dated the implementation in Britain of the European Directive on Working Time, and is found even in sectors not covered by the Directive (Green, 2003); yet the Directive may have helped to consolidate the progress being made in subsequent years. One consequence of the decline in work hours is that the UK no longer holds top place for working hours in Europe among full-time workers (see Figure 2). That dubious honour goes to the workers of Iceland, followed by those of Greece and Austria. Since part-time workers in the UK normally work fewer hours than average, the UK overall weekly hours are not exceptional. Taking all jobs the average weekly

⁵ These data are in a forthcoming report on working intensity and working time for the European Foundation for Living and Working Conditions.

⁶ Source: Office of National Statistics, <http://www.statistics.gov.uk/statbase>. Note that the proportion of long-hours-working females fell only a small amount, from 10.4% to 9.6% over the same period.

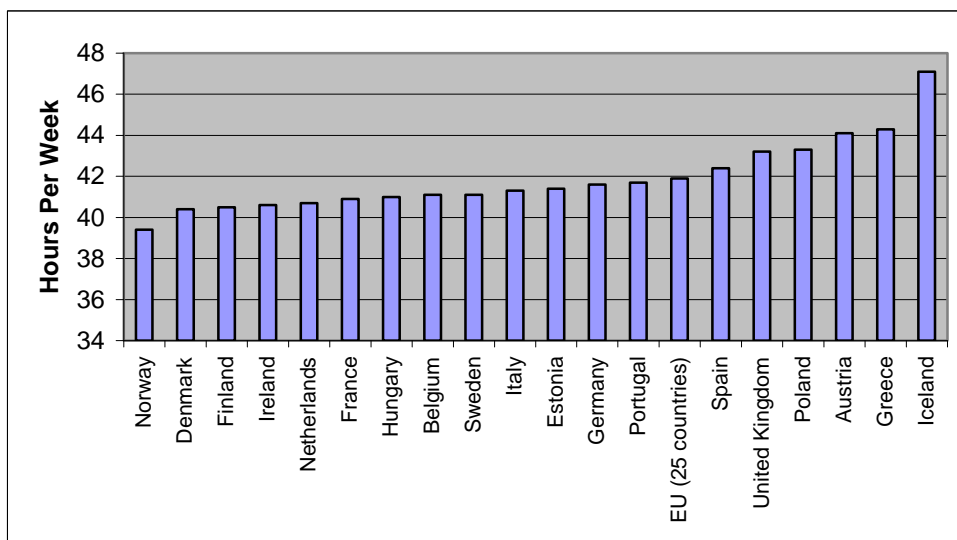
hours worked in the UK stood at 35.4 hours in early 2007, compared with an average across the 27 European Union countries of 37.7 hours.⁷

Figure 1 Average Hours Worked Per Week of Full-Time Employment. UK 1983-2006.



Source: European Commission, Eurostat Website (<http://epp.eurostat.ec.europa.eu/portal>). Data derived from Labour Force Survey.

Figure 2 Average Hours Worked Per Week of Full-Time Employment. Across Europe, 2005.



Source: European Commission, Eurostat Website (<http://epp.eurostat.ec.europa.eu/portal>). Data derived from Labour Force Survey, can be downloaded under Population and Social Conditions theme, sub-category: Labour Market/Employment.

⁷Source: European Labour Force Survey data, reported in Romans and Hardarson (2007).

Explanations for work intensification in modern economies during the 1990s have centred on the role of technology. In previous work I have proposed the concept of “effort-biased technical change” to describe how prevailing technologies have enabled work to be redesigned in ways that facilitate hard work. In formal analyses work intensification is found to be correlated with organisational and technical innovations, while case studies abound which describe how the process occurs (Green, 2004a, 2006). New technologies can also be designed to heighten surveillance techniques on workers in what has been referred to as a modern “panoptikon”. Since the new computerised technologies are found across most sectors and occupations, it is not surprising that work intensification is a pervasive phenomenon.

Other factors may also be in play, including the imperative to work hard owing to consumer pressures, and the decline in union power. A lesser role for unions has been matched by successive waves of organisational innovation, ushering in flexible production strategies that have taken advantage of new technologies to redesign jobs in the pursuit, as managers perceive it, of higher productivity. The problem is that managers’ perceptions and interests do not necessarily comply with good job design for long-term employee well-being. These factors also apply across all sectors, though there is in principle scope for quite some differentiation. Yet analyses to date have shed no light on whether the intensification of work has been stronger in some sectors of the British economy, or indeed whether there were some sectors that escaped the trend. One aim of this article is to examine the differences across industries and occupations.

Work intensification and trends in work hours matter, because long hours and high work effort are generally thought to be detrimental to the health and well-being of workers. Good reviews about these associations are provided in Warr (2007) and in Wichert (2003). The putative effect of long hours on health has normally had the most purchase on policy. Indeed, the politics that enabled the passing of the European Union Directive on Working Time was that excessive work hours was a health and safety issue, and hence was a requirement that could be voted through without unanimity among countries. Direct legal restraints on work intensification are more difficult to devise.

However, the associations between effort and well-being, and between working time and well-being, are not thought to be linear (Warr, 2007). Employees require some stimulation from external goals, and hence at low levels their well-being can be raised by extra effort and hours. Beyond a certain point the link between effort and well-being becomes first flat then negative. In practice, numerous studies cited by Warr (2007: 165-170) find that high job demands are associated with lower job satisfaction, and lower levels of well-being, while many others find that there is a very low correlation between job satisfaction and effort. The mixed nature of findings is attributed by Warr to different studies operating at different points of the curve: some at the point where extra work effort has a neutral impact on well-being, others at the point where overload has a negative effect. However, another possible cause of the mixed results should not be discounted, namely the varied methodologies and means of measurement used to investigate the effect. Studies are scarce that span the whole range of jobs and therefore capture the putative overall non-linear link between effort and well-being.

An additional factor is that the impact of effort on well-being is found, in line with the “Demand-Control” model, to be moderated by the extent to which workers have

autonomy. The impact of high effort on stress and related health disorders is greatest when workers have little control over their work, and are not involved in the organisation (Theorell, 2004). The aim of Section 5 below is to investigate the association between effort and mental well-being, allowing both for non-linear effects and for possible interactions with worker autonomy, in the context of a nationally representative sample of jobs.

If a negative association between work effort and well-being prevails, a period of work intensification would lead, others things equal, to a decline in worker well-being. In earlier work I have shown that just such a decline is found, if one looks at the period 1992 to 2001. During this time there was a rise in Britain in a measure of work strain; at the same time, there was a fall in recorded overall job satisfaction, attributable in part to rising work effort and in part to declining task discretion (Green and Tsitsianis, 2005; Green, 2004b). However, neither overall job satisfaction, nor work strain, can be regarded as comprehensive measures of worker well-being. A more complete picture of subjective well-being at work is provided by the two axes: Enthusiasm-Depression and Contentment-Anxiety developed by Warr (1990). High job demands are typically found to be strongly negatively correlated with the Contentment-Anxiety scale, but the correlation with the Enthusiasm-Depression scale is small, of varying sign, and frequently insignificant. The reason for the latter finding may be that while high effort goes along with “feeling bad” it can also be associated with feelings of arousal. Evidence on the level and change of these measures of well-being is only available on a consistent, representative basis for the 2000s decade, during which time one might expect to find little change, if it is confirmed that effort has continued on a relatively high plateau, and if other determining variables have also remained stable. In Section 4 I investigate the changes in the different dimensions of worker well-being during this decade so far.

The preceding discussion has thus raised three main questions in need of further investigation. First, can it be confirmed that effort reached a plateau in Britain in the first half of the 2000s decade; and, even if this is the overall verdict, are there specific sectors or occupations in which work intensification has continued or retreated during this period? Second, what has been happening to the various dimensions of worker well-being in Britain during the period, both overall and within the different sectors? Third, in the context of the full range of jobs across all of Britain, is there an overall negative relation of work effort with well-being, and is that relationship non-linear? In particular, do any detrimental effects of work effort on well-being become greater at higher effort levels? And, is any negative effect on subjective well-being stronger according to the Contentment-Anxiety axis than it is according to the Enthusiasm-Depression axis?

2. Data and Description of Work Effort, Well-Being and Job Satisfaction.

To address the above questions, we make use of data drawn from four British surveys: the Employment in Britain Survey of 1992, and the Skills Surveys of 1997, 2001 and 2006.

The Employment in Britain survey of employed people in 1992 and aged 20 to 60 comprised an achieved sample of 3,869 individuals. Stratified random sampling was used to select households from sectors drawn from the Postal Address File. One person was interviewed face to face per household, chosen randomly from those that

were found and eligible at each address. Weights were applied to correct for the differential probability of selection depending on the number of eligible persons at each address, and since the achieved sample slightly over-represented women, compared with Labour Force Survey data, a second small correction was also applied, reducing the weight for women and raising the weight for men so as to match national data. Similar methods were used for the Skills Surveys. While the sampling frame for the 2006 survey extended the age range to those aged up to 65 and to Northern Ireland, for comparison purposes only those data points were used in this paper which were located in England, Wales or Scotland, and were aged 20 to 60. For all three years, the analysis was confined to employees only.

Findings based on these data have the attraction of applying to the whole range of jobs to be found in a modern knowledge economy, both the so-called “good jobs” with high rewards and the lower-ranking jobs with poor quality working conditions and less prospects. Details of sampling methods and fieldwork outcomes can be found for each survey in Gallie et al. (1998), Ashton et al. (1999), Felstead et al. (2001) and Felstead et al. (2007).

Required work effort is captured with these data through the use of three items. First, respondents were asked for the strength of their agreement or disagreement with the statement “my job requires that I work very hard”; responses were on a 4-point scale. Second, they were asked the frequency with which their work involved “working at very high speed”, and, third, the frequency with which their work involved “working to tight deadlines”. A principal components analysis for these three variables, pooled over 2001 and 2006, yielded one component with an eigenvector above one, which explained 56% of the variance. This component was treated as an index, Effort A, for analyses focusing on these two years. A kernel density plot of the distribution of Effort A is given in the left-hand upper quadrant of Figure 3. By construction the index has a mean zero but, as can be seen, there is a notable variation around this mean. I defined jobs requiring ‘high effort’ to be jobs where Effort A is more than one standard deviation above the mean – about 18% of jobs. Among high-effort jobs, in eight out of ten cases very-high-speed working is involved “all” or “almost all” of the time; while tight deadlines are involved “all” or “almost all” of the time in nine out of ten cases; and nine out of ten job-holders “strongly agreed” that very hard work was required.

In order to examine effort over a longer period, bringing in the 1992 data, it was necessary to drop the item on tight deadlines which was not used in the 1992 survey. For this purpose a second index, Effort B, was created by combining the two remaining items, after standardising them, with equal weights, with an equivalent second definition of high-effort jobs.

A common method of measuring mental health in survey work is through instruments to capture affective well-being. A considerable body of research into the structure of emotions and moods has suggested that there are two substantive, though not exhaustive, dimensions, which can be labeled “arousal” and “pleasure”. This structure is relevant to describing feelings arising from both work and non-work settings. Within this framework, studies have examined the merits of various instruments for tapping combinations of these dimensions. Relatively straightforward scales tend to be needed for occupational research, so as to gain a good balance of practicality and psychometric acceptability.

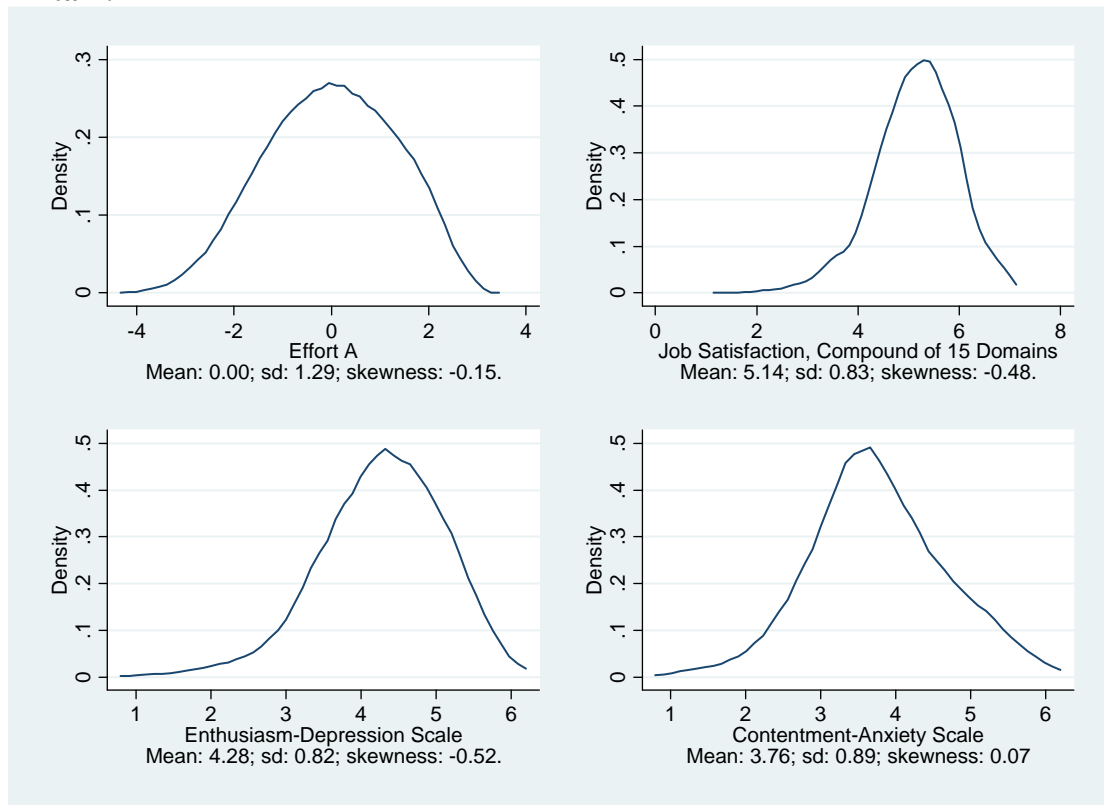
It seemed likely that the link between effort and well-being at work might be more complex than, simply, positive or negative. Rather, effort could simultaneously be associated with positive emotions such as enthusiasm and negative emotions such as anxiety. Hence there was merit in adopting Warr's two instrument approach in the Skills Surveys and for this paper. Warr (1990) examines and validates instruments to tap two correlated axes of affective well-being, namely "Enthusiasm-Depression" and "Contentment-Anxiety". These dimensional axes each comprise combinations of pleasure and arousal. Respondents were asked: "Thinking of the past few weeks, how much of the time has your job made you feel each of the following...?". There followed a series of adjectives, some positive some negative. To tap Enthusiasm-Depression, the adjectives were "depressed", "gloomy", "miserable", "cheerful", "enthusiastic" and "optimistic". To tap Contentment-Anxiety the adjectives were "tense", "uneasy", "worried", "calm", "contented" and "relaxed". Responses were made against a 6-point frequency scale ranging from "never" to "all of the time". For each axis, an indicator scale was constructed by averaging responses to the six items, with the negative items reversed. The scale reliability coefficient (alpha) for the Enthusiasm-Depression indicator was 0.803, and for the Contentment-Anxiety indicator was 0.813.⁸

Finally, I derived a compound measure of job satisfaction, averaging responses on a 7-point scale to items covering 15 different domains, including both extrinsic and intrinsic aspects of jobs as follows: promotion prospects, pay, relations with supervisor or manager, job security, the opportunity to use abilities, being able to use own initiative, the ability and efficiency of the management, hours of work, fringe benefits, the work itself, the amount of work, the variety in the work, the training provided, the friendliness of co-workers, and communications between management and employees.

The distributions of the two axes of well-being and of compound job satisfaction are also shown in Figure 3. The mean values of Enthusiasm-Depression and of Contentment-Anxiety are 4.28 and 3.76 respectively. As can be seen, there is a considerable variation also in the levels of subjective well-being recorded by workers across jobs in the whole of Britain. There are notable minorities experiencing especially high and others experiencing especially low levels of well-being on both scales. I define jobs with low well-being, on each scale, as being more than one standard deviation below the mean – 13% and 16% of jobs for the Enthusiasm-Contentment and Contentment-Anxiety scales respectively. The Enthusiasm-Depression scale also carries a substantive negative skewness: this means that among the low well-being jobs on this scale there are some with especially low well-being. To give one example: among the people reporting low well-being, 37% reported that their job made them feel depressed much, most or all of the time; this compares with just 1% for the rest of the population. Job satisfaction is a little more tightly concentrated around its mean than the well-being measures, but also carries a negative skewness, signaling the presence of a minority of extremely dissatisfied employees.

⁸ Scale reliability indicators of a similar magnitude are given for comparison in respect of a number of other samples in Warr (1990).

Figure 3 The Distributions of Effort, Job Satisfaction and Well-Being at Work in Britain.



Note: These are plots of Kernel density estimators, with widths clockwise from top left: 0.38, 0.12, 0.20 and 0.20.

Data Source: Pooled data from the 2001 Skills Survey and 2006 Skills Survey.

Base: employees in Britain aged 20 to 60.

3. Effort Trends and Variation.

To examine work intensification, and the distribution of effort and its trends among sectors of the economy, Tables 1 and 2 present data effort data in 1992, 2001 and 2006 broken down separately by gender, industry and major occupational group. Given that much of the literature associating work effort with well-being has concentrated on work overload, or on high demands, the data shown are the proportions experiencing high effort required in their jobs, as defined above.⁹

Table 1 re-confirms that there was a substantial work intensification between 1992 and 2001, approximately to the same extent for males and females. Moreover, the table indicates that there was no change in the proportions experiencing high work effort in the 2001-6 period: though the point estimate rose by a little for females, the difference is not statistically significant. It is thus confirmed, and consistent with previous findings on other data sets though covering a somewhat earlier period, that work effort reached a plateau in the first part of the 2000s decade.

⁹ The pattern of change is largely similar, when results are alternatively presented in the terms of the average levels of the indices.

The final two columns give the percentages of employees working long hours (defined as at least 48 hours per week). As can be seen in Table 1, the proportions fell overall in the 2001-6 period, consistent with the previously cited data which was based on the Labour Force Survey. The table shows, however, that the decline in long hours working was entirely felt by males, who are in any case far more likely to be working long hours than females. For males, the fall in long-hours working was from 30% to 22%, a substantial drop in just five years.

Are these changes present in all sectors? The tables show that the intensification of effort during the 1990s took place within each industry and occupation, with the single exception of Skilled Trades, wherein work effort increased only minimally in the 1990s but substantially in the 2001-6 period. In the latter period there was also a continued intensification within manufacturing (though the difference was only statistically significant in the case of high Effort B); meanwhile, there was a decrease in work effort in the Financial industry. There was also a marginally significant increase in work effort among Associate Professionals as a whole during 2001-6. This finding that work intensification took place everywhere is consistent with the explanations cited above that the forces underlying intensification are linked to prevailing pervasive technologies or to other generic factors, rather than with the specific characteristics of the evolution of each industry.

Even though work intensification was widespread it was strongest by far in the Education sector, where the share of high-effort jobs soared from just 7.3% to 29%, that is, from the lowest-ranked to the highest-ranked industry. A more-refined analysis is possible within this sector, which shows that the greatest intensification was experienced by school teachers during the 1990s, and that effort for this group has remained exceptionally high. The proportion of teachers in high-effort jobs rose from 10.0% in 1992 to 42.3% in 2001 and to 44.2% in 2006. It seems likely that this intensification reflects the increasing demands upon the education service during the 1990s, combined with the fact of fiscal stringency which limited funds for staff expansion. The Hotels and Restaurants industry experienced the second largest intensification. Among occupations, the largest rises in work effort took place among Managers, Professionals and Associate Professionals.

Cuts in long-hours working during the 2001-6 period are found for most groups, especially among those most prone to working long hours in the first place, such as Managers and Professionals. But, the cuts in long hours working were not universal: they did not occur either in Manufacturing or in Hotels & Catering.

Comparing effort levels across occupations and industries, it is remarkable that little of the variation in effort shown in Figure 1 is associated with the industrial or occupational structure. Within most industries the standard deviation hovers around 1.29, which is the standard deviation for the whole sample. The difference between the largest and smallest means of work effort within industrial groups is just 0.46, a good deal smaller than the standard deviation. As Tables 1 and 2 show, the proportion of jobs requiring high effort is relatively high in Hotels and Catering, and quite low in Sales occupations, but on the whole there is quite a small range of variation across jobs. What this means is that much of the variation in work effort cannot be accounted for in terms of major occupation groups and single-digit industries. Rather, the

findings point to finer disaggregations¹⁰ and to the characteristics of particular jobs, work establishments (and their employers) and individuals as key sources of variation.

Table 1 High Work Effort and Long Hours, 1992, 2001 and 2006, by Gender and by Industry.

	High Effort B			High Effort A		Long Hours	
	%			%		%	
	1992	2001	2006	2001	2006	2001	2006
All	10.1	20.4	21.2	17.8	18.7	19.3	14.5
Males	8.6	18.2	18.3	17.0	17.1	30.0	21.6
Females	11.7	23.0	24.1	18.8	20.4	7.2	7.2
Manufacturing	10.0	16.4	19.3	17.8	19.1	22.9	20.9
Construction	12.7	20.5	20.9	18.3	20.6	30.3	21.9
Wholesale & Retail	11.6	16.9	18.7	16.9	15.5	17.0	9.1
Hotels & Restaurants	11.1	27.0	27.7	25.0	24.6	10.7	14.1
Transport & Storage	9.9	20.1	20.6	20.0	20.6	29.4	24.7
Financial	13.4	27.3	19.9	23.7	20.2	16.6	17.4
Real Estate & Business Services	9.0	20.3	20.3	16.5	17.0	22.3	17.4
Public Administration	9.3	19.8	18.5	15.4	17.4	13.1	6.9
Education	7.3	28.2	29.4	21.4	22.6	22.9	18.4
Health & Social Work	11.2	21.4	23.4	15.4	20.3	8.2	6.6
Personal Services	9.1	21.0	19.6	15.2	14.1	15.2	7.1

Notes:

High Work Effort is defined as work effort more than one standard deviation above the mean.

Long hours working is defined as at least 48 hours a week. For definitions of Effort A and Effort B, see text. Industries are classified according to SIC92 codes.

Base: employees in Britain aged 20 to 60.

¹⁰ In addition to teachers, another significant group with a large proportion doing high-effort jobs in 2006 were: nurses, paramedics and midwives (40.6%).

Table 2 High Work Effort and Long Hours, 1992, 2001 and 2006, by Occupation.

	High Effort B			High Effort A		Long Hours	
	%			%		%	
	1992	2001	2006	2001	2006	2001	2006
Managers	9.6	25.9	26.3	23.9	22.9	38.8	30.6
Professionals	6.5	27.8	27	21.6	21.7	32.9	19.7
Associate Professionals	12	21.7	25.5	16.7	20.9	15.0	10.1
Administrative & Secretarial	12.1	20.8	18.3	16.5	16.3	3.4	3.7
Skilled Trades	11.4	13	22	12.7	21	23.7	19.8
Personal Service	13.4	20.2	18.1	15.3	13.9	5.2	6.6
Sales	10.6	15.9	15	12.8	11.2	3.3	3.4
Plant & Machinery Operatives	10.3	15.3	14.2	18.0	15.5	29.3	22.0
Elementary Occupations	6.2	17.3	16	19.0	18.4	14.0	9.7

Notes: See Table 1. Occupations are classified by SOC2000 Major Groups.

Table 3 Low Worker Well-Being and Job Dissatisfaction, by Gender and by Industry.

	Low Enthusiasm - High Depression %		Low Contentment – High Anxiety %		Low Satisfaction/ High dissatisfaction %
	2001	2006	2001	2006	2006
All	13.6	12.8	16.0	15.4	5.1
Males	15.3	13.2	16.1	14.9	5.1
Females	11.7	12.5	16.0	16.0	5.2
Manufacturing	19.0	17.1	14.2	13.4	21.1
Construction	8.4	9.3	12.6	10.8	11.1
Wholesale & Retail	14.6	13.3	15.1	11.4	14.9
Hotels & Restaurants	13.8	17.2	13.6	14.7	15
Transport & Storage	20.4	11.2	20.7	17.2	18.2
Financial	11.8	16.8	14.4	19.4	10
Real Estate & Business Services	9.9	11.7	16.2	17.8	13.2
Public Administration	13.8	14	16.5	16.2	9.5
Education	10.9	7.4	20.5	18.4	11.6
Health & Social Work	9.1	11.3	15.6	17.1	12.3
Personal Services	13.1	14.5	15.3	14	12.6

Notes: Low Enthusiasm-Depression, low Contentment-Anxiety and low satisfaction are defined as being more than one standard deviation below their respective means. Base: employees in Britain aged 20 to 60.

Table 4 Low Worker Well-Being and Job Dissatisfaction, by Occupation.

	Low Enthusiasm - High Depression %		Low Contentment – High Anxiety %		Low Satisfaction/ High dissatisfaction %
	2001	2006	2001	2006	2006
Managers	8.7	10.9	16.9	20.3	8.8
Professionals	11.9	7.9	25.2	21.2	11.6
Associate Professionals	8.4	11.6	16.1	18.6	12.1
Administrative & Secretarial	16	14.4	17.6	14.7	12.8
Skilled Trades	15	15	9.3	13.1	16.6
Personal Service	8	10.8	11.9	10.2	10.3
Sales	15.5	14.9	16.3	9.5	16.6
Plant & Machinery Operatives	22.6	17.5	14.4	13.5	25.6
Elementary Occupations	18.8	15.4	11.9	10.1	19.1

Notes: see Table 3.

4. Well-Being and Job Satisfaction.

Given that work effort was on a plateau in the 2001-6 period, one might not expect to find substantial changes in reported well-being in this time. Subjective well-being is also affected by other job design features, and in particular most strongly by discretion and autonomy in jobs. Yet, while evidence points to the fact that the 1990s decline in task discretion was halted in the early part of the 2000s (Felstead et al. 2007; Brown et al., 2007), it remains possible that other factors may have brought about significant changes to workers' emotions and feelings at the workplace.

Tables 3 and 4 examine whether there have been changes in subjective well-being over the period, either in aggregate or within particular sectors. They show that well-being has been remarkably stable in this period. There have on average been no changes in well-being, either in aggregate or among males and females separately. In both 2001 and 2006 the mean values for both Enthusiasm-Depression and Contentment-Anxiety do not significantly differ from their respective pooled averages noted in Figure 3. There were also no significant changes within individual sectors or

occupations, with one exception being the Transport industry, where the proportions with low well-being fell from 20% to 11%.

Noticeable again is the comparatively small range of mean well-being across occupations or industries. As might be expected, Enthusiasm-Depression is larger in the lower-skilled occupations than among the higher-skilled occupations, a feature it shares with the proportions experiencing low job satisfaction (or high job dissatisfaction). The extent of low well-being according to the Contentment-Anxiety scale, by contrast, varies little across most occupations, though those in Management and Professional occupations are more likely than the rest to experience low well-being.

This observation, along with the similar one made above in respect of effort, implies that most of the differences in well-being are associated with the design of jobs and with personalities, rather than with the particular industry or occupation involved. As can be seen, jobs anywhere can invoke high levels of anxiety; and while low enthusiasm is somewhat more likely in the unskilled occupations, even managerial and professional occupations have their share of low enthusiasm jobs.

5. The Association between Effort and Well-Being.

It follows that policy-makers concerned with improving job quality should focus evidence-based policies on the findings of occupational psychology concerning job design. High work effort is one of several factors associated with the well-being of workers. Given the work intensification that has happened in Britain and elsewhere, one would like to know as precisely as possible the links between effort and well-being on a national scale.

To address this issue, the question of non-linearity, and to identify the components of well-being potentially most affected by work intensification, Table 5 presents a selection of multivariate analyses of the determinants of worker well-being and job satisfaction.

Column (1) confirms that the relationship between Effort A and Enthusiasm-Depression is unambiguously negative, even after controlling for several other facets of the job (including discretion, hours, gender, education, work experience and computing skills.¹¹ Effort was entered in a quadratic form, as a means of testing whether especially high effort (to proxy work overload) had a larger detrimental association with well-being. As can be seen, this estimate was also negative, confirming that the marginal impact of effort is greater the higher the effort. If well-being were interpreted as 'utility' this finding could be seen as consistent with the assumption in economics of an increasing marginal disutility of effort, the assumption that underpins the theory of labour supply. In fact, the marginal effect of effort on well-being is negative throughout the sample range, even at very low levels of effort.

Column (2) includes an interaction term, as suggested by the Demand-Control model, between effort and task discretion. The estimated coefficient is positive and significant as predicted, showing that increases in effort have less of a detrimental

¹¹ These variables were included on theoretical grounds and guided by earlier studies of well-being. In fact, the pattern of coefficients (though not their magnitudes) on effort and on effort squared was not sensitive to whether or not all these other variables were included or excluded.

effect on well-being when discretion is high. This interaction effect is in addition to the direct positive association between discretion and well-being.

A similar pattern is found for the association between effort and the Contentment-Anxiety scale, except that in this case the estimated coefficient is larger, and there is no significant quadratic relationship. Thus, the negative association prevails across the entire range of high effort and low effect jobs. Again, however, the impact is alleviated by higher levels of task discretion.

In the case of job satisfaction, greater effort has an impact only through the quadratic term. This means that at below-average effort levels (that is, below zero for Effort A) higher effort is associated with greater job satisfaction; this contrasts with the previous finding that more effort is unambiguously associated with lower well-being throughout the range. This revelation serves to emphasise that job satisfaction is not a direct measure of well-being; the concept also involves workers' expectations, and it is possible that there are unobserved links between effort and expectations. Finally, as with the well-being measures, task discretion has a substantial and significant association with job satisfaction, both directly and interacting with high effort.

Long hours have also been cited as a scourge on worker well-being. However, the link between hours and the Enthusiasm-Depression scale is estimated to be quadratic: at low hours, an increase in hours is associated with lower well-being on this scale, but above 40 hours a week the association becomes positive. Similarly, above 51 hours a week the link between hours and job satisfaction turns upwards. A likely explanation for this finding is that long-hours workers may be getting great satisfaction from their work and that may be why they are choosing to work for more hours. In other words, the positive part of the relationship between hours and well-being might be reflecting reverse causation. Other studies reveal similar patterns in the relation between hours and satisfaction (Warr, 2007). Such reverse causation might be thought less plausible in respect of the Contentment-Anxiety scale, and here the estimated association of hours with well-being is unambiguously negative, throughout the observed sample range.

Since these estimates derive from a cross-section analysis, any inference of causation has to be tempered with the qualification that the coefficients could be biased if there is unobserved heterogeneity – that is, there may be other factors, not observed in the data, which affect both well-being and effort. It is therefore safest to record that these are estimates of partial correlations. Nevertheless the Skills Surveys are quite rich in data on job characteristics even if they do not include a comprehensive set of putative determinants of well-being.¹²

With this qualification it is instructive to ask how large are the predicted effects of effort on well-being. It is now conventional to think of 'high-strain jobs' being those where the demands are high and control is low. For illustrative purposes, I take these as jobs where Effort A is high (as per the definition in Table 1) and where the Task Discretion index is at most 2.25, the median value; in the pooled 2001/2006 sample, 9.2% of jobs were 'high-strain' according to this measure. By contrast, 'low-strain' jobs do not require high effort, and have above-median levels of discretion. Using the estimates in Table 5, columns (2) and (4), the differences predict that the two types of

¹² In other regressions not shown, carried out to test the robustness of the conclusions, many other job characteristics were included in the regression, but their inclusion did not alter the pattern of coefficient estimates on effort.

jobs will differ on average by 0.46 on the Enthusiasm-Depression scale and by 0.53 on the Contentment-Anxiety scale: that is, by 56% of the standard deviation on each of the two scales.¹³ Thus, even though there remain other important factors affecting well-being, taken together the high effort and low discretion involved in high-strain jobs are associated with similarly-large large effects on subjective well-being in both dimensions.

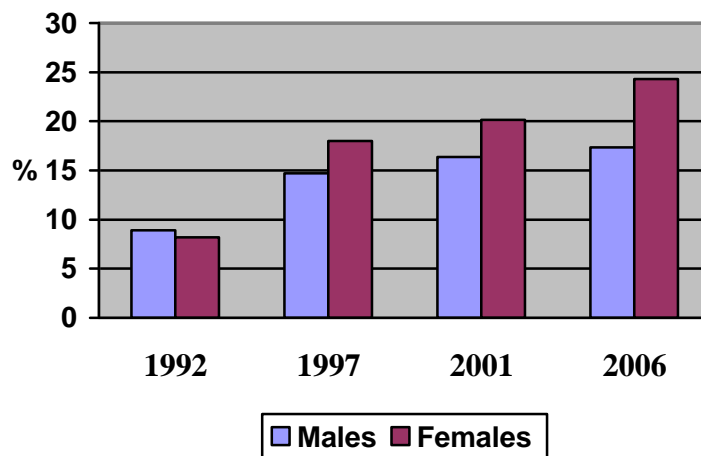
The salience of the combination of high effort and low control outweighs, on these estimates, the potential impact of possible reductions in working time. While job satisfaction and both well-being dimensions are predicted to be higher for part-time workers than for full-time workers, the magnitude of the association, judging by the size of the estimated coefficients, is not all that large. As an illustration, a fall in the working week from 40 to 30 hours would be associated with increases in the Enthusiasm-Depression and Contentment-Anxiety scales of 0.01 and 0.09 respectively. Suppose instead that a reduction were to occur among some full-time workers from 50 to 40 hours a week. Such a fall would raise their well-being Contentment-Anxiety scale by 0.08, and would have a negligible effect on the Enthusiasm-Depression scale. Were these estimates of associations to be interpreted as estimates of causal effects, it would suggest that the small reductions in working time since the mid 1990s noted in the introduction would not, of themselves, be predicted to have had much of an impact on worker well-being.

To illustrate the practical significance of the stronger association between high-strain jobs and well-being, the growth in the proportion of ‘high-strain jobs’ across the whole economy is shown in Figure 3. For the computation of Figure 3 the same definition of low discretion (at or below median) is combined with a dummy variable for those who “strongly agree” that their job requires them to work very hard. With this definition, the proportion of high strain jobs rose in this period from a small beginning, roughly 1 in 11 jobs in 1992, to approximately 1 in 6 jobs (men) and 1 in 5 jobs (women) by 2001. After 2001 the proportion of ‘high-strain jobs’ remained stable for men but for women it rose still further to encompass a quarter of jobs.¹⁴ Thus, especially for this minority of women, the growth of high-strain jobs appears to be an ongoing phenomenon; for this minority the key problem is the combination of high required effort in the job, and a low level of task discretion.

¹³ An alternative comparison would be with “passive” jobs, involving low effort and low control; these yield, relative to high-strain jobs, predicted reductions in the Enthusiasm-Depression and Contentment-Anxiety scales of 0.20 and 0.40 respectively.

¹⁴ A remarkably similar growth pattern is found in Sweden, with the rise of high-strain jobs being more persistent for women than for men (Wikman, 2005). It is also interesting to note the findings of Gorman and Kmec (2007), that both in the US and in the UK women’s work effort is greater than men’s, which, they argue, reflects stricter performance standards for women.

Figure 3. Proportion of High-Strain Jobs , by Sex



Note: A high-strain job is defined as having high required effort and low task discretion. See text.

Table 5 The Relationship of Work Intensity with Worker Well-Being and with Job Satisfaction.

	Enthusiasm-Depression Scale		Contentment-Anxiety Scale		Job Satisfaction, Compound of 15 Domains	
	(1)	(2)	(3)	(4)	(5)	(6)
Effort A	-0.041 (6.19)**	-0.164 (7.84)**	-0.147 (21.03)**	-0.236 (10.62)**	-0.001 (0.14)	-0.089 (3.46)**
Effort A Squared	-0.009 (2.11)*	-0.011 (2.64)**	0.000 (0.02)	-0.002 (0.34)	-0.026 (4.90)**	-0.028 (5.22)**
Task Discretion times Work Intensity		0.057 (6.21)**		0.041 (4.24)**		0.041 (3.60)**
Task Discretion	0.278 (21.49)**	0.278 (21.56)**	0.171 (12.41)**	0.171 (12.44)**	0.405 (25.21)**	0.405 (25.24)**
Hours per Week ÷ 10	-0.101 (4.38)**	-0.097 (4.21)**	-0.129 (5.28)**	-0.126 (5.16)**	-0.152 (4.89)**	-0.148 (4.77)**
Hours Squared ÷ 100	0.013 (4.40)**	0.012 (4.15)**	0.006 (1.79)	0.005 (1.62)	0.015 (3.74)**	0.014 (3.58)**
Male	-0.033 (1.71)	-0.033 (1.71)	0.147 (7.18)**	0.147 (7.19)**	-0.044 (1.86)	-0.045 (1.90)
Observations	9672	9672	9677	9677	5957	5957
R-squared	0.07	0.07	0.11	0.11	0.13	0.13

Notes: These are weighted least squares estimates, using pooled data from the 2001 Skills Survey and the 2006 Skills Survey. Absolute value of t statistics are given in parentheses: * implies significant at 5%, ** significant at 1%. Also included as controls in all columns were: 5 education level dummies, a quadratic in work experience, a computing skill index, 1-digit industry dummies, a dummy for 2006, and a constant term. Base: employees in Britain aged 20 to 60.

6. Conclusion

Among the sicknesses and other horrors of the world that the unfortunate Pandora unleashed from her box, hard work might seem of itself the least unbearable; but it has become a persistent problem in supposedly affluent countries that have conquered many of the other diseases of poverty that escaped her box. Work intensification has been found in very many industrialised countries in the recent era, and became one of the defining features of the 1990s. Yet there are countries where work effort has stabilised during the first half of the 2000s, or even declined. There has also been a renewal of the historical decline in working hours, including a substantive fall in the instance of long-hours working in Britain.

The new analyses presented here have confirmed the intensification of work during the 1990s in Britain, while updating to 2006 the finding that in recent years effort has been travelling on a high plateau, neither rising nor falling significantly. Despite that stability, high effort remains a cause for concern; moreover, the proportion of women in 'high-strain' jobs continued to rise in recent years, according at least to the measure utilised in this article.

Over the whole 1992 to 2006 period it has been found that work intensification was pervasive in all sections of industry and in all occupations. Nevertheless, some groups fared differently. School teachers are one large group who experienced an especially strong intensification during the 1990s, a finding which may well be related to the expanded demand for education combined with fiscal stringency during that period. Among occupations generally, it was those at the top – in Managers and Professional occupations – who experienced the largest rises in work effort.

I have also reported benchmark figures for measures of well-being along the Enthusiasm-Depression scale and the Contentment-Anxiety scale for Britain as a whole. There were no significant recorded changes in the averages for either of these well-being measures during the 2001-6 period.

New estimates of the link between effort and well-being confirm that the association between effort and both measures is negative throughout the range of jobs. In the case of Enthusiasm-Depression, the magnitude of marginal increases in effort on well-being increases as effort becomes higher. The effect of effort on both dimensions of well-being is alleviated in jobs where there is high task discretion. Taking effort and task discretion together, the estimates suggest that the design of a job as a high-strain job, compared with a low-strain job, would make a big difference to the well-being of the job-holder, relative to the existing distribution of well-being. This effect is substantively larger than would be predicted by a large cut in work hours, for example from 40 to 30 hours a week.

If the fall in work hours persists for another decade it should have some positive effects on well-being, but the evidence suggests that weekly hours reductions could not be expected in themselves to be greatly beneficial for workers. This finding points in different directions for the development of working-time policies, including the improved matching of working-time to employee preferences through, among other routes, the further development of work-life balance strategies.¹⁵ In contrast, any policies that can lead to decent reductions in work overload during existing work hours are likely to have a notable beneficial effect on subjective well-being.

¹⁵ The evidence suggests that work-life balance strategies are not associated with lower productivity (Bloom et al. (2006).

Moreover, strategies to improve job design, for example to facilitate greater levels of autonomy and discretion (with associated levels of high trust), would reduce the deleterious impact of high work loads. It is the combination of high work loads and low autonomy workplaces which is most conducive to stress, and unfortunately this combination was growing during the 1990s and, for women, continued to do so in the 2000s. We urgently need to find ways, not just to limit the spread of high-strain jobs but to reverse the trend, if we are to conquer this modern disease.

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