Teamwork, Productive Potential and Employee Welfare

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Editor's Foreword

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Abstract

There has been a sharp divergence in the literature about the benefits of the growth of teamwork, with some claiming that it is solely in the interests of management, others that it is beneficial for employees and yet others that it makes little difference to either productivity or well-being. A feature of this debate is the lack of high quality representative data on employee experiences. This paper draws upon the British Skills Survey Series which provides a particularly rich source of evidence. It shows that, while teamwork did expand between the early 1990s and 2006, this was due primarily to the growth of the type of teamwork that allowed employees little in the way of decision-making power. Indeed there was a decrease in the prevalence of self-directive teamwork. At the same time our evidence shows that the benefits of teamwork, in terms of both productive potential and employee welfare, are confined to self-directive teams, while non-self directive teams suppress the use of personal initiative and discretion at work.

Introduction

Teamwork has been at the centre of debates about whether new forms of work organisation are emerging in advanced capitalist societies. The growth of teamwork has been depicted as a major factor breaking down the hierarchical and conflictual nature of traditional Taylorist forms of work organisation by promoting an organisational design that enhances both managerial objectives of increased productivity and employee self-realisation and well-being. It has been widely suggested that organisations have moved towards more decentralised patterns of responsibility, which offer employees greater initiative and control over their jobs, and which thereby better engage their creative potential and productive capacities. However, other researchers, while agreeing that teamwork is increasingly prevalent, have developed sharply contrasting perspectives on its implications, with some arguing that it has negative effects for experiences of work and others sceptical about whether it makes any significant difference either way.

A number of studies provide some empirical support for the generally positive effects of teamwork. For instance, Cohen and Ledford (1994), examining more than eighty self-managing teams at an American telecommunications company, found that self-managing teams had significantly better job performance and higher employee job satisfaction than traditional working groups or departments. Hamilton et al. (2003) found that the adoption of teams at the plant level improved worker productivity even after taking into account the selection of high-ability workers into teams. Batt (2004) showed that self-managed teams were associated with significantly higher levels of perceived discretion, employment security and satisfaction for workers and were effective in improving objective performance measures. In a wider European study, Benders et al. (2001) also found a positive effect of group delegation for reducing employee absenteeism rates and improving organisational performance. A review of survey based research over the last decade concluded that the great majority of studies had found positive effects on operational measures of organisational performance (Delarue et al. 2007).

A central argument for linking teamwork to higher productivity is that it gives employees a sense of empowerment, by increasing the control they can exercise over

their immediate work environment (Goodman et al. 1988; Harley 1999). Workers with higher control over their jobs are likely to feel more committed to their organisations and more satisfied with their jobs. As a result, they will be more willing to deploy discretionary effort, thereby enhancing organisational performance (Cohen et al. 1996; Dunphy and Bryant 1996b; Pil and MacDuffie 1996). This assumption also underpins theories of 'high commitment' and 'high performance' management systems where teamwork is viewed as one of a set of structural features that enhances organisational effectiveness by raising employee motivation (Ramsay et al 2000).

It has also been argued that teamwork enhances performance through the increased scope it gives employees to use their knowledge, skills and abilities. This raises motivation, thereby reducing shirking and enhancing employee retention (Huselid, 1995; Batt and Appelbaum 1995; Benders et al. 2001b; Dunphy and Bryant 1996; Janz et al. 1997; Spreitzer et al. 1999). At the same time, it facilitates employee learning and skill acquisition, as well as information sharing, which may be particularly important in conditions of growing economic uncertainty (Wagner et al. 1997; Wall et al. 2002; Vaskova 2007). In an economy in which employee expertise and specialist knowledge are increasingly important to corporate performance, teamwork can facilitate employees' accumulation of task-specific human capital by encouraging mutual and collective learning processes. This is particularly likely to be the case for diagnostic skills in complex systems where on-the-job learning is a prerequisite to obtaining the necessary knowledge and for the acquisition of tacit skills, where learning from others is likely to be the most effective source of skill development. For instance, research on the software development industry has shown team-based learning is crucial for engineers' knowledge acquisition (Barrett 2001). Similarly, using nationally representative data for UK employees, Green et al. (2001) have shown that organisational 'flexibility' (which includes membership of quality circles and the participativeness of the organisation) has significant effects in raising a range of generic skills. Furthermore, these benefits accrue to workers irrespective of their contractual status (Felstead and Gallie 2004).

In sharp contrast to these relatively optimistic perspectives on teamwork, other writers have cast doubt on the view that it implies a qualitative break with the hierarchical logic of the past and argue instead that it is a continuation of the rationale of

Taylorism (Dohse et al. 1985; Berggren 1992; Thompson and McHugh 1995; Vidal 2007). Naville (1963) was among the earliest to suggest that teamwork might accentuate the stress experienced by employees by enhancing the level of monitoring and control of work. Later writers have emphasised its ideological consequences. It has been argued that teamwork systems replace supervisory control with a less visible but equally constraining form of normative control, that encourages employees to internalise managerial definitions of organisational goals (Grenier 1988; Barker 1993; Graham 1995). The rhetoric of greater worker autonomy and empowerment therefore masks a strategy of heightened managerial control. Combined with group norm and peer pressure, the deployment of new technologies can make teams take on the responsibility for intensifying their own work activities in a process that amounts to 'Team Taylorism' (Sewell 1996; Bain and Taylor 2002). These accounts then suggest that employees working in the team context are subject to at least as intense scrutiny and monitoring as in earlier work systems. Such claims can take support from the fact that a number of studies have failed to detect any positive effects of teamwork and others have found that it aggravates job strain and work-life conflict (Findlay et al. 2000; Stewart and Barrick 2000; De Dreu and Van Vianen 2001; White 2003; Vaskova 2007).

A notable point about both these broad perspectives on teamwork is that they are based on very limited evidence about the key mechanisms that are held to underlie its effects. As Harley (2001) has pointed out, both optimistic and pessimistic views of teamwork have at their heart the issue of employee task discretion. For the former, its positive effects on individual task discretion are a crucial factor in ensuring high organisational commitment and hence higher productivity. For the latter, its tendency to reduce employee autonomy undermines employee well-being at work. These arguments certainly build on an impressive array of evidence about the implications of task discretion for motivation. It has been widely found that employees who experience greater decision-making latitude at work are likely to have more favourable orientations to their job tasks and their employing organisations (Lincoln and Kalleberg 1990; Gallie et al. 2001; Bakan et al. 2004; Sinclair et al. 2005). However, there is much less well established empirical support for the nature of the crucial link between teamwork and task discretion. A very similar point can be made with respect to the relationship between

teamwork and skill acquisition. Much of the argument is based upon an appeal to plausibility rather than to data. It is clear then that more direct evidence is needed about the intermediary mechanisms that are postulated to account for the effects of teamwork on employee motivation and well-being.

Further, existing research on teamwork has been predominantly based on case study evidence or surveys of limited sectors of industry, leaving unknown the extent to which specific findings can be generalised. An important exception to this, for the UK, is Harley's (2001) study based on the 1998 Workplace Employee Relations Survey. Comparing the experiences of team workers and non-team workers, he found no significant effect of teamworking on employee task discretion, organisational commitment, intrinsic job satisfaction or job stress. On the basis of this he rejected both 'positive' and 'critical' views of teamwork as unfounded. However, this study raises issues of data coverage. WERS provides linked workplace management-employee surveys. The classification of employees as members of particular types of teams has to be based upon information from management about whether members of the largest occupational group in the workplace worked in teams. The need to focus down on employees who were in the largest occupational group in order to carry out the analysis involved major sample losses. Taken together with the decision to exclude 'managerial' employees, the study was restricted to only 19.7% of all valid employee responses. It is notable that other work using the WERS series has come to different conclusions. Green (2008), analysing the 2004 Workplace Employee Relations Survey, found that the impact of teamworking depended on the character of the team. Where team members were not able to jointly decide about work matters (about half of cases) teams were associated with reduced individual discretion, whereas teams with joint decision making were neutral in their effects. There remains then a need for an examination of the effects of teamwork based upon a genuinely representative survey of the workforce and, as Delarue et al. (2007) conclude in the most recent overview of the literature, there is a need to take account of the structural features of teams, such as their degree of autonomy.

In the following sections, after presenting the data we are using, we address in turn three issues. We begin by examining whether there is evidence of a systematic shift in employer policies towards a greater use of teamworking at the workplace level since the

beginning of the 1990s. We then address the question of whether employees who work in 'self-directing' teams have higher potential productivity as a result of greater individual task discretion, better opportunities for learning new skills and higher organisational commitment. Finally, we seek to assess whether teamwork improves employee well-being at work or makes work more constraining and stressful.

Data

To assess these issues, we make use of the rich source of data on work experience provided by the 'British Skills Survey series'. The first of these was the Employment in Britain survey of 1992, which was followed by the three Skills Surveys of 1997, 2001 and 2006. Although not initially conceived as a series, there was a high level of overlap in the questionnaires of the different surveys, with the replication of a wide range of measures providing the possibility of direct comparison over the period as a whole. In particular, the surveys included a common set of questions designed to tap the broad skills of jobs and the level of control employees have over their work task, together with information on organisational commitment and job satisfaction and a wide range of questions on other aspects of the work situation. Most crucially for the present purpose, they all contained a range of questions on whether or not people worked in teams and, if they did, the nature of such teams. In all cases, the surveys were national representative surveys of employees, with interviews conducted at home. The first survey - the Employment in Britain survey - achieved a response rate of 72%. For the Skills Surveys of 1997, 2001 and 2006, the response rates were 67%, 66% and 62% respectively. While the skills surveys give us robust and comparative measures at particular points in time, they are cross-sectional and, as such cannot provide direct information on causal sequences. Our approach then is to assess the consistency of the pattern of the data with the expectations of different theoretical arguments.

Measures and Trends in Teamwork

As has been increasingly recognised in the literature, the concept of 'teamwork' can cover a wide range of potential forms of work organisation. While it implies that people work in some identifiable group, in itself it tells us little about the role allocated to the

team in the work process or the responsibilities that are attributed to it. In principle, one can distinguish a spectrum of types of teamwork ranging from a situation where the work group has little active decision making power to one in which it becomes relatively autonomous in decision-making with respect to both work processes and internal organisation. The dynamics attributed to teams in terms of higher productivity and greater employee well-being are likely to depend not just upon participation in a team, but upon the team having a level of decision-making power that allows the use of employee initiative and a sense of empowerment. The variegated nature of 'teamworking' has been captured in a range of different prefixes such as 'Toyotaism', 'Scandinavian', 'anti-Tayloristic' and 'neo-Tayloristic' (Wood, 1991; Murakami, 1997; Pruijt 2003). However, rarely have different forms of teamworking been investigated using large scale individual-level survey data .

The main evidence for trends in teamwork in Britain has been from employer-level data. This suggests that teamworking has indeed been growing as part of a move towards a greater use of 'high involvement work' practices. The Workplace Employment Relations Survey, for example, found that the proportion of workplaces in Britain with teamworking, multi-skilling and problem-solving groups rose from 22 per cent in 1998 to 29 per cent in 2004. However, it only increased from 15 to 19 per cent if teamworking is restricted to circumstances in which team members rely on the work of each other and the team jointly decides on how the work is to be done (Kersley et al. 2006: 96-97). There is also some evidence from employee data that points in the same direction. Using representative national surveys, McGovern et al. (2007) show that there was a marked overall rise in teamworking in Britain from 46% in 1992 to 58% in 2000.

The Skills Surveys provide a range of questions about team involvement which enable us to distinguish between different forms of teamwork and then investigate the trends in, and impact of, these various organisational forms. To begin with, employees were asked: 'Do you usually work on your own or does your work involve working together as a group with one of more other employees in a similar position to yours?' If people did work in a team, the character of the team was then explored in terms of the influence it could exercise over work practices. In all of the surveys, people were asked how much influence the work group had over how hard they worked, deciding what tasks

they could do, deciding how they are to do the task and deciding the quality standards to which they worked. This makes it possible to distinguish employees working in non-self-directing teams from those in self-directing teams, which have control over their members' work activities. In the 2006 survey these items were further supplemented by three questions focused on the extent of self-management. Team members were asked how much influence the work group had in selecting group members, selecting group leaders and setting targets for the group. This allows us to compare, within the broader category of self-directing teams, the implications of working in a semi-autonomous team (which has control over work activities) with those of working in a self-managed team (where employees have a substantial say over both the work activities of their members and over the composition and leadership of the team).

In investigating whether there has been a growth over time in teamwork we are restricted by the data to the broad contrast between non-self-directed and self-directing teams. Teams are regarded as influential over work activities if they have 'a great deal' or 'a fair amount' of influence over work effort, the choice of tasks, the methods of carrying out tasks and quality standards'. To provide a summary indicator, that takes account of the different dimensions of potential influence, the scores on the items were averaged and those in teams with an average score of 3 to 4 (equivalent to a great deal or a fair amount of influence) were classified as working in 'self-directing teams', those with a score below three as working in 'non-self-directing' teams.[1] Overall, this enables us to compare employees in three different work contexts: those who were not working in a team at all, those in non-self-directing and those in self-directing teams.

What was the pattern of change in the prevalence of these work contexts between 1992 and 2006? As can be seen in Table 1, there is clear evidence of a marked growth of teamwork over the period. In 1992 less than half (47%) of all employees worked in teams, yet by 2001 the proportion had risen to 55% and by 2006 to 59%. But did this confirm the argument that there was a significant expansion of new forms of work organisation, characterised by self-directing teams which had a capacity to influence the activities of their members? Our evidence suggests that this was far from the case. The expansion of teamwork as such was accompanied by a decline, not a rise, in self-directing

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[1] All items were initially rescaled so that a higher score indicated greater influence.

teamwork. Whereas in 1992 21% of employees were in such teams, by 2006 the proportion had fallen to 14%. In practice, most of the decline occurred in the period 1992 to 2001, after which there was little change. The major expansion over the period as a whole was then in teams which had relatively low influence over work practices.

Table 1: Trends in Teamwork 1992 to 2006

	1992	2001	2006
No team	52.9	44.8	41.1
Working in a team (all types)	47.1	55.2	58.9
In non-self-directing teams	25.7	41.3	44.7
In self-directing teams	21.3	13.9	14.2
N	3424	3973	6389

For the most recent survey year – 2006 – we can estimate the proportion of employees who not only controlled their members' work activities but had a significant level of self-management in terms of influence over the team's internal organisation. Teams were defined as 'self-managing' if they not only had control over the work activities of their members, but they also had an average score equivalent to a 'great deal' or 'a fair amount' of influence with respect to setting targets for the group, the selection of the members of the team, and the choice of team leader. Teams that controlled work activities, but were not self-managing we refer to as 'semi-autonomous'.

As can be seen in Table 2, there were substantial differences in the frequency with which employees reported the various forms of team influence. By far the most common area of influence, reported by 54% of employees in teams in 2006, was with respect to work effort. Influence over other areas of everyday work practice was reported by between 30% and 40%. The specifically management dimensions of team influence were rather rarer : only 29% were in teams that set targets, 21% in teams that could select their own members and 15% in teams that selected their own leaders. As a result (Table 3) a much smaller proportion of employees (only 3.5%) were working in self-managed teams than was the case for semi-autonomous teams (10.7%).

Table 2: Team Influence over Work Practices and Team Organisation 2006 (% of employees working in teams)

Influence over:	A great deal	A fair amount	A great deal + a fair amount
Work effort	13.1	41.1	54.2
What tasks	8.0	29.3	37.3
Work methods	6.5	24.2	30.7
Quality standards	11.4	28.1	39.5
Targets	7.3	21.7	29.0
Selection of members	5.7	15.1	20.8
Selection of leader	4.2	10.2	14.6

Were 'semi-autonomous' and 'self-managed' teams concentrated in particular sectors of the workforce? As can be seen in Table 3, the proportions of male and female employees in semi-autonomous and self-managed teams were very similar. There was rather more difference with respect to occupational class, although this did not involve any simple divide by occupational level. The employees least likely to be in either type of self-directing teamwork were administrative and secretarial workers, while the most likely were personal service workers and associate professionals/technicians. The pattern for other classes differed between 'semi-autonomous' and 'self-managed' types of teams. Managers and professionals were less likely than average to be in semi-autonomous teams, but differed little from others in terms of the prevalence of self-managed teamwork. Skilled manual workers were particularly likely to be in semi-autonomous teams, but were close to the average in terms of self-management. Sales and elementary workers were little different from the average in terms of semi-autonomous teamwork, but were very unlikely to be in self-managed teams.

There was also substantial variation between industry sectors. Semi-autonomous and self-managed teamworking was most common in construction, hotels, health and other community services (professional associations, the media, cultural and sports organisations). In contrast it was relatively infrequent in energy, transport and finance.

Table 3: The Distribution of Semi-autonomous and Self-managed Teamwork

	Semi-autonomous	Self-managed	All self-directing
All employees	10.7	3.5	14.2
Men	10.3	3.8	14.1
Women	11.1	3.3	14.4
Managers	6.6	3.7	10.3
Professionals	7.3	3.8	11.1
Assoc prof/technicians	14.1	4.1	18.2
Administrative/secretarial	7.0	1.9	8.9
Skilled trades	14.9	4.1	19.0
Personal services	15.6	7.4	23.0
Sales	11.7	1.8	13.5
Operatives	10.2	3.1	13.3
Elementary	12.0	2.3	14.3
Manufacturing	11.3	3.1	14.4
Electricity	6.8	0	6.8
Construction	14.3	6.9	21.2
Wholesale	9.4	1.8	11.2
Hotels	12.9	5.4	18.3
Transport	6.8	2.8	9.6
Finance	4.9	1.7	6.6
Real Estate	7.6	3.2	10.8
Public administration	8.0	1.9	9.9
Education	10.2	4.7	14.9
Health	15.9	5.1	21.0
Other community services	13.1	5.8	18.9

Teamwork, Task Discretion and Skills

The core arguments about the way in which teamwork affects the potential productivity
of employees focus on its implications for individual task discretion and skill
development. These are seen as important both for their direct effects and for their
indirect effects through stronger employee motivation in terms of organisational
commitment.

Task Discretion

It was seen earlier that the relationship between teamwork and individual task discretion has been a matter of considerable controversy in the literature. Is teamwork associated with a sense of greater control over the job or is it experienced as a constraint on the ability to exercise individual judgment? To measure task discretion, people were asked to assess how much influence they *personally* had over four aspects of their work: how hard they worked, deciding what tasks they were to do, how the task was done and the quality standards to which they worked.[2] To provide an overall picture from these items, a summary index was constructed by giving a score ranging from 0 (no influence at all) to 3 (a great deal of influence) to each item and then taking the average of the summed scores.[3]

To assess the association of different types of teamwork and individual task discretion, we have carried out a series of regression analyses (see Table 4). In each case, employees working in teams with significant influence (semi-autonomous and self-managed) and those in teams with low levels of influence (non-self-directed) are compared to those not working in teams. The initial analyses (column 1) look at the gross effects of the type of teamwork, and the subsequent analyses (column 3) examine the net effects once other potentially important influences on task discretion have been taken into account – namely age, sex, education, occupational class, contract status, industry and establishment size. While cross-sectional evidence of this type cannot allow for the potential effects of unobserved heterogeneity (which would need panel data), it does provide us with the first picture from nationally representative data of the relationship between these factors and their consistency with the major theoretical arguments.

Taking first the results without controls, it can be seen that those in teams that have relatively little decision-making capacity have a highly significant negative coefficient, indicating that they have less say over their jobs than those who work in a non-team context. Those working in semi-autonomous teams are no different with respect to task discretion than those who do not work in a team context. However working in

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[2] The question format was : "How much influence do you personally have on …how hard you work; deciding what tasks you are to do; deciding how you are to do the task; deciding the quality standards to which you work?"

[3] A reliability analysis showed that the items formed a robust index with an alpha of .78.

self-managed teams has a strong positive effect at a high level of statistical significance. The analyses with controls confirm that the pattern for those in non-self-directing and self-managing teams persists even when other important contextual factors are taken into account. The main difference is that, once other factors are controlled, working in a semi-autonomous team is also shown to have a beneficial effect for the individual discretion that employees can exercise at work. This suggests that participation in a semi-autonomous team may offset a work situation that is otherwise disadvantageous for task discretion.

Table 4: Effect of Teamwork on Employee Task Discretion

	Without controls		With controls	
	Coeff	**Sig**	**Coeff**	**Sig**
No team	ref		ref	
Non-self directed	-0.11	***	-0.08	***
Semi-autonomous	0.03	n.s.	0.08	**
Self-managed	0.24	***	0.20	***
N	6377		5899	

Note: OLS regressions with 'no team' as the reference category. Control variables: age, sex, education, occupational class, contract status, industry, establishment size. Sig= *** p<0.001, ** p<0.01, * p<0.05

In short, it would appear that there is some force both to the argument that teamwork provides opportunities for greater exercise of individual initiative in decision making and to the view that it constrains employees' discretion over the work task. But what has been missed in much earlier discussion is that these effects are conditional upon the type of teamwork. It is only where the team itself has significant decision making power that it can provide greater scope for the individual to take decisions. In contrast, where the team's activities remain primarily dependent on decisions by line management, its role tends to curb the autonomy of the individual.

Skill Development

A second way in which teamwork might enhance potential productivity is through creating an environment that is more conducive to learning new skills. This might be

because work within teams is more likely be organised on a multi-functional rather than a highly specialised basis, so that the system of work organisation itself requires an extension of the range of tasks in which people are competent. People may also be more motivated to learn in a collaborative work context and a team environment may be more supportive for the development of skills, by providing more constructive feedback and advice.

The survey includes three indicators of the strength of the learning culture at work. The first two ask people how much they agree that 'My job requires that I keep learning new things'; and that 'My job requires that I help my colleagues to learn new things', with responses ranked on a scale from strongly agree to strongly disagree. The third seeks to tap the individual's personal willingness to acquire new skills. It asks: 'How much do you want to get any training in the future?', with a four point response scale from 'very much' to 'not at all'.

Those in semi-autonomous teams were quite clearly more likely than those not in teams to report that their job required them to continue to learn new things (Table 5). The coefficient is large and at a high level of significance. The effect is even stronger for those in self-managed teams. The same pattern also emerges for both the requirement to help colleagues learn new things and for the person's own willingness to acquire new skills. In both cases, the effect remains clear even when other factors have been controlled. There is strong support then for the view that, at least in teams with significant decision-making responsibilities, employees are in a work context that is more conducive to skill formation.

What was the case for employees in teams without decision-making responsibilities? Are they also higher with respect to skill development or is there a negative effect, as was the case with respect to task discretion? Taking first the perceived learning demands of the job, there is no evidence that teamwork per se increases learning requirements. In contrast to those in semi-autonomous and self-managed teams, the jobs of those in teams that have no decision making responsibilities do not offer greater opportunities for continuing skill development than those of employees who work on their own. But even teams with little influence over their members' activities seem to encourage a more supportive environment for learning in other ways. They are associated

with more mutual help between colleagues and a greater willingness by the individual to learn new skills. Although the strength of such effects is substantially lower than those in teams with greater responsibilities, such settings do appear to generate a supportive environment for learning. But it is only when teams are given significant influence over activities that teamwork enhances the developmental character of the actual work tasks. Overall teamwork in general has some beneficial consequences for learning potential, although the effect is markedly greater in semi-autonomous and self-managed teams.

Table 5: Effect of Teamwork on Skill Development

	Without controls		With controls	
	Coeff	**Sig**	**Coeff**	**Sig**
Job requires keep learning				
No team	ref		ref	
Non-self directed	0.00	n.s.	0.01	
Semi-autonomous	0.52	***	0.61	***
Self-managed	0.89	***	0.87	***
Requires to help colleagues learn new things				
No team	ref		ref	
Non-self directed	0.53	***	0.50	***
Semi-autonomous	0.92	***	1.06	***
Self-managed	1.12	***	1.20	***
Willingness to acquire new skills				
No team	ref		ref	
Non-self directed	0.32	***	0.19	***
Semi-autonomous	0.51	***	0.34	***
Self-managed	0.78	***	0.63	***

Note: Ordered logistic regressions with 'no team' as the reference category. Control variables: age, sex, education, occupational class, contract status, industry, establishment size. Sig= *** $p<0.001$, ** $p<0.01$, * $p<0.05$

Organisational Commitment and 'Productive Potential'

A second pillar of the argument that teamwork enhances employee productivity is the view that it leads to higher levels of commitment to the organisation. It is plausible that more committed workers will work harder and be prepared to put in effort over and beyond what is strictly required, and there is also now significant evidence that they are less likely to be absent from or to quit the organisation (Meyer and Allen 1997). While

there are different conceptualisations of organisational commitment, the mechanisms postulated rely primarily on what has been termed 'affective commitment', that is to say commitment based upon a sense of attachment to and personal identification with the organisation, rather than upon economic necessity or moral obligation (Meyer et al. 1991; Hackett et al. 1994). The measure used in the survey, which derives from extensive research carried out in the USA (Mowday et al. 1979; Mowday et al. 1982), consists of six items:

- I am willing to work harder than I have to in order to help this organisation to succeed.
- I feel very little loyalty to this organisation.
- I would take almost any job to keep working for this organisation.
- I find that my values and the organisation's values are very similar.
- I am proud to be working for this organisation.
- I would turn down another job with more pay in order to stay with the organisation.

The six items scaled well (with an alpha of 0.78) and, to simplify the analysis, an organisational commitment scale has been created by taking the average score across the six items.

It can be seen in Table 6, that those who worked in semi-autonomous teams did indeed have significantly higher levels of organisational commitment than those who were not working in a team environment. This was even more the case for those in self-managed teams, as is shown by the much higher coefficient. This did not reflect an underlying effect of class, industry or workplace size. When the full range of controls was taken into account, the effects for both types of self-directed team still stood out very clearly. In contrast, employees in non-self-directing teams had lower commitment to their organisations than those who worked on their own, although the difference became non-significant once controls were introduced for individual characteristics and the broader work context. While the evidence then supports the view that teamwork can raise commitment, this is only the case where teams allow their members a significant degree of control of their own activities.

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Table 6: Effects of Teamwork on Organisational Commitment and Productive Potential

	Without controls		With controls	
	Coeff	Sig	Coeff	Sig
Panel A				
Organisational commitment				
No team	ref		ref	
Non-self directed	-0.03	**	-0.01	
Semi-autonomous	0.07	***	0.10	***
Self-managed	0.20	***	0.18	***
Panel B				
*Productivity potential (organisational commitment*task discretion)*				
No team	ref		ref	
Non-self directed	-0.40	***	-0.26	***
Semi-autonomous	0.09		0.30	***
Self-managed	1.05	***	0.93	***
Panel C				
Uses discretionary effort in job				
No team	ref		ref	
Non-self directed	0.00		0.01	
Semi-autonomous	0.09	***	0.10	***
Self-managed	0.23	***	0.25	***

Note: OLS regressions with 'no team' as the reference category. Control variables: age, sex, education, occupational class, contract status, industry, establishment size. Sig= *** $p<0.001$, ** $p<0.01$, * $p<0.05$

It is, however, a questionable assumption that higher organisational commitment directly raises employee effort, and hence productivity. Motivation can only have a bearing on performance where employees are in a structural situation that allows them to exercise their discretion to work harder or to a higher quality. Where work performance is tightly controlled either by supervisory direction or mechanical pacing, higher motivation is unlikely to translate into more productive patterns of work.

We have tried to get a more adequate assessment of the implications of teamwork for productivity potential in two ways. First, we have a constructed a 'productive potential' variable that takes account both of the level of organisational commitment of

employees and of their level of task discretion, by multiplying the two scales. This tells not only which employees are committed to the organisation, but whether they also have the discretion in their jobs to make a difference. The second measure seeks to assess directly whether or not the person puts in discretionary effort in their work. Employees were asked: 'How much effort do you put into your job beyond what is required?'

Taking first the productivity potential measure, those working in non-self-directing teams had a strong negative coefficient, with and without controls, indicating that this type of work situation was less likely to benefit organisational performance than non-teamwork. Those in semi-autonomous teams were no different from those in a non-team situation in terms of the gross effect, but, once controls for individual characteristics and work context were introduced, they emerged as significantly higher. Finally, the employees with by far the highest productivity potential, with or without taking account of other factors, were those in self-managed teams. The direct measure of whether people report actually putting more effort into their job than is formally required confirms the positive effects of self-directing teamwork. Those in non-self-directed teams are no different from those who do not work in a team context. Those who work in semi-autonomous teams, and even more strongly, those who were work in self-managed teams are significantly more likely to put in discretionary effort. Overall, the argument that teamwork enhances employees' productivity potential is only supported where teams are devolved substantial control of their own activities. Working in a team that is subject primarily to external controls either makes no difference or may even provide conditions that are likely to lead to lower levels of productivity.

Teamwork and Employee Welfare

The finding that self-directing forms of teamwork are associated with a higher potential productivity of employees is not necessarily inconsistent with more sceptical accounts of teamwork which emphasise its deleterious effects for employee welfare. By encouraging higher levels of work effort, it may lead to a marked intensification of work and hence to levels of work pressure that undermine satisfaction with the work task and create lower psychological well-being. In this last section, we examine whether it is the case that the apparently positive effects for potential productivity are offset by negative effects for

welfare. We consider first its implications for work pressure and then its effects on job satisfaction and general psychological well-being.

Work Pressure: Work Speed and Tension at Work

We take two measures to capture respectively work pressure in the sense of the speed of work and the mental tension it involves. The first asks 'How often does your work involve working at very high speed?', giving a seven point response scale ranging from 'All the time' to 'never'. The second asks how much the person agrees or disagrees that they 'work under a great deal of tension', with responses from 'strongly agree' to 'strongly disagree'.

It can be seen from Table 7 that those in semi-autonomous teams, and even more strongly those in self-managed teams, were significantly more likely than those working outside a team context to report that they worked at high speed. Further, although the coefficients are lower, even those in teams without significant influence over their members' activities were more likely to work at high speed.

Table 7: Effects of Teamwork on Work Pressure

	Without controls		With controls	
	Coeff	Sig	Coeff	Sig
Panel A				
Works at high speed				
No team	ref		ref	
Non-self directed	0.32	***	0.20	***
Semi-autonomous	0.36	***	0.28	***
Self-managed	1.02	***	0.93	***
Panel B				
Works under a great deal of tension				
No team	ref		ref	
Non-self directed	0.02		-0.01	
Semi-autonomous	0.06		0.06	*
Self-managed	0.18	***	0.16	***

Note: Ordered logistic regressions with 'no team' as the reference category. Control variables: age, sex, education, occupational class, contract status, industry, establishment size. Sig= *** $p<0.001$, ** $p<0.01$, * $p<0.05$

Turning to the second measure of work pressure – whether or not people worked under a great deal of tension – a rather different pattern emerges. There is no evidence that those working in non-self-directed teams experience greater psychological tension in their work than those not in teams. Moreover, there is only weak evidence that such tension is greater for employees in semi-autonomous teams. There is no significant effect in the estimates without controls and, although there is an indication that tension is higher when controls are taken into account, the significance level is low. In contrast, those in self-managed teams stand out quite clearly as experiencing notably higher levels of tension in their work than those not working in teams.

Overall the evidence provides some support for those who have emphasised the pessimistic side of teamworking. Employees in all types of teams are more likely to work at very high speed. However, it is only employees in self-managing teams that are more likely to experience greater tension in their work.

Job Satisfaction and Psychological Well-Being

The implications of teamworking for job satisfaction were assessed using a range of items that tap satisfaction with different aspects of work. People were asked how satisfied they were with their promotion prospects, their pay, their relations with their supervisor, the opportunity to use their abilities, the ability to use their own initiative, the ability and efficiency of management, the hours of work, their fringe benefits, the work itself, the amount of work, the variety in the work, the training provided and the friendliness of the people they worked with. Responses were on a seven item scale running from 'completely satisfied' to 'completely dissatisfied'. Three measures have been taken on the basis of these items. The first is an overall measure of job satisfaction that was constructed by summing and then taking the average of the scores for the 14 items. The second was a more specific measure of intrinsic job satisfaction, based on responses with respect to the use of abilities, the use of initiative, the work itself and the variety of the work[4]. The third measure - satisfaction with work effort - is based on the single item relating to the amount of work.

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[4] Items were selected on the basis of a factor weighting of 0.60 or higher on an intrinsic factor emerging from a principal components analysis with varimax rotation.

Table 8: Effects of Teamwork on Job Satisfaction

	Without controls		With controls	
	Coeff	**Sig**	**Coeff**	**Sig**
Panel A				
Overall job satisfaction				
No team	ref		ref	
Non-self directed	-0.01		0.01	
Semi-autonomous	0.19	***	0.23	***
Self-managed	0.41	***	0.44	***
Panel B				
Intrinsic job satisfaction				
No team	ref		ref	
Non-self directed	-0.10	***	-0.05	*
Semi-autonomous	0.14	***	0.23	***
Self-managed	0.38	***	0.37	***
Panel B				
Satisfaction with work effort				
No team	ref		ref	
Non-self directed	-0.02		0.01	
Semi-autonomous	0.21	***	0.18	***
Self-managed	0.39	***	0.38	***

Note: OLS regressions with 'no team' as the reference category. Control variables: age, sex, education, occupational class, contract status, industry, establishment size. Sig= *** p<0.001, ** p<0.01, * p<0.05

While teamwork involved greater work pressure, this did not mean that it led to lower levels of overall job satisfaction. Those in non-self-directed teams had similar levels of overall job satisfaction to those not in teams. In contrast, those in semi-autonomous teams, and even more, those in self-managed teams showed significantly higher levels of job satisfaction. With respect to the intrinsic features of work, the only employees that were more dissatisfied than non-team workers were those in non-self-directed teams. In contrast, those in self-directed teams were markedly more satisfied with the quality of their job tasks. Finally, it is notable that, despite higher levels of work pressure, those in self-directed jobs were more satisfied with the level of effort the work involved. This is consistent with the growing evidence that control at work can have an important effect in either offsetting or mediating the effects of work pressure (Theorell 1998; Marmot et al. 1999).

While there is little evidence that teamworking, whether self-directing or not, has negative effects on job satisfaction, it remains possible that the work pressures it involves may have effects on employees' general feelings of psychological well-being. Our final analysis turns then to examine its effects on a set of measures of people's mental states, developed and evaluated by Warr (1990). This set distinguishes between two dimensions of domain-specific affective well-being – namely 'enthusiasm-depression' on the one hand and 'contentment-anxiety' on the other. It is possible that teamwork affects these different dimensions in rather different ways; for instance it may have a positive effect in increasing a person's general enthusiasm, but at the same time a negative effect in heightening their anxiety.

Table 9: Effects of Teamwork on Well-Being

	Without controls		With controls	
	Coeff	**Sig**	**Coeff**	**Sig**
Panel A *Enthusiasm-depression*				
No team	ref		ref	
Non-self directed	-0.02		0.03	
Semi-autonomous	0.09	**	0.13	***
Self-managed	0.19	***	0.17	***
Panel B *Contentment-anxiety*				
No team	ref		ref	
Non-self directed	-0.01		0.02	
Semi-autonomous	0.09	**	0.09	**
Self-managed	0.06		0.06	

Note: Positive coefficients indicate better well-being. OLS regressions with 'no team' as the reference category. Control variables: age, sex, education, occupational class, contract status, industry, establishment size. Sig= *** $p<0.001$, ** $p<0.01$, * $p<0.05$

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 they were "tense", "uneasy", "worried", "calm", "contented" and "relaxed". Responses were made against a standard 5-point frequency scale ranging from 'never' to 'all of the time'. The scale reliability coefficients (Cronbach's alpha) for the two measures were high: 0.80 for enthusiasm-depression indicator, and 0.81 for the contentment-anxiety indicator. For each axis, an indicator scale was constructed by averaging responses to the six items, with the negative items reversed. Higher scores and therefore positive coefficients indicate better psychological well-being on each measure.

What were the implications of teamwork for employee well-being on these two dimensions? It can be seen from Table 9 that those in non-self-directing teams were no different from those working on their own on either measure. In contrast, those in semi-autonomous teams showed significantly higher well-being on both measures. However, those in self-managed teams show an interestingly different pattern on the two indicators. They had the highest well-being of any of the different categories of employee with respect to enthusiasm-depression and this remained the case when controls were introduced to take account of other factors. But, on the measure of contentment-anxiety, it is notable that they had comparable anxiety levels to those not working in teams.

Overall, there is no evidence that teamworking of any type had negative consequences for employees' psychological well-being. The more self-directing types of teamwork were associated with improved well-being on the enthusiasm-depression scale, but only semi-autonomous teamwork also improved well-being on the contentment-anxiety dimension. This suggests that the greater responsibilities involved in self-managed work teams may have been ambivalent in their overall consequences for psychological well-being. They may have increased people's enthusiasm through greater involvement, but created higher levels of anxiety than in the case of those working in a semi-autonomous team.

Conclusions

A common theme of diverse scenarios of the changing character of employment has been that teamwork is becoming an ever more important feature of work organisation. There are very different interpretations however of why this may be happening and its consequences for employee welfare. One set of arguments has seen it as a response by

employers to the need both to motivate and draw on the skills of employees in the light of the increasing complexity of tasks and the greater importance of the quality of products and services. In this perspective it is thought to be associated with greater individual initiative and opportunities for self-development on the job, stronger employment commitment and higher employee well-being. Others have depicted employers' interest in teamwork in terms of the need to find alternative systems of work control relying on peer group pressure to intensify work effort. This view leads to the expectation that teamwork will undermine individual discretion on the job, accentuate work pressure and reduce employee well-being. Finally, a third position is that the attention given to teamwork has been largely misplaced and that it has little effect either on work motivation or on employees' experiences of their jobs.

While there is a large array of case study research on these issues, there has been a lack of evidence that could give a representative picture of experiences across the workforce. The British Skills survey series, however, provides a unique opportunity both to examine trends in the growth of teamwork across time and to explore its implications for employee motivation and well-being in the light of high quality nationally representative samples of the British workforce. A first point that comes out of the analyses is the inadequacy of treating teamwork as a homogeneous set of practices and the importance of distinguishing between types of teamwork. This immediately became apparent in the examination of the trends in teamwork across time. While our evidence confirmed that there has been a marked growth in teamwork from the early 1990s to 2006, this did not mean a growth in the proportion of employees in teams with any significant control of their work activities. Rather there has been a decline in the prevalence of self-directive teamwork and a growth in teams largely dependent on external control.

In turning to the implications of teamwork, we were able to distinguish not only between non-self-directive and self-directive teams, but also between teams that were semi-autonomous, in the sense that they had influence on decisions about immediate work activities, and teams that were also self-managed with respect to the selection of colleagues, leaders and team targets.

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Our analyses provide very consistent support for the view that types of teamwork that involve significant opportunities for team decision making do indeed provide an environment conducive to stronger motivation and a higher potential employee productivity. They are associated with greater opportunities for employees to exercise individual initiative in their jobs; more opportunity and motivation to learn on the job; stronger commitment to the organisation and more frequent work effort over and above what is strictly required by the job. It is notable that there is a consistent pattern whereby the higher the level of responsibility accorded to the team the stronger these effects. They are most evident among employees working in self-managed teams.

However, the same effects were not in general evident in teams that did not have significant influence over their own activities. Employees in non-self-directive teams confirm the more pessimistic predictions of those who have argued that teamwork suppresses rather encourages the use of personal initiative and discretion at work. The benefits of this type of teamwork appear to be largely restricted to providing a context in which people are more favourable to learning, but where the job tasks in themselves do not provide increased opportunity to do so. The pattern for employees in non-self-directive teams is important, because it is this type of teamwork that accounts for most of the development of teamwork in the last decade and a half.

It is possible that, while the expectations of those who have argued for the positive effects of teamwork are correct with respect to productivity, at least for self-directing teams, they are incorrect with respect to employee welfare. The other side of a work context that places a strong, albeit voluntary, emphasis on performance may be increased work pressure, lower job satisfaction and generally lower well-being. Our results suggest that in one important respect this is true. Employees who worked in teams were subject to significantly higher work pressure in terms of regularly working at very high speed. Further, for employees in self-managed teams, this was compounded by the fact that they were more likely to report working under a great deal of tension.

However, there was no evidence that this resulted in those in self-directing teams having lower levels of job satisfaction, whether in overall terms, with respect to the intrinsic nature of their work or indeed with regard to the level of work effort itself. The only type of teamwork that was associated with reduced job satisfaction was non-self-

directive teamwork, where employees' satisfaction with the intrinsic nature of their work was significantly lower. Moreover, no type of teamwork was linked to lower levels of overall job-related psychological well-being. Rather those in semi-autonomous teams fared better on both of our measures of psychological well-being and those in self-managed teams on one of the measures.

Overall, our evidence underlines the important potential benefits of self-directive teamwork both for employees' productive potential and for their personal well-being. This contrasts sharply with the results for non-self-directive teams which are associated with few benefits with respect to either motivation or employee welfare, but lower levels of individual task discretion and reduced intrinsic job satisfaction. It is a paradox that, while teamworking indeed has been expanding rapidly in Britain, as many predicted, the type of teamwork that has grown most rapidly is that associated with the fewest advantages for either management or employees, while the forms of teamwork that are most beneficial have been declining. Understanding the reasons for this should be central to the future research agenda.

References

Bakan, I., Suseno, Y., Pinnington, A., and Money, A. (2004) 'The influence of financial participation and participation in decision-making on employee job attitudes', *International Journal of Human Resource Management*, 15, 3: 587-616.

Bain, P. and Taylor, P. (2000) 'Entrapped by the "electronic panopticon"? Worker resistance in the call centre', *New Technology, Work and Employment*, 15,1: 2-18.

Barker, J. R. (1993) 'Tightening the iron cage - concertive control in self-managing teams', *Administrative Science Quarterly*, 38, 3: 408-437.

Barrett, R. (2001) 'Labouring under an illusion? The labour process of software development in the Australian information industry', *New Technology Work and Employment*, 16, 1: 18-34.

Batt, R. and Appelbaum, E. (1995) 'Worker participation in diverse settings - does the form affect the outcome, and if so, who benefits', *British Journal of Industrial Relations*, 33, 3: 353-378.

Benders, J., Huijgen, F., and Pekruhl, U. (2001) 'Measuring group work; findings and lessons from a European survey', *New Technology Work and Employment*, 16, 3: 204-217.

Berggren, C. (1992) *Alternatives to Lean Production. Work Organisation in the Swedish Auto Industry.* Ithaca, N.Y.: ILR Press.

Cohen, S. G. and Ledford, G. E. (1994) 'The effectiveness of self-managing teams - a quasi-experiment', *Human Relations*, 47, 1: 13-43.

Cohen, S. G., Ledford, G. E., and Spreitzer, G. M. (1996) 'A predictive model of self-managing work team effectiveness', *Human Relations*, 49, 5: 643-676.

De Dreu, C. K. W. and Van Vianen, A. E. M. (2001) 'Managing relationship conflict and the effectiveness of organizational teams', *Journal of Organizational Behavior*, 22, 3: 309-328.

Delarue, A., Van Hootegem, G., Procter, S., and Burridge, M. (2007) 'Teamworking and organizational performance: A review of survey-based research', *International Journal of Management Reviews*, 10, 2: 127-148

Dohse, K., Jurgens, U., and Malsch, T. (1985) 'From "Fordism" to "Toyotism"? The social organization of the labor process in the Japanese automobile industry', *Politics and Society*, 14, 115-146.

Dunphy, D. and Bryant, B. (1996) 'Teams: Panaceas or prescriptions for improved performance?', *Human Relations*, 49, 5: 677-699.

Felstead, A. and Gallie, D. (2004) 'For better or worse? Non-standard jobs and high involvement work systems', *International Journal of Human Resource Management*, 15, 7, 1293-1316, 2004.

Findlay, P., McKinlay, A., Marks, A., and Thompson, P. (2000) '"Flexible When it Suits Them": The Use and Abuse of Teamwork Skills', in Procter, S. and Mueller, F. (eds.) *Teamworking*. London: Macmillan.

Gallie, D., Felstead, A., and Green, F. (2001) 'Employer policies and organisational commitment in Britain 1992-97', *Journal of Management Studies*, 38, 1081-1101.

Goodman, P. S., Devadas, R., and Hughson, T. L. G. (1988) 'Groups and productivity: analyzing the effectiveness of self-managing teams,' in Campbell, J., Campbell, R., and Associates (eds.) *Productivity in Organizations: New Perspectives from Industrial and Organizational Psychology.* San Francisco: Jossey-Bass.

Graham, L. (1995) *On the Line at Subaru-Isuzu: The Japanese Model and the American Worker.* Ithaca, NY: Cornell University Press.

Green, F., Ashton, D., and Felstead, A. (2001) 'Estimating the determinants of the supply of computing, problem-solving, communication, social, and teamworking skills', *Oxford Economic Papers*, 3, 406-433.

Green, F. (2008) 'Leeway for the loyal: A model of employee discretion', *British Journal of Industrial Relations*, 46, 1: 1-32.

Grenier, G. (1988) *Inhuman Relations: Quality Circles and Anti-Unionism in American Industry.* Philadelphia: Temple University Press.

Hackett, R. D., Bycio, P., and Hausdorf, P. A. (1994) 'Further assessments of Meyer and Allen's (1991) three-component model of organizational commitment', *Journal of Applied Psychology*, 79, 15-23.

Hamilton, B. H., Nickerson, J. A., and Owan, H. (2003) 'Team incentives and worker heterogeneity: An empirical analysis of the impact of teams on productivity and participation', *Journal of Political Economy*, 111, 3: 465-497.

Harley, B. (1999) 'The myth of empowerment: work organisation, hierarchy and employee autonomy in contemporary Australian workplaces', *Work Employment and Society*, 13, 1: 41-66.

Harley, B. (2001) 'Team membership and the experience of work in Britain: an analysis of the WERS98 data', *Work, Employment and Society*, 15, 4: 721-742.

Huselid, M A (1995) 'The impact of human resource management practices on turnover, productivity, and corporate financial performance', *Academy of Management Journal*, 38: 635-672.

Janz, B. D., Colquitt, J. A., and Noe, R. A. (1997) 'Knowledge worker team effectiveness: The role of autonomy, interdependence, team development, and contextual support variables', *Personnel Psychology*, 50, 4: 877-904.

Kersley, B., Alpin, C., Forth, J., Bryson, A., Bewley, H., Dix, G., and Oxenbridge, S. (2006) *Inside the Workplace: First Findings from the 2004 Workplace Employment Relations Survey.* London: Routledge.

Lincoln, J. R. and Kalleberg, A. L. (1990) *Culture, Control and Commitment. A Study of Work Organization and Work Attitudes in the United States and Japan.* Cambridge: Cambridge University Press.

Marmot, M., Siegrist, J., Theorell, T., and Feeney, A. (1999) 'Health and the psychosocial environment at work,' *Social Determinants of Health.* Oxford: Oxford University Press.

McGovern, P., Hill, S., Mills, C., and White, M. (2007) *Market, Class and Employment.* Oxford: Oxford University Press.

Meyer, J. P. and Allen, N. J. (1997) *Commitment in the Workplace. Theory, Research and Application.* London: Sage.

Meyer, J. P., Bobocel, D. R., and Allen, N. J. (1991) 'Development of organizational commitment during the first year of employment: A longitudinal study of pre- and post-entry influences', *Journal of Management*, 17, 717-733.

Mowday, R. T., Porter, L. W., and Steers, R. M. (1982) *Organizational Linkages: The Psychology of Commitment, Absenteeism and Turnover.* San Diego, CA: Academic Press.

Mowday, R. T., Steers, R. M., and Porter, L. W. (1979) 'The measurement of organizational commitment', *Journal of Vocational Behaviours*, 14, 224-247.

Murakami, T (1997) 'The autonomy of teams in the car industry: a cross-national comparison', *Work, Employment and Society*, 11(4): 749-758.

Naville, P. (1963) *Vers l'automatisme social: Problèmes du travail et de l'automation.* Paris: Gallimard.

Neuman, G. A. and Wright, J. (1999) 'Team effectiveness: Beyond skills and cognitive ability', *Journal of Applied Psychology*, 84, 376-389.

Pil, F. K. and MacDuffie, J. P. (1996) 'The adoption of high-involvement work practices', *Industrial Relations*, 35, 3: 423-455.

Ramsay, H., Scholarios, D., and Harley, B. (2000) 'Employees and high performance work systems: testing inside the black box', *British Journal of Industrial Relations*, 38, 4: 501-531.

Sewell, G. (1996) 'A Japanese "cure" to a British "disease"? Cultural dimensions to the development of workplace surveillance technologies', *Information Technology and People*, 9, 12-29.

Sinclair, R. R., Tucker, J. S., Cullen, J. C., and Wright, C. (2005) 'Performance differences among four organizational commitment profiles', *Journal of Applied Psychology*, 90, 6: 1280-1287.

Spreitzer, G. M., Cohen, S. G., and Ledford, G. E. (1999) 'Developing effective self-managing work teams in service organizations', *Group & Organization Management*, 24, 3: 340-366.

Stewart, G. L. and Barrick, M. R. (2000) 'Team structure and performance: assessing the mediating role of intrateam process and the moderating role of task type', *Academy of Management Journal*, 43, 2: 135-148.

Theorell, T. (1998) 'Job characteristics in a theoretical and practical health context,' in Cooper, C. L.(ed.) *Theories of Organizational Stress.* Oxford: Oxford University Press.

Thompson, P. and McHugh, D. (1995) *Work Organisation: A Critical Introduction.* London: Macmillan.

Vaskova, R. (2007) *Teamwork and High Performance Work Organisation.* Dublin: European Foundation for the Improvement of Living and Working Conditions.

Vidal, M. (2007) 'Manufacturing empowerment? "Employee involvement" in the labour process after Fordism', *Socio-Economic Review*, 5, 197-232.

Wagner, J. A., Leana, C. R., Locke, E. A., and Schweiger, D. M. (1997) 'Cognitive and motivational frameworks in U.S. research on participation: A meta-analysis of primary effects', *Journal of Organizational Behavior*, 18, 49-66.

Wall, T. D., Cordery, J., and Clegg, C. W. (2002) 'Empowerment, performance, and operational uncertainty: a theoretical integration', *Applied Psychology: An International Review*, 51, 1: 146-169.

Warr, P. (1990) 'The measurement of well-being and other aspects of mental health', *Journal of Occupational Psychology*, 63, 193-210.

White, M., Hill, S., McGovern, P., Mills, C. and Smeaton, D. (2003) 'High-performance management practices, working hours and work-life balance' *British Journal of Industrial Relations*, 41: 175-96.

Wood, S J 'Japanization and/or Toyotasim?', *Work, Employment and Society*, 5(4): 567-600.