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High-involvement management practices, job control, and employee well-being in the public and private sectors. Evidence from Finland

Summary

The connection between high-involvement management (HIM), entailing heavy employee involvement, and employee well-being is a controversial and widely discussed topic.

Clarifying how job satisfaction and stress are connected to HIM and job control (the control employees have over their work), this study is based on data from two Finnish sources: an employer survey investigating the extent of HIM within an organisation, and employee assessments of job control, stress and job satisfaction. Logistic regression models were used as the study method. In contrast to previous Finnish studies, our findings show that HIM seems hardly to benefit employee well-being. Especially in the public sector, the correlation between extensive HIM and employee well-being turned out to be negative. However, HIM in the private sector was positively related to job satisfaction. As expected, a high level of job control was regularly associated with greater well-being.

Keywords

Employer-employee surveys, high-involvement management, job control, job satisfaction, stress

Introduction

The debate over the consequences of high-involvement management (HIM) has been intensive in recent decades. High-involvement management refers to employees' organisational involvement, such as teamwork and participation in the organisational decision-making (Wood et al., 2012). Broadly, the basic question discussed is whether it is possible to arrive at a win-win scenario through developing and establishing a production regime that simultaneously increases productivity and improves employee well-being. This is by no means only an academic or managerial issue; it has a strong political dimension as well. According to EU employment policy principles summarised within the Lisbon Strategy (European Communities, 2004) and the later Europe 2020 Strategy (European Commission, 2010), the future prosperity of European workers is not based on low wages but on the high quality of working life. The logic of 'more and better jobs' emphasises major skills development and learning facilities, coupled with HIM practices, as the main sources of European competitiveness. However, the persistent economic crisis has severely eroded the logic behind the Lisbon Strategy (e.g. Lundvall and Lorenz, 2014). Nevertheless, the importance of the dilemmas connected to well-being and productivity at work has by no means disappeared. In this article, we aim to contribute to this discussion through looking at the Finnish context.

The present study focuses on the effects of HIM on employee well-being. Empirical evidence on the possibility of achieving the win-win scenario described above is mixed: positive views assume that different participatory practices improve employee commitment and satisfaction and consequently an organisation's effectiveness and performance (e.g.

Appelbaum et al., 2000). By contrast, critical views claim that HIM makes work more intense and is harmful to employees. According to this argument, possible advances in performance are achieved at the expense of employee well-being (Godard, 2004; Ramsay et al., 2000).

The differences in study designs do not completely explain the differences found in the results of studies conducted on the issue. The controversies in the results arise also in those – albeit relatively few – studies using data based on both employer and employee surveys. Some of these studies have found a positive association between HIM and well-being (Takeuchi et al., 2009; Zatzick and Iverson, 2011), while others have established a negative one (Wood and De Menezes, 2011; Wood et al., 2012) or negative effects mediatedⁱ through greater job demands (Kroon et al., 2009). The differences in results might relate somewhat to the ways in which HIM has been conceptualised and measured. The effect of general organisational practices on employee well-being may also differ according to the aspects of the employee's own job, such as job control or personal involvement. However, only a few studies have considered these kinds of interactions (Jensen et al., 2013; Zatzick and Iverson, 2011).

Based on a data set combining surveys investigating the standpoints of both employers and employees, our study analyses the effects of HIM practices at workplace level on employee well-being, taking into account the amount of control employees have over their own work. While prior studies have mainly been based on samples from the private sector or the analysis has not differentiated between sectors, this study compares the effects of HIM in both the public and private sectors based on Finnish employer-employee survey data.

Theoretical background

The theoretical background looks at the concept of HIM. According to Lawler (1986), its purpose is to give employees the power, information, knowledge and rewards to improve their performance. A key aspect of this approach is to increase employee participation in the organisation, for example via teamwork. A related concept, high-performance management, also includes employee participation as a central component (Appelbaum et al., 2000). According to this approach, management practices should offer employees opportunities to participate, training to improve their skills, and rewards to motivate them in their work. It is common for both approaches to assume that the combination of practices is mutually reinforcing, improving both employee well-being and commitment and, on the whole, an organisation's effectiveness and performance.

More critical views have argued that, although perhaps improving company performance, HIM practices might not be beneficial to employee well-being (Godard, 2004; Ramsay et al., 2000; Wood and De Menezes, 2011). Appelbaum (2002) also noted in her review that the effects might be controversial: though employees might be more satisfied in high-performance work systems, at the same time they feel more stressed. Gallie et al. (2012) found that working in teams was related to greater work pressure but also to greater satisfaction at work.

Many studies have analysed the association between HIM and employee well-being. Given our starting point, the focus here is especially on studies in which high-involvement or high-performance management practices have been measured at employer level, and

well-being at employee level. The prevalence of HIM in an organisation might affect either positively or negatively an individual employee's well-being through the general atmosphere and structure of the workplace. Therefore, the mechanism is different from the association between employees' own involvement in the workplace and their well-being, meaning that results based on different kinds of designs are not quite comparable. The latter association might also suffer from common method bias more often than studies based on two-source data.

In the majority of two-source studies, a wide range of different management practices are combined in a single index, in the assumption that synergies exist between them. These studies have found mainly positive associations between HIM and employee well-being. Zatzick and Iverson (2011) for example analysed the effect of high-involvement work systems on employee job satisfaction and absenteeism using multi-level data from Canada. Their index of the high-involvement work systems was based on Lawler's model of 'power, information, knowledge and rewards' and, thus, covered a wide range of practices. Measured like this, the high-involvement work systems were positively related to employee job satisfaction and not related to absenteeism.

Kroon et al. (2009) analysed the effect of high-performance work practices on employee burnout using multi-level data from 86 Dutch for-profit and non-profit organisations. Their high-performance measurement index included questions on selection, development and career opportunities, rewards, participation and communication, and job design. High-performance work practices were not directly related to emotional exhaustion but mediated through greater job demands. In a further study using multi-level data from China, Singapore and Taiwan, Wu and Chaturvedi (2009) found that high-performance work

systems were positively related to employee job satisfaction and affective commitment. These associations were mediated through procedural justice (i.e. fair treatment by the supervisor) measured at the individual level. Their high-performance measurement index included questions related to recruitment, training, internal career opportunities, performance appraisal, empowerment and pay incentives. Finally, in a study based on multi-level data depicting the situation in Japan, Takeuchi et al. (2009) found that the effects of high-performance work systems were positively related to employee job satisfaction and affective commitment, with these associations fully mediated through an organisational climate that shows concern for employees.

By and large, the general tone of these previous studies is positive. The majority of studies combining employer and employee surveys have been based on high-performance theory, combining a wide range of workplace practices into a single index – i.e. they have only one dimension. These studies have found either a positive association or no direct association between HIM and well-being.

Studies taking two dimensions in management practices into account arrive at different results. Wood et al. (2012) use a narrower definition of HIM and distinguish two different types of involvement: organisational involvement (i.e. HIM) and role involvement. The former refers to participation in the organisation at large, for example through teamwork, information sharing and suggestion schemes, while the latter refers to control and task variety in the core job role. Based on the UK's 2004 Workplace Employment Relations survey, they found that HIM (i.e. organisational involvement) was negatively associated with employee job satisfaction and positively associated with job-related anxiety. By contrast, only enriched job design (role involvement) was positively associated with job

satisfaction (Wood et al., 2012). In line with these findings, Jensen et al. (2013) found that department-level high-performance work systems were related to greater role overload and anxiety among government workers in Wales, although the main focus of the study was on the association between the perceived use of high-performance practices and well-being. Moreover, it did not include items on personal job control (other than flexible working), an aspect measured separately at individual level.

In summary, the range of practices included in the measurement of HIM practices seems to have an effect on the results and conclusions drawn (see also Godard, 2004). Thus, when aspects of personal job control are not included in the index of high-involvement or high-performance practices, correlations with stress or anxiety may be found.

Wood et al. (2012) also suggest that well-being mechanisms may differ in these two involvement types. Control over one's own job (i.e. role involvement) has been proven to be an important source of satisfaction in work as such. Similarly, participation or involvement in the organisation at large can affect well-being by increasing the control employees have over their work (Wood et al., 2012). Wood et al. (2012) and Wood and De Menezes (2011) also suggest that organisational involvement might improve well-being in other ways, referring to Warr's (2007) model of 12 environmental factors. It could for instance improve well-being through increasing social contacts, reducing insecurity, or by signalling to employees that they are valued and their contribution is important. In fact, previous studies based on multi-level designs have identified such mechanisms, for instance a supportive work climate (e.g. Takeuchi et al., 2009). On the other hand, as the critical views cited above suggest, organisational involvement might raise work intensity,

increase work demands and make the working role of the employee more ambiguous. In such a case, the role of personal job control might be even more important.

If HIM intensifies work, personal job control might act as a counterbalance, as suggested by Karasek's (1979) model of job demands and resources. Jensen et al. (2013) found that employee job control moderated the effects of high-performance work systems on well-being. Employees' perceptions of the high-performance work system in the organisation were related to anxiety and role overload with low personal job control.

The effects of management practices may also depend on the wider organisational or national contexts. Although HIM practices are used in both the public and private sectors, different practices are emphasised. For example, Kalleberg et al. (2006) found that, in the US, the use of self-directed teams was more common in the public sector, whereas performance incentives were more common in the private sector. Wood et al. (2015) also found differences between sectors in the UK: both role and organisational involvement and skill acquisition (e.g. training) were especially related to public services. Peccei et al. (2013: 38–39) suggest that the relative importance of practices in different sectors may also affect the association between these practices and employee well-being. However, there are no previous studies directly comparing sectoral differences in the association.

The aim and context of the study

The previous section outlined the links between HIM practices and well-being. Roughly speaking, the win-win situation – a simultaneous increase in productivity and well-being through anti-Tayloristic principles – is logical in theory and attractive for both labour market

parties and policy-makers. Despite the reasonableness of the theory, the empirical evidence is ambiguous, with no unquestionable confirmation of the win-win situation. This ambiguity has two main sources: differences in design and differences in the institutional contexts. For this study, the latter aspect merits special interest.

As elsewhere in the Nordic countries, teamwork is very common in Finland. In 2013, 66 per cent of all employees considered themselves to be teamworkers, a proportion regularly above the EU average (Sutela and Lehto, 2014). In the Nordic countries, teamwork is no novelty initiative in the wake of flexible production concepts. Back in the 1970s, the work reformation movement identified the more or less explicit principles of teamwork as a solution to the problems of Tayloristic work. The idea of ‘virtuous circles’ able to simultaneously develop productivity and the quality of working life is even older: in the 20th century the labour movement adopted the view that economic competitiveness was necessary in order to create the resources for social welfare and equality, contending that working-class solidarity and rational action needed to be aligned with the fundamental processes of capitalism. It was thus easy for the trade unions to accept a value-added competition strategy based on innovation, training and participation as an alternative to the cost-based strategies of social dumping and low-wage competition (Hasle and Sorensen, 2013; Kettunen, 1999, 2012). These institutional circumstances created the framework for a win-win logic where simultaneously embracing a high level of productivity and good job quality – i.e. including employee well-being – was at least highly possible (e.g. Hvid et al., 2011).

Over the past decades, large programmes have been launched in Finland to develop working life in terms of both productivity and well-being. These programmes have been

joint projects with employee and employer organisations, together with governmental players (e.g. Alasoini, 2015). Though these programmes consisted of more than just HIM practices, the latter helped open the environment to new work practices.

In view of all this, it is hardly surprising that, in studies on Finnish working life, teamwork is, as a rule, evaluated in relatively positive terms. To some degree, the negative consequences of teamwork and other participatory practices have been controlled for. Studies based on representative samples of Finnish employees in the public and private sectors have found that HIM and teamwork are mainly beneficial to the subjective well-being of employees regarding, for example, job satisfaction and stress (Böckerman et al., 2012a; Kalmi and Kauhanen, 2008), and not related to long sickness absence spells (Böckerman et al. 2012a; Böckerman et al., 2012b). However, Böckerman et al. (2012a) found that employees exposed to HIM practices had more self-reported short sickness absence spells than other employees. Niemelä and Kalliola (2007) also found that teamwork perceived to be ineffective by employees was especially related to stress.

Only one other Finnish study parallels this study in its use of two-source data (Vanhala and Tuomi, 2006). It was based on longitudinal surveys of employers and employees in the metal industry and retail trade in 1997–2000. In the study, the effects of different HR practices measured at company level were analysed separately. Only a few practices specifically related to employee well-being. The prevalence of teamwork and organisational participation was not found to be related to well-being, regardless of how the latter was measured.

In sum, most empirical evidence points to a positive association between high-involvement and well-being. In the comparative context of the early 2000s (Eurofound, 2007), the Finnish situation was acknowledged as being quite exceptional among the EU countries:

‘Finland is an example of good practice as teamworkers were found to have greater autonomy, better access to training and greater chance of learning new things. Finnish employees working in a team were also relatively more satisfied with their working conditions and did not display a greater work intensity than other employees did. In addition, complaints about the impact of work on employees’ health were similar among teamworkers and non-team workers.’

Following the discussions on well-being and HIM, three hypotheses (H1 – H3) were chosen as starting points for debating the empirical analyses:

H1: The extensive use of HIM practices at company level is positively associated with employee job satisfaction and negatively associated with stress.

While this hypothesis is not fully in line with previous studies, it is based on prior accounts of the situation in Finland.

The second hypothesis makes a distinction between the public and private sectors. As in the other Nordic countries, the public sector is an important employer accounting for about one-third of the total workforce, of which the vast majority work in education or the social and health sector (e.g. Sutela and Lehto, 2014). The sectoral differences occur not only in

terms of the basic nature of the jobs, but also in the use of teamwork, which is more prevalent in the public sector in contemporary Finland. Focusing on this country, Janhonen (2010) and Ylöstalo (2005, 2007) looked at the nature of teamwork in different sectors, finding that the working patterns of public sector teams are closer to the original idea of teamwork, for example offering more opportunities for teams to set their own goals and cooperate more with other employees. No previous studies look at the connection between teamwork and well-being from the perspective of sectoral differences. Taking this indirect evidence from Finland into account, a second hypothesis can thus be formulated:

H2: The positive associations between the extensive use of HIM practices and employee well-being are stronger in the public sector than in the private sector.

The third analysis looks at the combined effects of HIM and job control on well-being. In this case, the study steps back from the first hypothesis, testing the findings of Wood et al. (2012) and Jensen et al. (2013) that a high level of HIM will increase stress and reduce job satisfaction, while a high level of job control works in the opposite direction. Here we utilise the Wood et al. (2012) definition of high-involvement management, separating it from personal job control, i.e. the possibilities to influence one's own job (e.g. the tasks, work pace and order of work). As noted above, high-involvement management means employees' organisational involvement, such as teamwork and participation in organisational decision-making. It can be demanding, and its effects on well-being may depend on the level of personal job control.

Following this, the third hypothesis consists of two parts:

H3a: Both a high level of job control and a low level of HIM will increase job satisfaction and reduce stress. Where both occur simultaneously, the effect is additive.

H3b: In cases where both HIM and job control are at a high level, job control will act as a buffer against the negative effects of high HIM on well-being.

Data and methods

This study is based on survey data sets combining responses from employers and employees. Reflecting the situation in Finland, they are part of the larger European Meadow project (MEAsuring the Dynamics of Organisations and Work; MEADOW Consortium, 2010). A stratified sampleⁱⁱ was formed among public and private sector organisations with 10 or more employees. The public sector organisations cover central and local government and the Evangelical Lutheran Church. The latter is a non-profit organisation run in a way parallel to the state and municipalities, and thus included in the public sector. The sample was based on the business register maintained by Statistics Finland.ⁱⁱⁱ

Statistics Finland conducted the interviews by phone in 2012, with a total of 1395 employers and 1711 employees interviewed. The number of employees interviewed per organisation was 1–2 (one in 1079 organisations and two in 316 organisations). The idea in the employee sample was to include only employees with relatively long job contracts – and thus with more experience of the organisation's practices.^{iv}

In this study, employee well-being, job satisfaction and stress, and job control were gauged via the employee survey, while high-involvement management was measured with a sum score^v based on questions from the employer survey. The questions indicate the proportion of employees participating in teamwork and organisational development as well as the teams' degree of independence in the organisation. Seven factors determined the latter (e.g. independent planning of work and direct connections with other teams in the organisation or with people outside the organisation). Control variables^{vi} were based on both surveys and the register data. All variables are described in more detail in Box 1.

The analyses consisted of three steps. First, the distributions and correlations of organisational- and individual-level factors in the public and private sectors were compared. Second, the effect of workplace-level HIM on employee well-being was analysed with logistic regression.^{vii} Third, the joint effects of HIM and the employees' individual situations within the organisation were analysed with a combination variable. This variable was constructed by cross-tabulating HIM in the workplace (median split^{viii}) and employee job control (median-split). In the analyses, the group with the highest quartile in the HIM index and a low level of job control was used as the reference group. The statistical significance of interactions between HIM and job control were also analysed.^{ix} Separate analyses were done for employees in the public sector (n=618) and the private sector (n=1093).

Results

Descriptive results

HIM practices were more common in the public sector, and the difference between the sectors in the HIM index is statistically significant^x (Table 1). The details show that the only item without a significant difference is the proportion of employees participating in teams. Both employee participation in organisational decision-making and the teams' degree of independence were higher in the public sector.

<Table 1>

Regarding job satisfaction, employees in the public sector more often gave positive evaluations. However, with respect to strong feelings of stress and job control, there were no statistically significant differences between the two sectors.

In the private sector, the majority of survey respondents were men, while in the public sector, men were in the minority. In the public sector, the employees were more likely to be highly educated and have been employed longer, but were less likely to be supervisors.

Looking at the correlations^{xi} (Appendix Tables A1 and A2), the HIM index was negatively correlated ($-.09, p < 0.05$) with job satisfaction in the public sector, while in the private sector the direction of the relationship was positive ($.10, p < 0.01$). In the public sector, HIM and strong feelings of stress correlated positively ($.10, p < 0.05$). In the private sector, the correlation was also positive, but weak ($.05$).

In both sectors, personal job control had positive correlations with job satisfaction (.21 for the private sector and .22 for public sector) and negative correlations with strong feelings of stress (-.09 and -.16, respectively).

Results of the regression analyses

In the second step, the analyses continued with logistic regression. In the public sector, the extensive use of HIM in the workplace was related to employees experiencing strong feelings of stress (Table 2, Model 1)^{xii}. This relationship remained statistically significant when employee job control and the control variables were taken into account (Model 2). The odds ratios for having strong feelings of stress were 2.8–3.6 for employees in organisations making extensive use of HIM compared to employees in organisations with the lowest share of involvement.

<Table 2>

In the private sector, the direction of the relationship was the same, although only the highest quartile of the HIM index was related to strong feelings of stress among employees (Table 2). In the adjusted Model 2, the odds ratio for having strong feelings of stress was 1.9 for employees in organisations with the most extensive use of HIM compared to employees in organisations with the lowest level of involvement ($p=0.053$).

In the public sector, the prevalence of HIM was negatively related to job satisfaction. This relationship remained statistically significant when the control variables and employees' job control were taken into account.

By contrast, in the private sector, the highest quartile of the HIM index was positively related to employee job satisfaction. This relationship remained significant when adjusted for the control variables.

In both sectors, as expected, high levels of job control were negatively related to employee stress and positively related to job satisfaction.

Therefore, neither Hypothesis 1 nor 2 was confirmed.

The combined effects of high-involvement management and job control on well-being

In the last stage of the analyses, special attention was paid to the mutual influence between HIM and job control on well-being.

With respect to stress, the most harmful scenario in the public sector is to be an employee in an organisation characterised by high HIM and a low level of control over one's work (Table 3). All other combinations of job control and HIM seem to be less stressful. In the private sector, a similar situation was found.

In the public sector, the combinations of a high level of job control with either low or high HIM are related to better job satisfaction compared to the situation of a low level of job control and high HIM. In the private sector too, the combination of high HIM and a high level of job control promotes job satisfaction. On the other hand, the combination of low involvement and a low level of job control are related to lower job satisfaction compared to high levels of involvement and a low level of job control.

<Table 3>

There were no statistically significant interactions between HIM and job control. Thus, job control did not work as a buffer against the negative effects of HIM.

Therefore, Hypothesis 3a was confirmed, but not Hypothesis 3b.

Discussion

The basic idea of this study was to continue the discussion on the relationship between high-involvement management (HIM) and well-being, analysing the effects of HIM on employee well-being using Finnish employer-employee survey data from 2012. The theoretical background related to studies of high-involvement and high-performance practices.

The spectrum of studies sounding out the social consequences of HIM is relatively polarised. The previous literature from Finland – and from the Nordic countries in general – gave us a reason to position ourselves among those who see the relationship as more or

less positive. However, the current results do not offer unconditional confirmation of this position.

In both sectors, the extensive use of HIM practices in the workplace was somewhat associated with strong feelings of stress among employees. In the public sector, extensive use of HIM was also negatively related to job satisfaction. By contrast, in the private sector, this relationship was positive. The results for the private sector are in line with Gallie et al. (2012), who found that working in autonomous teams was related to both greater pressure and greater job satisfaction.

In addition, the combined effects of HIM and job control were analysed. In light of the previous results by Wood et al. (2012) and Jensen et al. (2013), the combination of high organisational involvement and a low level of job control was expected to be the least beneficial for employee well-being. This expectation was confirmed in both sectors: High levels of HIM combined with a high level of job control tended to prevent stress compared to the combination of high HIM and a low level of job control. High levels of HIM combined with a high level of job control were also related to greater job satisfaction compared to the combination of high HIM and a low level of job control. However, job control did not act as a buffer against the negative effects of HIM.

The independent effect of individual job control worked as expected and regardless of the sector: a high level of job control was generally linked with less stress and greater job satisfaction. In this sense, the results are in the line with Gallie et al. (2012) for example.

In the Nordic context, a worrying conclusion is that something seems to have changed in Finnish working life. Ten years ago, like the other Nordic countries, Finland was a society where the win-win argument for HIM dominated (e.g. Eurofound, 2007). In light of our results, the situation seems to have changed, with the team-based organisation of work no longer a tool for enhancing productivity and well-being. The cross-sectional data do not provide any clear reasons for this change. The explanation is not simply a general decline in the quality of working life: since the tough economic crisis, only assessments of job security have declined notably (Sutela and Lehto, 2014).

The differences between the sectors merit special attention. Previous studies that focused on the links between HIM and well-being were rarely interested in the differences between the public and private sectors. Despite Finland's large public sector making extensive use of teamwork, from the point of view of the current research question, the end result is far from positive: it is precisely in the public sector where teamwork is more closely related to stress and job dissatisfaction. This is in line with the findings of Wood et al. (2012), in which organisational involvement is negatively related to employee job satisfaction and positively related to anxiety. In fact, the former literature from Finland gave us reason to uphold an opposite hypothesis with a more positive basic tone. Again, the nature of the data restricts conclusions, though two recent studies might offer some clues. The years of the economic crisis were turbulent years in the Finnish public sector, with cutbacks the norm. In this environment, job predictability typically declined, especially in the public sector (Sutela and Lehto, 2014). On the other hand, Oinas et al. (2016) present important results with regard to the findings of our study: currently there is a clear trend towards management practices based on lean production ideas. Perhaps unpredictability and the

active launch of market-driven management ideologies do not easily fit in with the ideals of teamwork, especially in the public sector.

As stressed earlier, any study of the connection between well-being and managerial practices can hardly come up with context-independent results (Godard, 2004).

Furthermore, the differences in the designs and measures make it difficult to compare the results of separate studies. Taking into account the discussion over measuring problems, our conscious methodological choice was analytically to separate the prevalence of HIM practices in the workplace from employees' personal job control, in line with Wood et al. (2012). Our study utilised the two-source nature of the data: while job control was based on employee assessments, the HIM evaluations were based on data from the employers. Moreover, the use of HIM was measured as the proportion of employees participating in teamwork and organisational decision-making, taking into account not only the use of HIM, but also the extent of its use.

Regarding employee outcomes, we focused on two measures: job satisfaction and stress. Job satisfaction is widely used to sum up the features of work in both scientific and policy-orientated contributions (e.g. Böckerman and Ilmakunnas, 2012). As in the literature used in background to this study, job satisfaction has continually been considered an essential point of interest. For these reasons – and as the single-item measure is regarded as reliable (Wanous et al., 1997) –, we ended up following this tradition.

The strength of this study lies in the fact that the sample covers all private sector industries and public sector organisations in Finland. The employer survey response rate was high and there are very few missing values in the variables. One limitation of the study is that

only 1-2 employees were interviewed per organisation. In contrast to previous studies on this topic, it was not possible to use multi-level modelling. The employees interviewed are obviously not representative of all employees in the organisations surveyed, being mainly those with permanent jobs and longer working histories in their organisation.

From the point of view of policy recommendations, the basic message of the current study is old-fashioned (Karasek, 1979): when seeking the criteria for a prosperous and competitive working life, teamwork in itself is insufficient. While high-involvement management empowers employees, it also increases the demands put on them (Wood et al., 2012). According to this study, the clearest route to improving/maintaining employee well-being seems to be to promote individual job control. The challenge for teamwork – and perhaps for HIM practices in general – is to develop procedures in line with this aim.

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Box 1. Information on the variables used in the analyses.

Measures	Source	Questions and scales
Dependent variables:		
Job satisfaction	Employee survey	How satisfied are you with your work? (very satisfied =1; rather satisfied, rather unsatisfied, and very unsatisfied = 0). On the validity of this single-item measure, see e.g. Wanous et al., 1997.
Stress	Employee survey	Stress means a situation in which a person feels tense, restless, nervous or anxious or is unable to sleep at night because his/her mind is troubled all the time. Do you feel this kind of stress these days? (not at all, only a little, to some extent =0; rather much, very much =1.) The validity of this single-item measure has been shown to be good (Elo et al., 2003).
Independent variables:		
Job control	Employee survey	Mean score of the four items: How much influence do employees have on a) their tasks, b) work pace, c) the order of work, and d) division of tasks between employees at the workplace. The response options were much, rather much, some, not at all. The reliability of job control was 0.69 in the private sector, and 0.67 in the public sector. For the regression analyses, level of job control was divided into quartiles.
High-involvement management (HIM)	Employer survey	<p>The HIM index was based on the mean of the following three questions:</p> <ol style="list-style-type: none"> 1) Are there working groups or teams in your organisation (working groups or teams can be formal or informal) (yes/no): <ol style="list-style-type: none"> a) that plan their daily or weekly work independently? b) that take responsibility for the quality of their work? c) that choose their members independently? d) that have direct connections with other teams in the organisation? e) that have direct connections outside the organisation (to clients, subcontractors)? f) that develop their work continuously? g) that develop products or services? (The relative proportion of these characteristics was used as one indicator of organisational involvement.) 2) What percentage of the employees participate in these kinds of teams? 3) What percentage of employees participate in organisational development? <p>The reliability of the HIM index was 0.63 in the private sector and 0.64 in the public sector. For the regression analyses, the mean score was divided into quartiles.</p>

Control variables:		
Gender	Employment Register (Statistics Finland)	male, female
Supervisor status	Employee survey	yes, no
Tenure	Employee survey	Number of years employed in the organisation (0–3, 4–9 and >10 years).
Education	Employment Register (Statistics Finland)	Operationalised as tertiary education; yes /no
The number of employees	Employer survey	<50, 50–249, >250 employees
Public employment sector	Business register (Statistics Finland)	Central government (n=170), local government (n=315), the church (n=133).
Private employment sector	Business register (Statistics Finland)	Manufacturing and infrastructure maintenance (n=487); construction (n=105); retail, accommodation and food service (n=115); business services (n=92); education, health and social services (n=102), transportation and communication (n=98); finance, insurance and real estate (n=89).

Table 1. Descriptive statistics for the public and private sector employees.

	n	Public mean(sd)/%	n	Private mean(sd)/%	p-value
Workplace-level variables					
Proportion of employees participating in:					
Teamwork	596	60.4 (35.8)	1056	57.5 (39.0)	0.117
Organisational development	600	48.8 (37.3)	1052	42.9 (38.6)	0.003
Teams' degree of independence	618	77.2 (24.7)	1088	71.3 (30.0)	<0.001
High-involvement management (HIM)	608	62.3 (25.1)	1074	57.4 (27.5)	<0.001
Number of employees in organisation					
<50		27.6		35.2	<0.001
50–249		28.2		29.8	
>250		44.2		35.0	
Individual-level variables					
Job satisfaction					
very satisfied	616	25.3	1091	19.4	0.004
rather satisfied, rather unsatisfied, very unsatisfied		74.7		80.6	
Stress					
feels rather or very much	616	12.0	1091	9.8	0.155
not at all, only a little, to some extent		88.0		90.2	
Gender					
Men	618	28.2	1093	64.2	<0.001
Women		71.8		35.8	
Education					
Tertiary education	618	52.4	1093	34.7	<0.001
Lower education		47.6		65.3	
Tenure (years)					
0-3	610	14.1	1087	21.0	<0.001
4-9		25.9		35.7	
> 10		60.0		43.3	
Supervisor					
Yes	618	18.6	1091	24.7	0.004
No		81.4		75.3	
Job control (mean)	617	2.41 (0.65)	1087	2.41 (0.67)	0.943

Note: Means were analysed with the *t*-test and categorical variables with the Chi-squared test.

Table 2. The effect of high-involvement management on employee well-being in the public and private sectors.

	Public sector		Private sector	
	Stress OR(SE)	Job satisfaction OR(SE)	Stress OR(SE)	Job satisfaction OR(SE)
Model 1 Unadjusted effects				
HIM				
4 (high)	3.12 (0.50)*	0.45 (0.28)**	1.94 (0.30)*	2.34 (0.28)**
3	3.67 (0.49)**	0.62 (0.26)†	1.08 (0.33)	1.62 (0.28)†
2	2.54 (0.51)†	0.55 (0.27)*	1.57 (0.31)	1.41 (0.27)
1 (low) ref.				
Model 2 Adjusted effects				
HIM				
4 (high)	2.76 (0.49)*	0.43 (0.29)**	1.87 (0.32)†	2.35 (0.32)**
3	3.57 (0.48)**	0.61 (0.27)†	1.10 (0.35)	1.55 (0.31)
2	2.50 (0.50)†	0.51 (0.29)*	1.51 (0.31)	1.44 (0.30)
1 (low) ref.				
Job control				
4 (high)	0.21 (0.44)***	3.20 (0.29)***	0.30 (0.34)***	5.57 (0.36)***
3	0.47 (0.36)*	2.33 (0.31)**	0.42 (0.30)**	1.91 (0.32)*
2	0.50 (0.34)*	1.01 (0.32)	0.49 (0.29)*	1.15 (0.32)
1 (low) ref.				
Number of employees				
>250	0.95 (0.37)	1.10 (0.28)	0.94 (0.27)	1.16 (0.26)
50–249	0.96 (0.39)	1.16 (0.29)	1.07 (0.27)	1.69 (0.25)*
<50 (ref.)				
Municipality				
State	0.90 (0.40)	1.05 (0.30)		
Church (ref.)	0.85 (0.40)	1.03 (0.31)		
Manufacturing and maintenance (ref.)				
Construction			2.21 (0.37)*	0.91 (0.37)
Retail, accommodation, food service				
Business services			1.08 (0.39)	1.40 (0.34)
Education, health, social services			0.86 (0.45)	0.54 (0.43)
Transportation, communication			1.19 (0.40)	0.59 (0.40)
Financing, insurance, real estate			2.01 (0.35)*	1.10 (0.37)
Male (vs female)	1.42 (0.30)	0.83 (0.23)	1.08 (0.42)	1.27 (0.38)
Supervisor (vs not)	1.05 (0.35)	1.10 (0.26)	0.55 (0.25)*	0.55 (0.25)*
Tertiary education (vs not)	1.90 (0.28)*	0.74 (0.20)	2.15 (0.26)**	0.78 (0.24)
Tenure (years)			1.11 (0.24)	1.01 (0.22)

0–3 (ref.)

4–9 1.28 (0.44) 0.88 (0.33) 1.10 (0.31) 0.80 (0.27)

>10 1.05 (0.39) 0.89 (0.29) 1.41 (0.30) 0.88 (0.27)

Note: OR= Odds ratio, SE= standard error, † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3. Combined effects of high-involvement management in the workplace and job control on employee well-being in the public and private sectors.¹

	Stress OR (SE)	Job satisfaction OR (SE)
Public sector		
High involvement with a high job control	0.46 (0.34)*	2.03 (0.28)* 3.46
Low involvement with a high job control	0.29 (0.41)**	(0.28)***
Low involvement with a low job control	0.52 (0.35)†	0.94 (0.31)
High involvement with a low job control (ref.)		
Private sector		
High involvement with a high job control	0.44 (0.31)**	2.34 (0.29)**
Low involvement with a high job control	0.47 (0.33)*	1.74 (0.30)†
Low involvement with a low job control	0.74 (0.29)	0.50 (0.33)*
High involvement with a low job control (ref.)		

¹Controls for education, tenure, gender, supervisor status, number of employees in the organisation, and employment sector

Note: OR= Odds ratio, SE= standard error, † $p < 0.10$, * $P < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix Table A1. Correlations between all variables in the public sector.

	1	2	3	4	5	6	7	8	9	10	11	12
1 HIM	1.00	.08*	-.01	-.10**	.10*	-.09*	.10*	-.01	-.01	-.03	-.01	-.01
2 Number of employees	.08*	1.00	-.21**	.04	.14**	-.05	.03	.02	.03	-.02	-.05	-.05
3 Church	-.01	-.21**	1.00	-.32**	-.53**	.01	.00	.06	-.03	-.02	.18**	.13**
4 State	-.10**	.04	-.32**	1.00	-.63**	-.02	.02	.13**	.18**	.01	.02	-.06
5 Municipality	.10*	.14**	-.53**	-.63**	1.00	.00	-.02	-.16**	-.14**	.01	-.17**	-.05
6 Job satisfaction	-.09*	-.05	.01	-.02	.00	1.00	-.17**	-.02	-.06	-.02	.03	.22**
7 Stress	.10*	.03	.00	.02	-.02	-.17**	1.00	.02	.08*	-.07	.00	-.16**
8 Male	-.01	.02	.06	.13**	-.16**	-.02	.02	1.00	.04	.02	.27**	.09*
9 Tertiary education	-.01	.03	-.03	.18**	-.14**	-.06	.08*	.04	1.00	-.06	.10*	.03
10 Tenure	-.03	-.02	-.02	.01	.01	-.02	-.07	.02	-.06	1.00	.04	.00
11 Supervisor	-.01	-.05	.18**	.02	-.17**	.03	.00	.27**	.10*	.04	1.00	.14**
12 Job control	-.01	-.05	.13**	-.06	-.05	.22**	-.16**	.09*	.03	.00	.14**	1.00

Note: * $p < 0.05$, ** $p < 0.01$

Appendix Table A2. Correlations between all variables in the private sector.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 HIM	1.00	.11**	-.07*	-	-	.04	.21**	-.05	.11**	.10**	.05	-	.22**	-.06*	.01	.05
2 Number of employees	.11**	1.00	.07*	-.03	-.03	.00	-.03	.01	-.04	-.04	-.01	.02	.05	.02	-.03	-.03
3 Manufacturing and maint.	-.07*	.07*	1.00	-	-	-	-	-	-	-.02	-.05	.21**	-	.19**	-.05	-.04
4 Construction				1.00	-	-	-	-	-	.00	.03	.22**	-	.01	.07*	.12**
5 Retail, accomodation, food service	.10**	-.03	.29**	.29**	.31**	.27**	.29**	.28**	.27**				.09**			
6 Business services					1.00	-	-	-	-	.03	.00	-	-.05	-.07*	.02	-.02
7 Education, health, social services	.08**	.00	.31**	.11**	.10**	.10**	.11**	.11**	.10**	-.03	-.02	.09**	.08**	-	.01	.00
8 Transportation, communication	.04	.00	-.27**	.10**	.10**		.10**	.10**	.09**			.08**	.12**			
9 Financing, insurance, real estate	.21**	-.03	-.29**	.11**	.11**	.10**		.10**	.10**	.01	.02	-.06*	-.09**	-.02	.06*	
10 Job satisfaction	-.05	.01	-.28**	.10**	.11**	.10**	.10**		.09**	.00	.05	.03	.03	-.06*	-.02	-.07*
11 Stress	.11**	-.04	-.27**	.10**	.10**	.09**	.10**	.09**		.04	.00	-	.19**	.01	-.03	-.01
12 Male	.10**	-.04	-.02	.00	.03	-.03	.01	.00	.04	1.00	-	-.06	.04	.00	.02	.21**
13 Tertiary education	.05	-.01	-.05	.03	.00	-.02	.02	.05	.00		.09**	1.00	-.08*	.04	.04	.06*
14 Tenure																
15 Supervisor																
16 Job control																

Note: * $p < 0.05$, ** $p < 0.01$

i Mediation refers to the process by which an independent variable is related to the dependent variable. For example, extensive high-involvement management may worsen employee well-being by increasing job strain.

ii Stratified sample means that, before sampling, the target population is divided into mutually exclusive homogenous subgroups that are important for the study design (such as an industry), with random sampling subsequently performed within these groups. This guarantees that all important subgroups are covered in the study with their relative size in the target population.

iii The selection criteria for the private sector organisations were industry, size (number of employees) and growth rate. In each category based on industry and size, a separate sample of companies was chosen in which the number of employees grew by more than an average of 15 per cent per year in 2007–2010. The purpose was to include a sufficient number of high-growth companies in the sample. The sample of public sector organisations represents the central governmental (state), municipalities (local government) and Evangelical Lutheran Church parish organisations. The sample of municipal organisations was further stratified to represent municipalities with fewer than 300 employees, different sectors in larger municipalities and municipally owned companies. The data have been archived in the Finnish Social Science Data Archive (University of Tampere, 2012a, 2012b).

iv Following the guidelines of the MEADOW consortium, the person chosen for the employer interview was the chief executive officer, owner or some other person in management. The employees with at least six months of working experience in the organisation during the previous 12 months were randomly chosen from the population of registered employees at the end of 2010. At least one employee was interviewed in 91 per cent of the organisations where an employer representative was first interviewed. As the sample of employees was based on register data from 2010 and the interviews were carried out in 2012, in practice most of the employees interviewed had been working for the same organisation for at least 18 months.

v 'Sum score' is a combination of scores of separate questions (e.g. 1=disagree... 5=agree) measuring the same phenomenon. It is supposed that the sum of scores better measures the underlying phenomena than an analysis using only component scores.

vi Control variables are factors (such as age and gender) that may correlate with the independent variables of interest (in this case, HIM). When control variables are included in the analyses, the researcher wants to prevent confounding e.g. employee's age or gender with the independent variables.

vii In logistic regression, the dependent variable (i.e. the factor that is being explained) is binary, i.e. has two possible outcomes (e.g. illness, no illness). For example, it is possible to analyse the strength of association of different factors (e.g. age, gender) on the probability (or risk) of having a certain illness.

viii Median split: the data are divided into two groups based on the median value of a certain variable. Then half of the sample is below the median value and half is above.

ix The nature of the data limits the analyses. For example, multi-level modelling is not possible because of the small number of employees interviewed per organisation. As employees from the same organisations are possibly correlated, the workplace was included as a random factor in the linear mixed regression models used.

x Statistical significance of the results is investigated using the so-called p-values with the commonly applied thresholds ($p < 0.05$, $p < 0.01$, $p < 0.001$). P-values are interpreted with relation to the null hypothesis using certain statistical tests. For example, when comparing means in Table 1, the null hypothesis is that the means are the same throughout the population, i.e. there are no differences between public and private sectors in the studied factors. Roughly, the interpretation is that the lower the p-value, the less support to the null hypothesis. In the case of HIM index the similarity between sectors does not get support, as the p-value is very low (< 0.001).

xi The interpretation of the correlation is that the higher the correlation the stronger the linear relationship between variables. The sign (negative or positive) indicates the direction of the relationship. Correlation -1 indicates perfect negative and +1 perfect positive relationship (measurements on the straight line).

xii The ratio of two odds is called odds ratio (OR). It tells about the strength of the relationship between independent and dependent binary variable so that values <1 indicate less and >1 more relationship with the outcome.