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The links between target-monitoring practices and performance: the influence of job quality and job satisfaction

Lilian M. de Menezes (l.demenezes@city.ac.uk)
Cass Business School, City University London, London, UK

Ana B. Escrig (escrigt@uji.es)
Universitat Jaume I, Castellón, Spain

Summary Abstract

Working on the job demands-job control model (JDC), this paper investigates the potential effect of targets and monitoring practices on performance. Using the British 2011 Workplace Employee Relations Survey (WERS), two-level structural equation models shed light on how job demands and job control affects the relationship between targets and monitoring practices and performance. The study shows that some effects of workplace targets on employee job satisfaction are moderated by monitoring practices and job control. There is also support for the JDC model since the negative association between job demands and job satisfaction is contingent on the level of perceived job control.

Keywords: Total Quality Management, employee-outcomes, organizational performance, job demands – job control model.

Introduction

The Total Quality Management (TQM) literature advocates the adoption of planning and measurement systems that monitor the path to performance objectives as pre-requisites for the success of TQM initiatives (e.g. Laosirihongthong et al., 2013). Nevertheless, the empirical evidence concerning the effects of targets and monitoring practices on organizational performance (e.g. Jitpaiboon and Rao, 2007; Phan et al., 2011) remains mixed. To date, most studies have adopted a macro approach, since they examined the direct link between management practices and performance, and neglected the potential mediation or moderation roles of employee attitudinal outcomes on the relationships between such practices and performance.

   Considering the potential effects of employee outcomes, Ketokivi and Castaner (2004) concluded that a planning process that communicates strategic goals and information systems that support monitoring would enable employees to better understand targets and subsequently act as needed. Targets and monitoring should therefore reduce role stressors and ultimately increase employee job satisfaction (Ooi et al., 2013), which has been found to be positively associated with performance (e.g. Sousa and Sousa, 2000). Other scholars, however, portray targets and monitoring practices as elements of a system that seeks to maximize employee contribution to

organizational performance through strict control, which ultimately increases job demands (Soltani et al., 2008), intensifies work and decreases well-being (Green, 2001). In this vein, de Menezes (2012) observed no association between TQM and job satisfaction but some positive correlation between TQM and perceived job demands. Van Wanrooy et al. (2013), in their analysis of job-related well-being, identified a synergy between job demands and the influence employees have over their work (job control), thus implying that job control can counter the effect of job demands on well-being, as predicted by the job demands-job control model (JDC) of Karasek (1979).

Given previous literature on TQM and organizational psychology, in particular the JDC model, the present study assesses the associations of targets and monitoring TQM practices with performance. In contrast to most studies, a two-level analysis is developed, where how dimensions of job quality (demands and control) and job satisfaction may influence the links between these TQM practices and performance is assessed.

In the next section, the theoretical background leading to these research questions is presented. Subsequently, the empirical study using a large sample of matched employee-workplace data from the Workplace Employee Relations Survey 2011 is reported. Finally, the contributions, limitations and future line of research are drawn.

Theoretical Background

Planning and Monitoring Practices as Critical Factors in TQM

TQM is widely spread in all sectors of the economy and is seen as an initiative to improve performance and competitive advantage (e.g., Zhang and Xia, 2013). Consequently, scholars and practitioners are interested in identifying success factors in TQM initiatives. Among these factors, the TQM literature suggests a focus on incorporating quality issues into strategy and the development of strategic objectives into detailed action plans and targets. Moreover, as TQM implies continuous improvement, the implementation of measurement systems that provide information to monitor the path to objectives and targets is vital to ensure progress and continually identify areas for improvement.

Table 1 summarises the definition of target and monitoring practices according to previous literature. It shows that both practices are closely linked to Deming's PDCA cycle, and thus provide a structure for quality planning and measurement. This conception of planning, information and analysis in a TQM initiative tallies with the aims of targets and monitoring management practices, as identified by Battisti and Iona (2009). In this vein, this study refers to targets in the context of quality planning, while monitoring denotes information and analysis practices, as highlighted in Table 1.

Table 1. Definition of Target and Monitoring Management Practices

TQM practice	Description	Supporting literature
Quality planning (Target)	The strategic planning element of TQM underlying a systematic approach that helps firms to clarify their central purpose and specify and deploy clear target goals. It entails the communication of mission statement, where goals are cascaded down to the individual workers.	Battisti and Iona (2009), Mellat-Parast et al. (2011), Laosirihongthong et al. (2013)
Information and analysis (Monitoring)	Gathering and analysing quality data is an important element in TQM, which emphasizes monitoring of internal measures of organisational results in the context of a fact-based decision making approach. Overall performance tracking via key performance indicators and meetings to review performance regularly fall within this practice.	

The Link with Organisational Performance
When considering targets setting from a strategic management perspective, Mintzberg (1987) argued that accurate plans and formal pre-set goals may prevent the flexibility required in a good strategy. In a study of control mechanisms and their integration in a quality strategy, Ittner and Larcker (1997) found that greater use of detailed action plans and targets was negatively associated with performance. They concluded that the increased bureaucracy and costs of formal strategic control systems were greater than the associated benefits.

Information and analysis practices aim to provide an accurate monitoring of management system and processes, thus allowing organisations to improve product and service quality, productivity and financial performance (e.g., Mellat-Parast et al., 2011). Nonetheless, other researchers, as for example Nair (2006), found that quality data analyses have no direct effect on performance. By contrast, other authors, as for example, Gadenne and Sharma (2009) observed that systems and analytic oriented TQM practices, which focus on hard TQM issues such as having a planning process or proper implementation of data quality management, have a significant positive association with quality outcomes, and thus are expected to impact other dimensions of organizational performance. In fact, a meta-analysis carried out by Jitpaiboon and Rao (2007) concluded that all TQM practices, among them those related to target and monitoring, are positively associated with internal and external performance. Furthermore, Phan et al. (2011) highlighted that practices concerning quality information usage tend to be more strongly correlated with performance indicators, when compared to formal strategic planning. In all, there are mixed findings and conflicting perspectives, as described in next section, on the possible effects of target and monitoring practices on performance.

Effects of Target and Monitoring on Job Demands and Job Satisfaction
According to de Menezes (2012), job satisfaction is concerned with the extent of pleasure a person gains from their job. In fact, Locke (1976: 1304) defined job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences". Employees' job satisfaction is an important objective for organisations as it has been found to be positively associated with performance (e.g. Sousa and Sousa, 2000; Judge et. al. 2001). Yet, this association may vary with measures (Jones, 2006) or with how difficult a job is (Saari and Judge, 2004). The TQM literature (e.g., Ooi et al., 2013) mainly concludes that visible improvements in attitudes of employees may be observed after TQM practices are implemented. For example, the communication of strategic goals by way of a planning process, and an information system that helps monitoring progress would enable employees to develop a better understanding of targets and the actions needed to achieve them (Ketokivi and Castaner, 2004). These TQM practices are then expected to reduce role conflict and role ambiguity, and ultimately lead to an increase in job satisfaction (Ooi et al., 2013). Target and monitoring practices facilitate continuous improvement and task-oriented changes that have been observed to enhance job satisfaction (Kivimäki et al., 1997). In fact, Ooi et al. (2013) showed that information and analysis are positively correlated with employees' job satisfaction. In contrast to the above point of view, some authors (e.g. Soltani et al., 2008) concluded that TQM is implemented following management-led formalised procedures and rules to reach established targets, which can undermine employees' commitment and foster dissatisfaction. According to Kivimäki et al. (1997:457), "TQM is interpreted as the "resurrection of Taylorism", which actually decreases job satisfaction".

Moreover, target and monitoring practices can lead to information overload and a perception of an increase in job demands (Kelliher and Anderson, 2010), understanding job demands "as the volume of work to be accomplished as well as the requirements and time constraints related to work"(Huang et al., 2012). Ittner and Larcker (1997: 310) report the testimony of a CEO whose firm won the Deming Prize, which illustrates this point of view: too great an emphasis on indicators, charts, graphs, reports, and meetings in which documents and indicators are assessed deprive employees of time that could be better spent serving the customer. In a similar vein, evidence suggests that employees may resist engaging in TQM (i.e. monitoring quality) when they believe that quality issues are outside the boundaries of their job (Lee, 2004), or that TQM is perceived as a maneuver to increase work without extra-compensation (Fok, 2000). TQM targets and monitoring are then argued to be mechanisms aimed at maximising employee contribution to organisational performance through strict managerial control, and may lead to work intensification, which ultimately can jeopardize employee's job satisfaction (van Wanrooy et al., 2013) and organisational performance.

The establishment of targets and monitoring practices need to reinforce each other, as a solid measurement system is necessary to develop effective plans and to lead to organisational improvements (Evans et al., 2012). In the words of Prajogo and McDermott (2005: 1115), both practices represent the control element of TQM and "reflect well the beginning (i.e. planning) and ending (i.e. evaluation) phases of strategic management processes". Hence, an interaction of both kind of practices on job demands and job control can be expected.

The Moderating role of Job Control
Job satisfaction, as a dimension of employee well-being, can be determined by some features of job, as job demands and job control, as implied by the JDC model (Karasek, 1979; Wong et al., 2007; Huang et al., 2012). The model states that high job demands at work could affect the perception of role stress and ultimately can be associated with low levels of well-being. The JDC model hypothesises that job control, defined as the influence employees can have over specific aspects of their work, is positively associated with employee well-being. Moreover, job control is likely to moderate the negative effects of high job demands on job satisfaction. That is, in order to minimise strain and increase satisfaction, job demands should be matched with an increase in the influence employees have over the work. As Wong et al. (2007) explained in their study, this increase in job control enables employees to adapt to greater job demands by managing how their work is done and developing appropriate responses.

Following the logic that job control is considered to be a stress-reducing approach (Wong et al., 2007), it can be argued that job control may moderate the effect of targets and monitoring practices on job demands and job satisfaction. Together job demands, target and monitoring practices may be perceived as workload (Kelliher and Anderson, 2010). The latitude that job control brings could be important in counteracting the negative effect of these practices on the perception of job demands. Employees' perceptions of greater autonomy would allow them to cope with the requirements arising from the targeted goals and the monitoring, or to redesign their work methods, which ultimately would alleviate the perception of workload.

Considering job satisfaction, as explained in the previous section, the literature reported mixed effects of targets and monitoring practices on satisfaction. Hence, when these practices are coupled with some forms of job control, employees may perceive the requirements from these practices as a way to take proactive and constructive behaviours to address the challenges in the job. Hence, ultimately job control would

reinforce the positive versus the negative potential effects of target and monitoring practices on job satisfaction.

Based on the above overview of the literature, a conceptual framework, which is illustrated in Figure 1, is developed as a medium to investigate the following research questions: What are the effects of target and monitoring practices on performance? Do targets and monitoring practices strengthen the effects of each other on performance? Are job demands and job satisfaction mediators of the link with performance? Is there a moderating role of job control on the relationships between job demands and job satisfaction and on the associations that targets and monitoring practices may have on job demands and satisfaction?
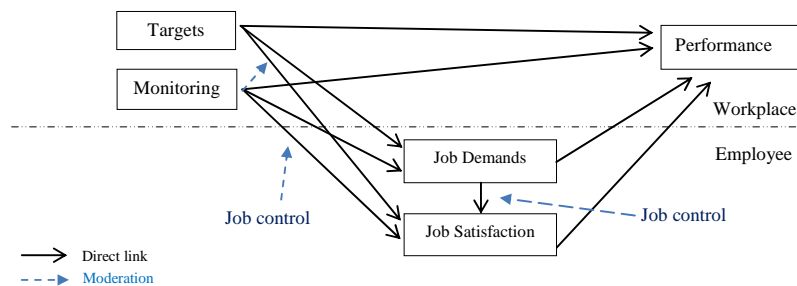

Figure 1. Conceptual framework

Methodology

Data

The sample comprises matched workplace-employee data (2,680 workplaces their 21,981 employees) from the 2011 British Workplace Employee Relations Survey (WERS2011; http://www.wers2011.info/). Two of the instruments in WERS2011 are used in this study: a survey of workplace practices based on a face-to-face interview with a senior manager at the workplace, who is responsible for human resource management; a self-completion employee questionnaire distributed within workplaces where the management interview was conducted.

Measures

Table 2 summarises the variables and their measurement. Measures of targets and monitoring management practices are obtained from the survey of managers. Confirmatory factor analysis (CFA) revealed that target management practices were in fact represented by four correlated factors, as exhibited in Table 2 (the fit indices of the model show the adequacy of the model to the data: CFI= 0.946; RMSEA=0.07). Moreover, CFA showed that monitoring is a single factor (CFI= 0.988; RMSEA=0.04). The corresponding factor scores are used as a composite measure of these constructs. Job demands, job control and job satisfaction are measured as the mean score of the items, as used by van Wanrooy et al. (2013) in their assessment of the main findings from the survey. Performance is measured as subjective assessments by managers in the workplace about labour productivity and financial performance.

Controls at both the employee and workplace levels are used. At workplace level these are: size of establishment (logarithm of the total number of employees), size of total organization of which the workplace is a part, sector, public or private status, years in operation, and proportion of operational and routine workers. Individual characteristics that have been associated with job satisfaction and job demands are also added, namely: being a manager, age, gender, tenure and low earnings.

Table 2. Measurement of variables

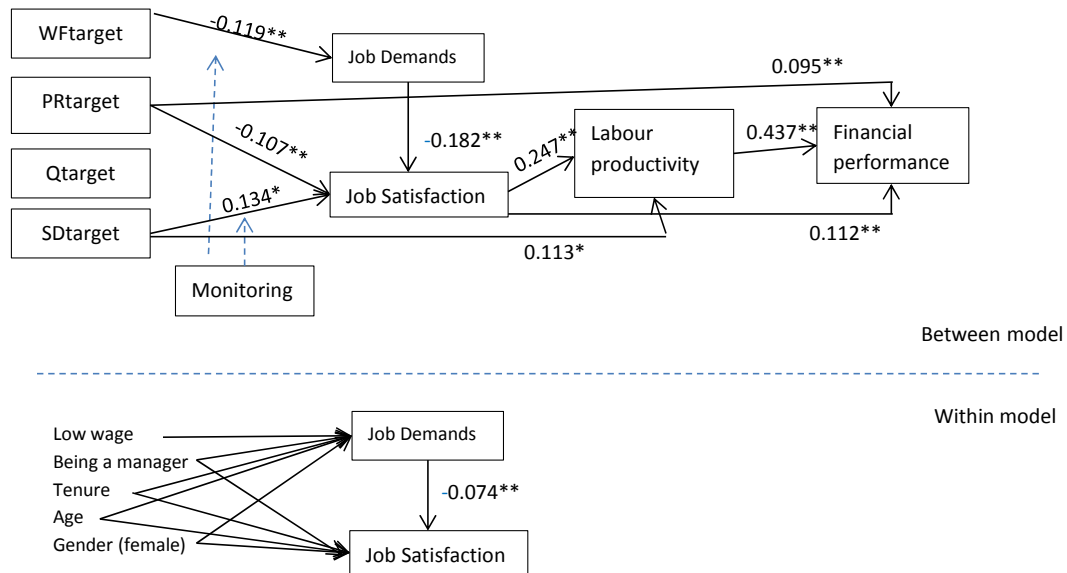| VARIABLE	ITEM	SOURCE
Targets:		Battisti and Iona (2009), De Menezes (2012), van Wanrooy et al. (2013)
Strategy dissemination (SDtargets)	3 items (binary): Workplace is covered by a formal strategic plan which sets out objectives and how they will be achieved; Workplace has meetings between line managers and all the workers they manage; Regular information is provided on internal investments plans and/or staffing plans	
Workforce related targets (WFtargets)	4 items (binary): The workplace have targets for absenteeism; The workplace have targets for employee job satisfaction; The workplace have targets for labour turnover; The workplace have targets for workforce training	
Performance related targets (PRtargets)	5 items (binary): The workplace have targets for unit labour costs; The workplace have targets for profits/return on investments; The workplace have targets for productivity; The workplace have targets for total costs; The workplace have targets for volume of sales/services provided	
Quality targets (Qtargets)	2 items (binary): The workplace have targets for customer/client satisfaction; The workplace have targets for quality of product and service	
Monitoring	4 items (binary): Workplace has benchmarked itself against any other workplaces in past 2 yrs; Workplace has managers-employees committees primarily concerned with consultation; workplace keeps records concerning quality of product or service; workplace has groups of non-managerial staff set up to address performance/quality	
Job satisfaction	Mean score of 9 items. Using a 5 point scale (very satisfied-very dissatisfied) employees were asked about their satisfaction with: (1) the sense of achievement they get from their work; (2) the scope for using initiative; (3) the amount of influence the person has over their job; (4) the training the person received; (5) the opportunity to develop their skills in their job; (6) the amount of pay they receive; (7) job security; (8) the work itself; (9) the amount of involvement in decision-making	de Menezes (2012), van Wanrooy et al. (2013)
Job demands	Mean of employee's responses to 2 questions assessed on a 5 point scale (strongly agree-strongly disagree): (1) my job requires that I work very hard; (2) I never seem to have enough time to get my work done	
Job control	Mean score of 5 items. Using a 4 point scale (a lot-none), employees were asked about how much influence they have over: (1) the tasks they do in their job; (2) the pace at which they work; (3) how they do their work; (4) the order in which they carry out tasks; the time they start or finish their working day	
Labour productivity	Rating of labour productivity relative to other workplaces in the same industry on a 5 point scale	Jones et al. (2009) Wood and de Menezes (2010)
Financial performance	Rating of financial performance relative to other workplaces in the same industry on a 5 point scale	

Statistical Procedure

The relationships proposed were tested by way of two-level Structural Equation Models (SEM), where employees are nested in workplaces. Multilevel modelling with SEM takes into account the dependency in the data and avoids the assumptions of aggregate approaches by considering separate structural models (within-group and between-group models) simultaneously in the analysis (Heck, 2001). The within structural model examines how job satisfaction in a workplace can be affected by perception of job demands, as well as the moderating role of job control. While the between model assesses how job demands and job satisfaction vary among workplaces and how this variation can be explained by targets, monitoring, the moderating role of job control, and control variables. The model assumes that all variables may affect performance. Specifically, multilevel path analysis using MPlus version 7 is undertaken.

Findings

Considering the intraclass correlation of the variables at employee level, all values were above 0.05, thus implying sufficient between-group variation and justifying the adoption of a two-level analysis in the present study. To answer the posed research questions two different multilevel models were estimated. The first model assesses how job demands and job control are associated with target and monitoring practices, as well as the moderating role of monitoring, and how all these variables are related to performance. Secondly, a partial model was estimated in order to understand the moderating roles of job control. Figure 2 summarises the main significant direct relationships that were identified by the first model.

As for the Within model, perception of job demands is negatively related with job satisfaction. Being a manager and female are positively associated with job satisfaction, which tallies with the conclusions of de Menezes (2012) based on the previous survey of the series, as well as with perception of job demands. Tenure is positively associated

with perceptions of job demands, while the longer an employee has been working on a workplace the less satisfied with the job. As for low earnings, this variable has no significant relationship with job satisfaction, but employees with low wages have also a lower perception of job demands. Finally, only those employees that are aged 65 or above seem to be more satisfied with their jobs, when compared to teenager employees; and employees aged between 22 and 59 perceived greater job demands when compared to teenage employees.

Note: Standardized estimates; ** p<.01 ; * p<.05

Figure 2. Main direct significant relations in the first multilevel model

Considering the Between model, it seems that when employees have workforce-related targets, they perceive a reduction in job demands, an effect that is reinforced when coupled with monitoring. Having performance related targets is negatively associated with job satisfaction, but is significantly positive and directly associated with the financial performance of the workplace.

For their part, the existence of a formal strategic plan and communicating goals (strategy dissemination) appear to increase perception of job satisfaction, as a positive association is observed. Moreover, this is reinforced when accompanied by monitoring, and is positively associated with productivity.

Considering how quality related targets is associated with outcome variables, it is curious that quality related targets are unlikely to affect job demands or job satisfaction. Yet, when coupled with monitoring, quality targets may have a negative effect on job satisfaction.

The estimated coefficients, as shown in the above figure, imply that the perception of job demands decreases job satisfaction. However, job demands are not associated with a reduction in workplace performance. In line with previous literature in TQM (e.g. de Menezes, 2012), job satisfaction is positively associated with both labour productivity, and the positive link to financial performance is noteworthy.

Concerning control variables, the estimated model coefficients suggest that employees in public workplaces perceive greater job demands than those in the private sector. Indeed, the estimated coefficients in the model also imply that working in the public sector and size of the workplace are negatively associated with job satisfaction.

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Moreover, as the size increases, workplaces seem more prone to use target and monitoring practices.

Considering the moderating role of job control, the main results can be summarised as follow. Job control is positively associated with job satisfaction (standardized coefficient=0.312, p=0.00) and moderates the relationship between job demands and job satisfaction (sc=0.222; p=0.00). However, job control only seems to moderate the relationship between strategic dissemination practices and job demands (sc=0.190; p=0.039), thus indicating that job control does not counteract the increase in the perception of job demands due to having a formal strategic plan and having information about targets.

Conclusions

The contribution of the present research is fourfold. First, this study focuses on TQM practices concerning the establishment of organisational control, when most empirical studies in the subject tended to analyse softer practices or mixed bundles. The data are at the workplace level, where management practices and work climate can be inferred in more detail. Second, the possible synergies between target and monitoring management practices are considered in the analysis. Third, a novel feature of the paper is the scope of analysis: both the likely positive effect of TQM practices on job satisfaction and the potentially negatively effects of increases in job demands are analysed at the employee and workplace level. Fourth, the premises of JDC model in the context of TQM practices and large survey data are assessed.

Taking into account the nesting of employees within workplaces, this study concludes that employees are less satisfied with their jobs the higher is the use of performance related targets in their workplace. This conclusion tallies with Soltani et al.'s (2008) caveat that TQM may be implemented following accurate procedures and rules to reach established targets, which may undermine the degree of employee's job related well-being. Nevertheless, practices that disseminate strategy are likely to have a positive effect on job satisfaction, which is reinforced when coupled with monitoring practices. It is noteworthy that the data set does not provide a measure of life satisfaction. However, the differences in observed associations suggest that the argument that life satisfaction would be inducing the association between job satisfaction and performance (Jones, 2006) appears to be less relevant in this study. This conclusion may follow from the fact that job satisfaction was measured at employee level, while performance was assessed at workplace level.

Regarding job demands, contrary to the expectations from the conclusions of Ittner and Larcker (1997) or Lee (2004), our findings suggest that target and monitoring practices on their own do not seem to increase the perception of workload. Furthermore, having workforce related practices decreases the perception of job demands. From an equity theory perspective (Fok, 2000), it is likely that employees do not perceive target and monitoring practices as means for exploitation, but as a part of the inputs that they bring to the social exchange. Our results also evidenced that when employees really perceive an increase in job demands, this is manifested in a decrease in the level of job satisfaction, and thus our findings are in accordance with the observations of van Wanrooy et al. (2013).

The findings from this study imply that although the establishment of performance related targets may benefit workplace performance, they may not improve the well-being of employees. Consequently, these findings tally with critiques of High Performance Work Systems (e.g., Jensen et al., 2011), which consider some TQM practices as a covert way of utilising employees under the umbrella of fostering

participation and commitment of employees and enriched jobs. The differences in employees' perceptions between public and private workplaces may reflect the public services cuts and concerns at the time of data collection. Hence, the present study highlights the need for further research into management practices and job design that may reconcile the interests of organisations and the employees.

This study has confirmed the predictions from the JDC model in that an increase in the control that employees have over their job moderates the negative effect of job demands on job satisfaction. However, the moderating role of job control to counteract the possible negative effect of targets and monitoring practices on job demands is still to be confirmed. Overall, this is an initial analysis of the relationships between target and monitoring practices and employee and organisational outcomes which, in contrast to previous studies, investigates the two-level nature of the associations. Future research should focus on the potential effects of other variables on the observed relationships. For instance, given conclusions of complementarity among hard and soft TQM practices, the inclusion of soft TQM elements in the models will help in understanding effects of target and monitoring practices. As Fok (2000) argued, potential differences in individual variables may explain the resistance to TQM. Consequently, individual characteristics of employees may moderate the perception of job satisfaction and job demands.

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