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Self-managed working time and employee effort: Theory and evidence

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ABSTRACT

This paper theoretically and empirically examines the impact of self-managed working time (SMWT) on employee effort. As a policy of increased worker autonomy, SMWT can theoretically increase effort via intrinsic motivation and reciprocal behaviour, but it can also lead to a decrease of effort due to a loss of control. Based on German individual-level panel data, we find that SMWT employees exert higher effort levels than employees with fixed working hours. Even after accounting for observed and unobserved characteristics there remains a modest positive effect. This effect is largely driven by employees who are intrinsically motivated, suggesting that intrinsic motivation is complementary to SMWT. However, reciprocal work intensification does not seem to be an important channel of providing extra effort.

1. Introduction

According to the social psychology literature, delegating authority to workers benefits employers, because authorised workers are highly motivated by feeling committed to their employers, leading to intrinsic motivation (Deci and Ryan, 1985, 2000) and reciprocal behaviour (Blau, 1964; Homans, 1958). In other words, received autonomy is likely to interact with the two personality traits intrinsic motivation and reciprocity. Recent work in behavioural economic theory yields similar results (Delfgaauw and Dur, 2008; Dur et al., 2010). The economic literature, however, emphasises the following trade-off for employers when delegating authority to their workers (Aghion and Tirole, 1997; Aghion et al., 2013; Bloom and Van Reenen, 2011): On the one hand, increased motivation associated with higher worker authority may raise performance. On the other hand, workers can abuse their authority and this can reduce performance.

In our paper, we address this trade-off by focusing on one key component of delegated authority – workers' autonomy over their working time. In particular, we are interested in working time arrangements that allow workers to control the

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starting and finishing times of their workday, to set their breaks, vacation days and days off, and to freely distribute their workdays over the working week. Many of these regimes additionally include the decision right upon the place of work and thus allow working from home, at least occasionally (Kelly and Moen, 2007; Nijp et al., 2012; Shockley and Allen, 2012). We refer to such arrangements as self-managed working time (SMWT).

A natural consequence of SMWT is that employers no longer need to record actual working hours. While the omission of working hours registration enables the employer to save monitoring costs, it also harms his opportunities to control the workers' effort. This implies that the employer relies on his workers to abstain from exploiting their time sovereignty opportunistically by reducing effort.[1] SMWT is a widespread phenomenon. In the United States about 15% of employees are able to completely determine working hours on their own (Golden, 2012), while the corresponding percentage is about 17% for EU27 employees (Goudswaard et al., 2012). Yet, a theoretical analysis of SMWT does not exist and empirical evidence on the effects of this type of autonomy on worker performance is still scarce. As we document below, existing studies in this area typically analyse particular firms or occupations, or provide experimental evidence.

In the present paper, we study the effect of working time autonomy on worker performance in a closely linked theoretical and empirical analysis. We also analyse how a worker's personality interacts with SMWT, focussing on two personality traits that boost individual performance according to social psychology. In the theoretical analysis, we develop a modified moral-hazard model, which includes intrinsic motivation, reciprocal behaviour, and endogenous monitoring precision that depends on the chosen working time arrangement. The key contribution of the model is to analyse how working time autonomy interacts with the two personality traits, and to derive testable empirical implications. While there is qualitative and case-study evidence suggesting that personality traits moderate employee responses to working time arrangements (e.g., Kelliher and Anderson, 2010; Lambert, 2000), a rigorous theoretical analysis of how the interaction of personality traits and working time autonomy affects performance has not yet been provided in the literature. Our theoretical model shows that the impact of working time autonomy on worker performance is ambiguous. On the one hand, due to high working time autonomy and low monitoring precision, the employer prefers low-powered extrinsic incentives. Consequently, workers choose low effort under the optimal incentive scheme. On the other hand, additional intrinsic motivation and incentives from reciprocating received autonomy can provide extra effort, so that the overall impact of working time autonomy on effort depends on which effect dominates.

Our empirical analysis tests which of the two theoretical effects is stronger in practice. It draws on one of the most extensive household survey panel datasets in Europe, the German Socio-Economic Panel (SOEP), which includes information on individual workers and on the firms in which they are employed. Our empirical findings imply that SMWT has a moderate, positive net effect on worker effort, a result which is very robust across a range of alternative performance measures and across various specifications, including an instrumental variables approach. In addition, we find that this positive effort effect is largely driven by increased intrinsic worker motivation, whereas reciprocity does not seem to be an important factor.

There are several advantages of using the SOEP. First, the representativeness of the data set allows us to draw more generalizable conclusions than parts of the existing literature that have looked at non-random or selected samples. Second, the panel character of the data improves upon the vast majority of the empirical literature in this field that is based on cross-sectional data. This allows us to address potential endogeneity problems and thus to derive managerial implications with regard to an effective use of SMWT. Third, although measures of effort or performance at work are usually difficult to find in individual survey data spanning a range of different occupations and firms, the SOEP offers several alternatives. Our main measure for worker effort is the difference between actual and contractual working hours to which we also refer as extra working time. We believe that this is a legitimate measure of worker effort, because spending time at work is clearly costly to the worker in terms of opportunity cost, and more time spent at work is likely to increase the worker's output (e.g., Bell and Freeman, 2001). But we also use alternative proxies for performance, such as hourly wages and absenteeism from work.

Our empirical approach addresses several endogeneity problems. Suppose that more (or less) motivated employees select into workplaces or jobs with SMWT, or that firms that require higher effort from their employees (or that offer more incentives for effort) are more likely to operate SMWT. This would lead to a spurious non-causal association between SMWT and worker performance. We deal with this by including worker-firm spell fixed effects. This implies that the variation we exploit results from changes in SMWT that workers experience while being employed in the same firm, thus holding time-invariant unobserved worker and firm characteristics constant. A remaining threat to identifying a causal effect occurs if firms that introduce SMWT change other aspects of the job that may affect worker performance, such as performance monitoring, autonomy in carrying out tasks, task content, or aspects of the work contract. We deal with such concerns by controlling for the degree of performance monitoring, overall job autonomy, a large set of narrowly defined 4-digit occupation dummies, job satisfaction and aspects of the work contract such as full-time status, contractual working time and fixed-term employment. Moreover, in order to account for any potentially remaining time-varying unobserved heterogeneity, we also report results from an instrumental variables estimation strategy. Finally, we explore the heterogeneity of the SMWT effect using a quantile regression approach.

[1] Probably, this is why SMWT is sometimes also called trust-based working time (e.g., Singe and Croucher, 2003; Godart et al., 2016). Other expressions used in the literature include work time control, schedule control, trust hours, or boundary-less work (Beckers et al., 2012; Kelly and Moen, 2007).