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Four-Day Workweek Trials and Productivity Outcomes in Knowledge-Intensive Firms

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Abstract

The existing study examines a six-month pilot of a four-day workweek model (100%-80%-100%) in 12 knowledge-intensive firms in contrast to 8 firms that maintained the standard five-day week. A quasi-experimental approach was employed by using monthly key performance indicators, time-usage records, three surveys (N = 798), and 42 interviews. Output per hour increased by 24.6 index points compared to comparison firms; at the same time, the total output remained unchanged amid an 18.9% decrease in working hours per week. A structural model shows that recovery mediated the impact of the four-day week pilot on productivity via engagement and burnout, while work intensity increased somewhat. There was no change in burnout and turnover intention; instead, there were improvements in recovery, engagement, and work-life balance. The four-day workweek thus emerges as a work-redesign intervention and not a mere reduction in hours.

Keywords: Four-Day Workweek, Working-Time Reduction, Labour Productivity, Recovery, Burnout, Knowledge-Intensive Firms.

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Introduction

However, traditional five-day work systems have retained their supremacy in all organizations, but innovations in the knowledge economy are testing the validity of the principle that increased work time is directly correlated with increased performance. In today's modern professional setting, productivity is no longer defined by the duration of the work done but by problem-solving skills, work design, and efficient use of available resources (Ashton, 2019; Wong et al., 2019). Long work hours have been linked to various problems in the field of occupational health and well-being of employees, and therefore there is a need for innovative approaches to work time management, including a four-day work week. Additionally, studies show that the connection between working hours and productivity is not linear in nature (Pencavel, 2015).

Flexible work systems and restructuring of work systems have been shown to be potentially beneficial for both employees' well-being and organizational success. The literature on flexible work and work that is geographically independent has indicated that autonomy, efficiency of work, and proper resource allocation can lead to better productivity (Bloom et al., 2015; Choudhury et al., 2021). Nevertheless, there are issues related to the effectiveness of shorter work days and how much the productivity actually increases and does not just become more stressful (Delaney & Casey, 2022; Spencer, 2022).

In light of this problem, this research will analyze productivity and effects on employees of the structured four-day workweek experiment in knowledge-intensive companies. It will be achieved by comparing trial and control groups using various metrics of productivity and employee survey and other qualitative data.

This paper will proceed as follows. Section 2 contains the literature review where the findings of previous research regarding the reduction of working hours, flexible working, productivity, and employees' well-being will be discussed. Section 3 provides information about the methodology that includes quasi-experimental design, sampling, data gathering process, and analysis methods. Section 4 shows the results of the four-day work week experiment that include changes in productivity, employee well-being and structural model findings. In Section 5, the results will be discussed with respect to theoretical frameworks and previous research. Lastly, conclusions of the study will be presented in Section 6.

Literature Review

Past studies on flexibility in working hours reveal the need for a balance between the well-being of employees and organizational effectiveness. Shorter working hours are found to be associated with improved recovery, decreased stress, and increased work-life balance. The results of the longitudinal study conducted on the impact of shorter hours interventions revealed positive changes in employee health outcomes, such as the decrease in the level of stress and improved recovery experience (Barck-Holst et al., 2017; Schiller et al., 2017).

Job Demands-Resources (JD-R) framework helps comprehend how work redesign affects employees' outcomes. From this perspective, lowering demands and building up resources leads to better motivation, engagement, and psychological well-being (Bakker & Demerouti, 2017). The findings of research related to flexible work also show that autonomy and organizational support affect satisfaction and performance of employees; nonetheless, the positive effect may depend on job-specific factors and organizational context (Kossek & Lautsch, 2018; Wheatley, 2017).

While prior research suggests some evidence about flexible and shortened working arrangements, there are concerns about work intensification and management control. A flexible work system might increase demands if organizations pass the efficiency pressure directly to the workers (ter Hoeven & van Zoonen, 2015). The research on work redesign shows the importance of having processes, structure, and protected focus time for making productivity gains (Wang et al., 2021). Therefore, more empirical study should be conducted to understand the mechanisms of influence of four-day workweeks on organizational and employee outcomes.

Methodology

A quasi-experimental mixed methods approach was employed (Fig. 1). Twelve trial organizations (n = 486) engaged in software development, digital marketing, engineering design, financial analytics, and consulting worked a four-day week for six months following an eight-week redesign process, while eight control organizations (n = 312) maintained a five-day work week. Output per hour was derived based on the ratio of organizational key performance indicators (KPI) to logged hours relative to baseline. The survey measures used 1-5 scales and demonstrated satisfactory levels of reliability ($\alpha = 0.80–0.91$; AVE ≥ 0.58). Effects were measured using firm fixed effects difference-in-differences (DiD), mechanisms through PLS-SEM (5,000 bootstrap iterations), and interviews with thematic analysis.

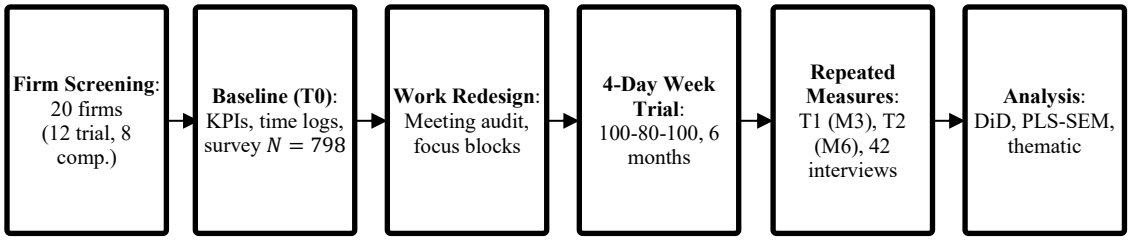


Fig. 1: Methodological Flow of the Trial Evaluation

Results

By Month 6, output per hour was at 127.4 in trial firms compared with the baseline; in comparison firms, it remained close to the baseline (Fig. 2a). To confirm H1 the DiD estimate was 24.62 ($p < .001$), and there was no significant difference in total output (Table 1). In terms of H2 and H3, intensity increased, and trial employees reported lower burnout and lower intention to turn over and higher recovery, engagement, and work–life balance.Intensity increased and intention to turn over and burnout decreased, but recovery, engagement, and work–life balance increased among trial employees supporting H2 and H3 (Fig. 2b).

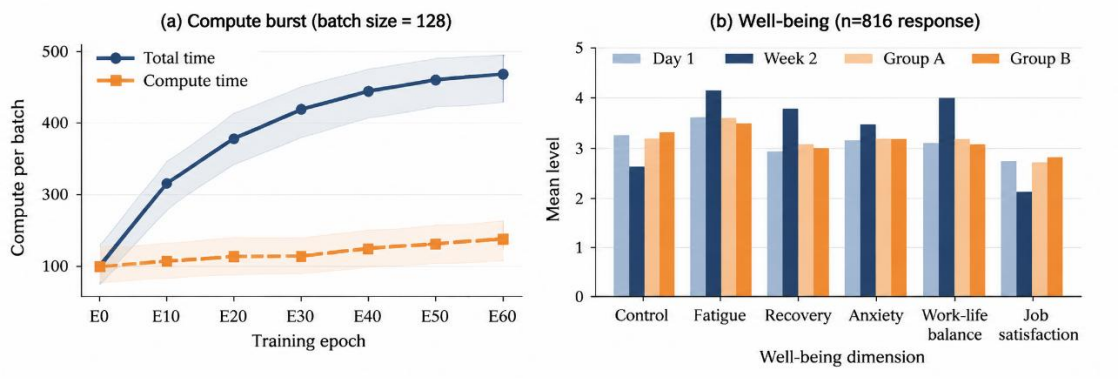


Fig. 2: (a) Output per Hour Trajectory; (b) Baseline (T0) and Month 6 (T2) Outcomes

Table 1: Difference-in-Differences Estimates of Trial Effects

Outcome	β_3 (DiD)	SE	p-value	Outcome	β_3 (DiD)	SE	p-value
Output per hour	24.62	3.11	< .001	Recovery	0.88	0.09	< .001
Total output	2.74	1.62	.091	Engagement	0.52	0.07	< .001
Absenteeism	−0.41	0.12	< .001	Work intensity	0.25	0.07	< .001
Burnout	−0.73	0.08	< .001	Turnover intention	−0.73	0.10	< .001

The 7.9-hour decrease was primarily due to a reduction in meetings (−4.2 h) and email or chat (−1.9 h), though deep work actually increased a little (Fig. 3a). The software development sector saw the biggest gains (+32.0%) while consulting increased by +20.1% (Fig. 3b). The trial had a positive effect on recovery ($\beta = .46$), which in turn had a positive effect on engagement ($\beta = .41$) and a negative effect on burnout ($\beta = -.44$); engagement ($\beta = .36$) and burnout ($\beta = -.24$) had a negative effect on productivity; and the direct path was non-significant, supporting H4. Factors that were mentioned in interviews were discipline, protected focus time, the pressure from clients and the increased momentum the week before deadlines.

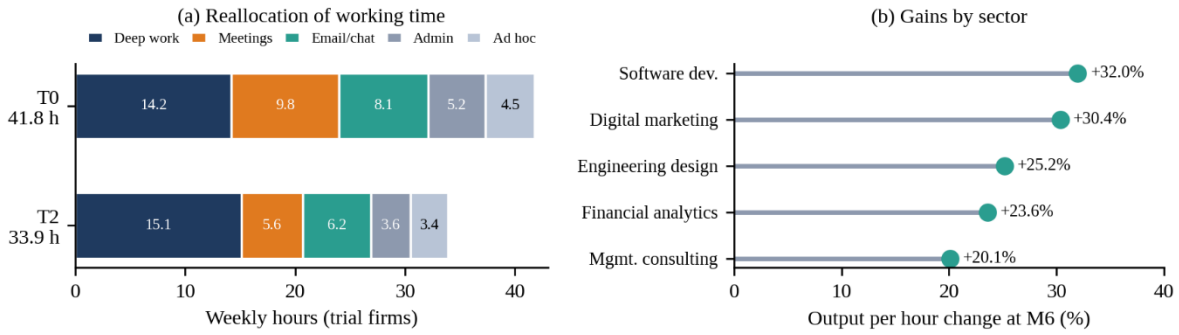


Fig. 3: (a) Weekly Time Use in Trial Firms; (b) Output per Hour Gains by Sector

Discussion

The findings are consistent with the hours–output non-linear relationship in knowledge work today (Pencavel, 2015) and with evidence that redesigning professional work increases performance (Bloom et al., 2015; Choudhury et al., 2021). Recovery-based mediation is consistent with the job demands–resources theory (Bakker & Demerouti, 2017; Sonnentag et al., 2017) and reduced-hours trial outcomes (Barck-Holst et al., 2017; Schiller et al., 2017). Increased intensity aligns with the demand pathway of flexibility in work (ter Hoeven & van Zoonen, 2015), and warnings of managerial appropriation (Delaney & Casey, 2022; Spencer, 2022), whereas lower scores on consulting gains are consistent with occupational constraints on flexibility (Kossek & Lautsch, 2018). The HRM need to audit meetings, link KPIs with output, safeguard focus time (Wang et al., 2021), and monitor intensity in order to protect health (Wong et al., 2019).

Conclusion

This paper explores the effects of the implementation of a structured 4-day work week policy on productivity and staff outcomes in knowledge-intensive businesses. The results show that the 100%-80%-100% scheme of working hour reduction is effective in increasing productivity without reducing the overall productivity of the organization. There was a large difference-in-differences effect for the trial firms (+24.62, $p < .001$, no difference for total output). These findings also showed that recovery ($\beta = 0.88$, $p < .001$), engagement ($\beta = 0.52$, $p < .001$), and work–life balance improved significantly, and there were positive changes in burnout and turnover intention. The structural model validated that recovery was a critical mechanism in which it increased engagement and reduced burnout, which in turn affected productivity outcomes. The results indicate that a 4-day working week should be considered a total organizational redesign approach rather than a simple reduction of working hours, that is, a redesign of the meeting, a redesign of the workflows and a protected focus time. But the additional workload demands careful implementation and ongoing monitoring to be carried out. The positive findings, based on the limited amount of available data and a small number of studies, warrant further investigation of longer-term impacts in wider samples and randomized research designs across a range of industries, sizes and cultures to test the sustainability of reduced working-time models.

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