

The Effects of Remote Work on Labor Productivity in the Service Sector

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Abstract

This study examines the effects of remote work on labor productivity in Thailand's service sector. Using a quantitative, cross-sectional design, data were collected from 400 employees across multiple service industries, including finance, education, ICT, and professional services. Structured questionnaires measured remote work intensity, labor productivity, and organizational support. Data were analyzed using descriptive statistics, correlation analysis, confirmatory factor analysis (CFA), and structural equation modeling (SEM). The results indicate that remote work has a significant positive effect on labor productivity ($\beta = 0.41$, $p < 0.001$), and organizational support both directly influences productivity ($\beta = 0.52$, $p < 0.001$) and partially mediates the relationship between remote work and productivity ($\beta = 0.21$, $p < 0.001$). These findings highlight that productivity gains from remote work are maximized when supported by digital tools, training, and clear management practices. The study provides empirical evidence for organizations and policymakers to design effective remote work policies in the Thai service sector, ensuring operational efficiency, employee satisfaction, and sustainable workforce performance.

Keywords: Labor Productivity, Organizational Support, Remote Work, Service Sector

1. Introduction

1.1 Principles and Rationale

The rapid expansion of digital technologies and the widespread adoption of communication platforms have fundamentally transformed work arrangements across the globe. One of the most significant changes is the shift toward remote work, accelerated by the COVID-19 pandemic and sustained by ongoing advancements in digital infrastructure (ILO, 2020). In Thailand, the service sector—comprising finance, education, hospitality, retail, transportation, and professional services—has increasingly embraced remote work as organizations seek greater operational flexibility, reduced costs, and improved employee well-being (Champatong, 2025; NESDC, 2022). As a result, understanding how remote work influences labor productivity has become a critical topic for policymakers, business leaders, and human resource practitioners.

Prior studies have highlighted that remote work can improve productivity through reduced commuting time, increased autonomy, and enhanced work-life balance (Bloom et al., 2015; Gajendran & Harrison, 2007). However, research also indicates that remote work may pose challenges such as communication barriers, decreased collaboration, and difficulties in performance monitoring, which may negatively affect productivity in service-oriented tasks

requiring high customer interaction (Wang et al., 2021). These mixed outcomes suggest that the productivity effects of remote work are context-dependent and influenced by job characteristics, organizational support, and technological readiness (Suwunniponth, 2025).

Despite its growing relevance, empirical studies focusing on the Thai service sector remain limited. Thailand's unique cultural norms surrounding hierarchy, collectivism, and face-to-face communication, combined with varied levels of digital adoption across industries, may shape the effectiveness of remote work practices differently than in Western contexts (Phuaphanthong & Lertpattarapong, 2022). Therefore, there is a need for systematic research to examine whether remote work enhances or hinders labor productivity in Thailand's service industries and to identify factors that moderate these effects.

This study aims to address this gap by analyzing the relationship between remote work arrangements and labor productivity in the service sector in Thailand. The findings will contribute to academic literature on digital work transformation while offering practical insights for organizations seeking to optimize workforce performance in an increasingly hybrid work environment.

1.2 Research Objective

The objectives of this study are as follows:

1. To examine the relationship between remote work adoption and labor productivity among employees in the Thai service sector.
2. To assess how remote work influences key productivity factors, including task efficiency, output quality, time management, and work engagement.
3. To investigate the moderating role of organizational support, such as digital infrastructure, management practices, and training, on the relationship between remote work and labor productivity.

2. Literature Review

2.1 Remote Work and Productivity

Early experimental and quasi-experimental studies demonstrate that remote work can improve labor productivity by reducing commuting time, minimizing workplace interruptions, and increasing employee autonomy. A landmark field experiment at Ctrip found that working from home increased productivity by approximately 13%, primarily due to longer effective work hours and fewer sick days (Bloom, Liang, Roberts, & Ying, 2015). Recent reviews also confirm generally positive productivity effects when remote work is well-structured, while cautioning that coordination costs and social isolation can negatively impact performance (DeFilippis, Impink, Singell, Polzer, & Sadun, 2020).

2.2 Mechanisms Linking Remote Work to Labor Productivity

Research identifies three primary mechanisms through which remote work affects productivity: (1) time reallocation, such as less commuting leading to more productive or rested time; (2) work design and autonomy, where increased control enhances focus and motivation; and (3) contextual constraints, including technology, managerial practices, and task characteristics, which moderate outcomes (Nakrošienė, Bučiūnienė, & Goštautaitė, 2019). Empirical evidence indicates that productivity gains are highest for tasks that are individual,

require deep focus, or are not dependent on real-time customer interaction. Tasks requiring intensive collaboration may underperform without robust communication mechanisms (Bloom et al., 2015; Nakrošienė et al., 2019).

2.3 Organizational and Technological Moderators

The productivity payoff from remote work depends heavily on organizational support, including clear policies, manager training, and digital infrastructure, as well as employees' digital skills (OECD, 2020). In Thailand, government and corporate assessments highlight uneven digital readiness, which can limit the effectiveness of remote work if not addressed (Digital Government Agency, 2021).

2.4 Service-Sector Specific Considerations

Service industries are heterogeneous. Knowledge-intensive services, such as finance and professional services, adapt well to remote work, whereas hospitality, retail, and transport sectors may face constraints. Even within adaptable sectors, roles with high customer interaction or real-time collaboration require hybrid or enhanced digital solutions to maintain productivity (Bloom et al., 2015; Nakrošienė et al., 2019).

Although research in Thailand is limited, studies indicate that organizational norms, managerial practices, and digital maturity significantly affect remote-work productivity and employee motivation (Chansuk & Sila, 2021). National readiness assessments also identify gaps in IT systems and uneven adoption across agencies and firms, which can constrain productivity benefits (DGA, 2021). Recent reports from Thai universities show positive outcomes for employee well-being and productivity under hybrid/remote arrangements, emphasizing the need for training, clear performance metrics, and communication tools.

Remote work influences productivity through several mechanisms. First, time reallocation, such as reduced commuting, can enhance employee efficiency and concentration (Bloom et al., 2015). Second, work autonomy, which increases in remote settings, often boosts motivation and focus (Nakrošienė et al., 2019). Third, productivity is shaped by organizational and technological readiness, including leadership support, digital infrastructure, and employee digital skills (ILO, 2020; World Bank, 2021).

In the service sector, the effects of remote work are nuanced. Knowledge-intensive services—such as finance, education, and IT—benefit most from remote arrangements due to the nature of tasks requiring deep-focus, non-physical interactions (OECD, 2020). However, service roles requiring high customer interaction or immediate coordination may show mixed or negative productivity outcomes due to communication barriers (Bernstein et al., 2020).

3. Research Methodology

This study employed a quantitative research design to examine how remote work influences labor productivity in the service sector in Thailand. Quantitative methods are widely used for analyzing workplace productivity because they allow for hypothesis testing and statistical evaluation of causal relationships.

3.1 Research Design

A cross-sectional survey design was adopted to collect data from employees working in various service subsectors, including finance, education, ICT, customer service, and

professional services. This approach is appropriate for measuring behavioral and performance outcomes related to remote work within a specific period.

3.2 Population and Sample

The population consisted of full-time employees in Thai service-sector organizations that implemented remote or hybrid work arrangements. A sample of approximately 400 respondents was selected using stratified random sampling to ensure representation across key service industries. The sample size aligns with recommendations for structural equation modeling (SEM), which requires at least 10 respondents per parameter (Hair et al., 2019).

3.3 Research Instrument

Data were collected using a structured questionnaire developed from established scales:

- Remote Work Intensity (adapted from Nakrošienė et al., 2019)
- Labor Productivity Scale (adopted from Bloom et al., 2015; ILO, 2020)
- Technological Readiness & Organizational Support (adapted from OECD, 2020)

A 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) was used. Content validity was assessed by three experts, and reliability was confirmed through pilot testing (Cronbach's $\alpha \geq 0.80$). Online questionnaires were distributed via email and professional networks. Participation was voluntary and anonymous.

3.4 Data Analysis

Data were analyzed using SPSS and AMOS. The analysis procedures included:

- Descriptive statistics to summarize demographic characteristics and remote work patterns.
- Correlation analysis to explore relationships among variables.
- Confirmatory factor analysis (CFA) to assess construct validity (Hair et al., 2019).
- Structural Equation Modeling (SEM) to test direct and indirect effects of remote work on productivity, consistent with methods used in workplace productivity studies (DeFilippis et al., 2020).

4. Results

A total of 400 employees from various service-sector organizations in Thailand participated in the survey. Overall, the demographic profile indicates that the study participants are predominantly young, educated, and mid-career employees in the service sector, which reflects the population most likely to engage in remote work practices in Thailand. These characteristics provide a context for interpreting productivity outcomes and the effects of organizational support in remote work arrangements.

4.1 Descriptive Statistics

The descriptive analysis provides an overview of respondents' perceptions of remote work adoption and labor productivity. The results indicate that remote work adoption was moderately high, with a mean score of 3.78 (SD = 0.82) on a 5-point Likert scale. This suggests that most employees in the service sector have experienced remote work either partially or fully and generally perceive it positively. The distribution of responses showed that approximately 65% of respondents reported using remote work at least three days per week, while 20% indicated

occasional remote work (1–2 days per week), and only 15% reported minimal or no remote work experience.

Regarding labor productivity, the overall mean score was 3.94 (SD = 0.76), indicating that employees generally perceived their productivity as relatively high while working remotely. Specifically, employees reported improvements in task completion efficiency, time management, and focus on work responsibilities, while also noting some challenges with collaborative tasks requiring real-time interaction. The highest-rated productivity aspect was task efficiency, with a mean of 4.05, whereas team coordination had the lowest mean at 3.72, highlighting areas where remote work may pose challenges.

4.2 Correlation Analysis

Pearson correlation analysis revealed significant positive relationships among all variables. Remote work intensity was positively correlated with labor productivity ($r = 0.57, p < 0.01$), indicating that greater exposure to remote work was associated with higher perceived productivity. Organizational support showed a strong correlation with productivity ($r = 0.63, p < 0.01$), consistent with evidence that strong digital infrastructure enhances telework outcomes (ILO, 2020; OECD, 2020).

4.3 Confirmatory Factor Analysis (CFA)

All constructs demonstrated acceptable fit indices (CFI = 0.94, RMSEA = 0.05). Factor loadings exceeded the recommended 0.70 threshold, and composite reliability (CR) scores ranged from 0.87 to 0.92, meeting validity standards (Hair et al., 2019). These results confirm that the measurement model met the reliability and validity requirements.

4.4 Structural Equation Modeling (SEM) Results

The structural equation modeling (SEM) analysis assessed the direct and indirect effects of remote work and organizational support on labor productivity in Thailand’s service sector. The structural model demonstrated strong explanatory power, with the combined predictors explaining 48% of the variance in labor productivity ($R^2 = 0.48$), as the results shown in Table 1.

Table 1 Effects of Remote Work and Organizational Support on Labor Productivity

Path	Effect Type	Standardized Coefficient (β)	p-value
Remote Work → Labor Productivity	Direct	0.41	< 0.001
Organizational Support → Labor Productivity	Direct	0.52	< 0.001
Remote Work → Organizational Support → Labor Productivity	Indirect (Mediated)	0.21	< 0.001

The SEM analysis indicates that both remote work and organizational support significantly enhance labor productivity in Thailand’s service sector. Remote work has a direct positive effect ($\beta = 0.41, p < 0.001$), suggesting that employees benefit from increased autonomy, reduced commuting, and focused task time. Organizational support exerts an even stronger

direct effect ($\beta = 0.52, p < 0.001$), highlighting the importance of managerial guidance, digital infrastructure, and training in boosting performance. Additionally, organizational support partially mediates the relationship between remote work and productivity ($\beta = 0.21, p < 0.001$), showing that the productivity gains from remote work are amplified when employees receive adequate resources and support. Overall, the model explains 48% of the variance in labor productivity ($R^2 = 0.48$), demonstrating that both remote work adoption and supportive organizational practices are key drivers of employee performance.

5. Conclusion

The findings of this study demonstrate that remote work has a significant and positive effect on labor productivity in Thailand's service sector. Remote work intensity was associated with increased efficiency, improved time management, and enhanced output quality. These results align with global evidence indicating that remote work reduces commuting time and workplace distractions, contributing to higher productivity (Bloom et al., 2015; DeFilippis et al., 2020). The positive relationship observed in the Thai context confirms that service-sector employees—particularly in knowledge-intensive roles—benefit from flexibility and autonomy inherent in remote work arrangements.

A key contribution of this study is the identification of organizational support as both a significant predictor of productivity and a mediator of the remote work–productivity relationship. Employees who received sufficient technological tools, training, and managerial guidance reported higher productivity levels. This finding echoes previous research emphasizing the role of digital infrastructure and supportive management in successful telework implementation (ILO, 2020; OECD, 2020). In Thailand, where digital readiness varies across organizations, effective remote work outcomes depend heavily on the quality of organizational systems and support structures (DEPA, 2021; Rattanapongpinyo, 2022).

The results also highlight challenges associated with remote work. Although productivity improved overall, some respondents reported difficulties related to coordination, communication delays, and work–life boundary management—issues commonly noted in remote work literature (Bernstein et al., 2020). These challenges suggest that productivity gains are not automatic but require deliberate organizational strategies, such as structured communication protocols, performance monitoring systems, and employee wellness programs.

From a managerial perspective, these findings suggest that service-sector organizations in Thailand should view remote work not merely as an emergency response or cost-saving measure, but as a strategic tool for enhancing productivity. Investments in digital tools, cybersecurity, employee training, and supportive leadership practices are essential for maximizing the benefits of remote work. Policymakers may also use these insights to design national guidelines promoting digital transformation and sustainable flexible work policies.

In conclusion, remote work presents a viable and effective approach to improving labor productivity in Thailand's service sector, provided that organizations implement strong technological and organizational support mechanisms. This study contributes to both theory and practice by offering empirical evidence from the Thai context and reinforcing global findings on the productivity potential of remote work models.

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