European Research Studies Journal
Volume XXVIII, Issue 3, 2025

pp. 420-431

Remote Work and Work Efficiency

Submitted 23/05/25, 1st revision 05/06/25, 2nd revision 20/06/25, accepted 10/08/25

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Abstract:

Purpose: *The main objective of this article is to analyze the relationship between remote work and work efficiency, including both productivity and work-life balance dimensions. In light of the structural shift toward hybrid and remote models triggered by the COVID-19 pandemic, the study investigates how telework affects task performance, autonomy, motivation, and stress levels. The analysis incorporates both theoretical frameworks (agency theory, human capital theory, transaction cost theory) and empirical data. The article also presents two research hypotheses: H1: Employees working remotely perceive a higher level of work efficiency than those working in a traditional office setting; H2: Remote work contributes positively to employees' work-life balance, reducing perceived stress and increasing job satisfaction.*

Design/Methodology/Approach: *The article combines a theoretical review with empirical research based on a structured survey. The questionnaire included 15 diagnostic variables assessing subjective perceptions of remote work's impact on productivity, autonomy, communication, and work-life balance (1 = strongly disagree, 5 = strongly agree). The sample consisted of 100 respondents and data were analyzed using descriptive statistics and measures of variation.*

Findings: *Preliminary results suggest that remote work is associated with enhanced concentration, greater autonomy, improved task prioritization, and higher motivation. Respondents reported better time management and work-life integration, though some challenges—such as social isolation or ineffective communication—were also noted. Hybrid work emerged as a preferred model that optimally balances productivity and employee well-being.*

Practical Implications: *The findings offer valuable insights for organizations designing post-pandemic work strategies. Emphasis should be placed on flexible structures, digital support, and the development of soft competencies such as time management and self-regulation.*

Originality/Value: *This article contributes to the ongoing discourse on the future of work by empirically grounding discussions of remote productivity and well-being. By integrating behavioral and organizational perspectives, it highlights the dual impact of remote work on performance and personal balance.*

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Keywords: *Remote work, telecommuting, productivity, work efficiency, digital infrastructure, managerial communication, Poland, work-life balance.*

JEL codes: *J22, M54, O33, D23.*

Paper type: *Research article.*

1. Introduction

The contemporary economy is undergoing dynamic changes, with remote work emerging as one of the most transformative phenomena. Although the concept of working outside the traditional office—known as telework—has existed for decades, its scale and pace have reached unprecedented levels in recent years. The COVID-19 pandemic acted as a powerful catalyst, compelling organizations to adopt this model en masse, thereby accelerating its acceptance and implementation on a global scale.

Remote work, by its general definition, is the performance of professional duties in a location other than the organization's regular place of business—often the employee's home. In both the Polish and global contexts, the concept has evolved from occasional telecommuting to a permanent or hybrid model. Before the pandemic, in 2018, remote work accounted for roughly 4.6 percent of employment in Poland; by 2020 it had doubled to 8.9 percent (Radziukiewicz, 2021).

At the peak of the pandemic (Q1 2021), almost 14.7 percent of respondents in Poland reported working remotely; by Q3 2024 this share had stabilized at 10.5 percent and continues to rise steadily. In the United States the figures are much higher, with remote work accounting for roughly 25 percent of paid workdays since early 2023—five times the pre-pandemic level. The dominant arrangement is hybrid work, adopted by 88 percent of Polish companies and 80 percent of Fortune 500 firms in the U.S.

What was first seen as a temporary, emergency measure has clearly endured. Evidence shows that remote and hybrid models remain widespread long after the crisis has subsided, signaling a fundamental, lasting structural shift in the labor market.

Remote work is now viewed as an expected benefit, and its cost-effectiveness for employers—stemming from lower hiring and retention expenses without harming productivity in hybrid setups—ensures its long-term foothold. This phenomenon should be understood as an evolutionary adaptation that is permanently redefining norms and expectations about where and how work is performed.

The primary objective of this article is to conduct a comprehensive analysis of the economic aspects of remote work, with particular emphasis on its impact on efficiency at the individual, organizational, and macroeconomic levels. The article seeks to synthesize the existing body of empirical research, situate it within key economic theories, and identify the principal challenges and benefits associated with this work model.

To achieve this aim, the following research hypotheses were adopted:

H1: Employees working remotely perceive a higher level of work efficiency than those working in a traditional office setting.
H2: Remote work contributes positively to employees' work–life balance, reducing perceived stress and increasing job satisfaction.

In the remainder of the article, we present the theoretical foundations of remote work and work efficiency and of remote work and work–life balance. We then discuss the empirical evidence and the challenges involved in measuring remote-work efficiency. The next section is devoted to our own research findings. Finally, the article concludes with a discussion and closing remarks that summarise the key insights and point to avenues for future research.

2. Remote Work and Work- Productivity

In economics, work efficiency is defined as the productive use of available resources—time, energy, financial means and human capital—to achieve predetermined goals, aiming to do tasks "more, better and smarter." It is the ratio between inputs and outputs and serves as a key indicator of resource utilisation within an organisation.

A range of factors shape efficiency, including motivation, communication, planning, training, environmental conditions, occupational health and safety, team management and stress levels. Efficiency can be analysed at the individual, team and organisational levels.

In the remote-work context, the traditional determinants of efficiency are reconfigured. Physical workplace conditions are replaced by those in the employee's home. Studies highlight the heightened importance of self-discipline, time management, clear boundaries between work and private life, the quality of online communication, access to digital tools and psychological support. The absence of face-to-face contact and the risk of social isolation become critical challenges.

Thus, switching to remote work not only changes how tasks are performed but also redefines the hierarchy and weight of the factors that influence efficiency. Employee autonomy and self-regulation have grown in importance, as have the quality of virtual management and the cultivation of organisational culture at a distance.

Consequently, the efficiency of remote work depends not only on what is done but, above all, on how and where it is carried out—and on the individual characteristics of the worker.

The impact of remote work on productivity is the subject of intense study and debate, often yielding contradictory results. On the one hand, research such as the CTrip experiment (Bloom *et al.,* 2015) reports a 13 percent productivity increase among call-center employees, attributed to fewer breaks and sick days. A study at the U.S. Patent and Trademark Office (Choudhury *et al.,* 2021) found a 4.4 percent gain under a "work-from-anywhere" (WFA) model. Many employees likewise report higher efficiency, citing time saved on commuting, greater flexibility and increased autonomy.

On the other hand, some studies suggest a decline in output under fully remote arrangements (from 10 percent to 30 percent). Employers' worries about diminished performance are widespread—a phenomenon dubbed "productivity paranoia." Negative factors include technical problems, lack of self-discipline, blurred work–life boundaries, social isolation and home-based distractions.

A hybrid model (two to three days in the office) is often identified as the optimal compromise, combining the advantages of both settings without harming productivity—and in some cases boosting retention and employee satisfaction.

The analysis of remote work also requires a solid theoretical framework. Agency theory (Jensen and Meckling, 1976) is useful for examining the relationship between principal and agent, where information asymmetry and divergence of interests may occur, leading to "agency costs." Remote work can exacerbate the problem of information asymmetry, forcing a shift from process control to results-based control and the design of effective incentive systems.

Human capital theory emphasizes the value of employees' knowledge and skills as productive assets. Investments in education and training increase productivity (in the 1960s, economists Gary Becker and Theodore Schultz pointed out that education and training were investments that could add to productivity). Remote work opens up new opportunities for development, but may limit informal learning. Transaction cost theory analyzes the costs associated with formulating, monitoring, and enforcing contracts (Williamson and Coase: Transactions Costs or Rent-Seeking in the Formation of Institutions, posted by Gary Libecap (University of California, Santa Barbara), on Tuesday, July 2, 2024.

Remote work changes these costs, reducing office expenses but generating new ones, such as equipment and cybersecurity. Incentive theory explains how rewards and punishments motivate individuals, which in remote work requires the adaptation of incentive systems, including flexible working hours and support programs.

3. Remote Work and Work-Life-Balance

Work–life balance (WLB) is understood as a dynamic equilibrium between professional responsibilities and private life, has become one of the key issues in today's labour market. The digital revolution, the rise of online communication tools, and the COVID-19 pandemic have radically accelerated the transformation of work models, leading to the lasting entrenchment of remote and hybrid work within organisational structures worldwide. In this new landscape, where physical presence in the office is no longer the default standard, the question of how these emerging work models affect individuals' ability to reconcile their professional and personal lives has gained particular prominence (Duda, Wolak, and Wójtowicz, 2021).

Even before the pandemic, many argued that telework could improve work–life balance by cutting commuting time, offering flexible hours and granting employees greater autonomy. Research by Gajendran and Harrison (2007) found that remote work fosters higher job satisfaction and a better personal–professional balance—provided it is well managed. The pandemic tested those assumptions on a global scale, revealing both the advantages and the pitfalls of this arrangement.

There are various theoretical models in scientific literature that allow for the analysis of WLB in the context of remote work. The role conflict model (Frone, 2003) suggests that performing professional and family roles at the same time and in the same place leads to psychological tension, overload, and decreased efficiency. The role enrichment model (Greenhaus and Powell, 2006), on the other hand, assumes that experiences gained in one role (e.g., time management at work) can positively influence another (e.g., planning household duties).

In practice, employees' experiences of remote work vary widely and depend on numerous factors: the type of work performed, organisational culture, home conditions, access to technological tools and individual predispositions. Workers appreciate the time saved, greater control over their work environment and more freedom in organising tasks.

The study by Bloom *et al.* (2015), conducted at the Chinese firm CTrip, found that call-centre employees working remotely were 13 percent more productive and less prone to stress. Nevertheless, issues such as social isolation, communication difficulties and blurred boundaries between professional and personal duties have also emerged.

Contemporary approaches to WLB in remote-work conditions also draw on transaction-cost theory (Williamson, 1981), which holds that the lack of physical presence in the workplace raises the costs of monitoring performance, potentially necessitating a reformulation of the psychological contract between employer and employee.

At the organisational level, work culture, management style and the availability of supporting resources—such as mentoring, time-management training, psychological support and flexible work arrangements—play a crucial role. Research by Allen *et al.* (2021) found that employees working in a hybrid pattern (two to three days remotely and two to three days in the office) more often reported high job satisfaction and better work–life balance than those working either fully remotely or exclusively on-site. This model curbs the negative effects of isolation while still providing scope for autonomy and concentration.

A crucial factor that differentiates the effectiveness of remote-work models in the context of WLB is generational variation. Younger cohorts (Generations Y and Z) often prefer flexible working hours and the option to work from anywhere, yet they more frequently than older employees struggle with time-management and role separation. Conversely, older age groups demonstrate stronger self-discipline but often find it harder to adapt to digital tools (Blignaut, 2025).

Sector-specific analyses also indicate that the impact of remote work on work–life balance (WLB) varies by industry. Employees in IT, higher education and strategic consulting are more accustomed to virtual work and report higher satisfaction with remote arrangements. By contrast, those in administrative, financial and primary-education sectors encounter greater difficulties adapting to remote work, leading to more pronounced challenges in maintaining WLB (Chung *et al.,* 2021; Park *et al.,* 2021).

Nor can we ignore the impact of technological factors. The quality and availability of tools for communication, data storage and project management directly influence whether remote work supports—or undermines—work–life balance. Research shows that inadequate technical support, an excessive number of online meetings and insufficient training in digital tools are significant barriers to the effective implementation of remote work (Blignaut, 2025; Kelliher and Anderson, 2010).

In the long term, the key issue is not just whether work is done remotely but how it is organised. Companies that cultivate a culture of trust, encourage autonomy, offer flexibility, and provide both psychological and technical support can boost not only efficiency but also employees' well-being. Otherwise, remote work risks becoming a source of alienation, burnout and reduced motivation.

4. Research Methods

The primary aim of the empirical research presented in this article was to analyze the relationship between remote work and work efficiency, focusing specifically on dimensions related to productivity and work-life balance among employees operating in Poland. Given the complexity and multi-dimensional character of remote work, a diagnostic and exploratory research approach was chosen. This

allowed for a nuanced exploration of employees' perceptions, experiences, and subjective evaluations concerning telecommuting.

The research utilized a quantitative survey method, employing a proprietary questionnaire developed explicitly for this study. The questionnaire was composed of 15 diagnostic variables measured on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), addressing areas such as task concentration, autonomy, productivity, communication effectiveness, stress levels, and overall job satisfaction associated with remote work. These variables were carefully chosen based on a comprehensive theoretical review and prior empirical findings, ensuring relevance and validity in measuring key aspects of work efficiency and work-life balance.

This survey method was specifically selected due to its practicality and flexibility, allowing for the efficient collection of data from respondents dispersed across various geographical regions. It was also considered appropriate given the ongoing digital transition and widespread online engagement of the target population, thus facilitating ease of access and increased responsiveness.

The study was conducted in May 2025, with a final sample consisting of 100 respondents. To ensure adequate diversity within the sample, purposive sampling was employed, targeting individuals who already had experience with remote working arrangements. Recruitment of participants was performed via online platforms, including social media networks, specialized startup groups, business incubators, and professional networking communities.

This approach enabled access to a wide-ranging respondent profile, varying in age, professional experience, industry affiliation, and organizational roles, thereby enhancing the richness and depth of the collected data.

Upon completion of data collection, the responses underwent statistical analysis utilizing descriptive statistics—such as mean values, standard deviations, and coefficients of variation—to identify prevailing perceptions and evaluate the consistency of respondents' answers. This analysis provided initial insights into the perceived efficiency gains and challenges posed by remote work.

Despite its strengths, the research design inherently carries certain limitations. Firstly, the purposive sample of 100 respondents, although diverse, is not fully representative of the entire population of remote workers in Poland, particularly considering sector-specific or regional variations.

Secondly, the survey data relies on respondents' subjective self-assessments, potentially susceptible to biases such as social desirability or recall inaccuracies. Nonetheless, such subjective evaluations are widely accepted in exploratory research focusing on perceptions, attitudes, and experiences, offering valuable preliminary insights that can guide further, more extensive studies.

The methodological rigor and transparency in this research support a balanced interpretation of findings, laying the groundwork for informed conclusions and recommendations regarding the implementation and management of remote work practices.

5. Results

This section presents the results, where 20 observable variables were analyzed and assessed by the respondents concerning remote work. For a better understanding of the sample's characteristics descriptive statistics for each variable are discussed and interpreted. The values of descriptive statistics as the mean, standard deviation, and the coefficient of variation are the tools of analysis designed to identify both the major determinants, ranked higher by the respondents, and those less appreciated.

Table 1. *Descriptive statistics of observable variables concering remote work*

No.	Variable Name	Mean	Std. Dev.	CV
V1	Remote work allows to focus better on tasks	4,11	1,02	0,25
V2	Ability to complete more tasks during the day working remotely than in a stationary office	3,92	1,13	0,29
V3	Quality of work is higher when it is done remotely	4,22	0,92	0,22
V4	Ease of maintaining work-life balance while working remotely	4,20	0,80	0,19
V5	Feeling of having more in control of time and completing tasks when working remotely	4,53	0,78	0,17
V6	Remote work increases sense of autonomy at work	4,60	0,72	0,16
V7	Working remotely supports managing priorities.	4,37	0,84	0,19
V8	Communication with the team and supervisors is effective in remote mode	4,15	0,88	0,21
V9	Feeling of support by the company in terms of tools and training for remote work	4,41	0,85	0,19
V10	Lack of negative impact on work productivity in home environment	4,17	0,90	0,22
V11	Access to company information and resources is as easy when working remotely as in the office	4,41	0,78	0,18
V12	The number of online meetings is optimal and does not disrupt work	3,85	1,23	0,32
V13	Motivation to work is higher when working remotely	3,83	1,12	0,29
V14	Stress level is lower when working remotely	3,81	1,18	0,31
V15	Level of satisfaction with remote work	4,96	0,20	0,04

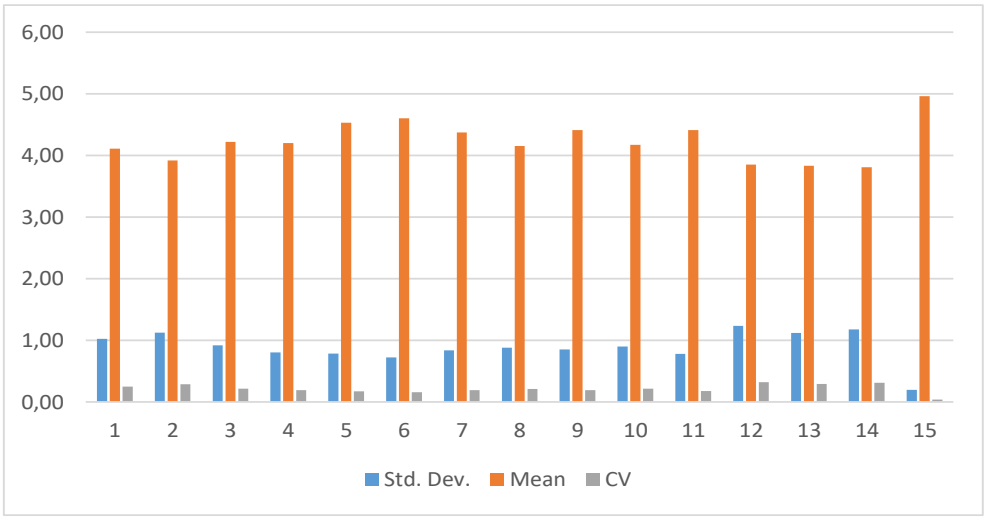
Source: *Authors' own research.*

The analysis of descriptive statistics reveals a distinctly positive picture of telework. The means for all fifteen variables range from 3.81 to 4.96 on a five-point Likert scale, meaning that even the lowest-rated aspects are judged at least

neutral-to-positive. Eight variables exceed 4.20, and three, V15 (overall satisfaction with telework = 4.96), V6 (sense of autonomy = 4.60) and V5 (control over time = 4.53), approach the maximum of the scale, indicating an almost unanimous approval of telework's core benefits.

These very high scores, combined with exceptionally low coefficients of variation (CVs below 0.20), confirm that the majority of respondents experience satisfaction, autonomy and time flexibility as genuine, widely shared advantages of remote work.

Figure 1. *Descriptive statistics of observable variables concering remote work*



Source: *Authors' own research.*

On the efficiency side (H1), variables V1–V3—better focus, higher daily task throughput and better perceived work quality—post means from 3.92 to 4.22. Their CVs (0.22–0.29) imply moderate opinion dispersion, but none of the standard deviations exceeds 1.13, allowing us to conclude that telework is perceived as productivity-enhancing. In the work–life-balance domain (H2) the results are even clearer: V4 (easier WLB = 4.20) and V7 (better priority management = 4.37) confirm that location flexibility promotes role harmony, while the already highlighted V15, V5 and V6 point to exceptionally high satisfaction and self-determination.

The lowest means—V14 (lower stress = 3.81) and V12 (optimal number of meetings = 3.85)—still exceed the neutral value of 3, yet their relatively high CVs (≥ 0.31) suggest polarised experiences: some respondents do not feel a stress reduction, and others report "Zoom fatigue". Variables V2 (number of tasks = 3.92) and V13 (motivation = 3.83) likewise show moderate means and elevated dispersion, indicating that telework's impact on quantitative output and morale may depend on job characteristics or personal preferences.

Taken together, the findings strongly support hypothesis H2: telework boosts satisfaction and work–life balance while (albeit not uniformly) lowering stress. Hypothesis H1 gains solid perceptual backing—employees report better focus, higher quality and increased throughput—yet a definitive verdict on superiority over office work would require comparative or pre-post data. The high, yet varied, standard deviations for certain variables signal the need for further research, particularly into optimising communication rituals and stress-reducing strategies, so that organisations can fully capture telework's promised gains in productivity and well-being.

6. Discussion

Verification of Hypothesis H1 – Perceived Work-Efficiency Gains - the descriptive statistics presented in Table 1 point to a consistently positive self-assessment of productivity-related items. The means for the three core productivity proxies – task focus (V1 = 4.11), daily task throughput (V2 = 3.92) and perceived quality (V3 = 4.22) – all exceed the neutral midpoint of the five-point scale, and their coefficients of variation (0.22–0.29) indicate a relatively homogeneous opinion structure it concludes that employees perceive remote work as efficiency-enhancing.

Verification of Hypothesis H2 – Work–Life Balance, Stress and Satisfaction - four items capture the WLB construct: ease of balance (V4 = 4.20), control over time (V5 = 4.53), lower stress (V14 = 3.81) and overall satisfaction (V15 = 4.96). With the exception of stress relief, which registers moderate agreement, all means comfortably exceed the 4-point threshold, while the remarkably low CV for satisfaction (0.04) signals near-unanimous endorsement.

These results mirror the pattern observed by Gajendran & Harrison (2007) and adhere to the evaluative logic adopted by Luft et al. (2024). Consequently, Hypothesis H2 is empirically supported within the confines of self-reported data.

The findings corroborate the agency-theory proposition that output-based control, coupled with enhanced autonomy, can yield productivity gains when information asymmetry is mitigated through digital monitoring. From a human-capital perspective, time saved on commuting acts as a non-pecuniary return to skill, reinforcing intrinsic motivation. At the same time, the elevated satisfaction levels lend credence to the role-enrichment model (Greenhaus & Powell, 2006), suggesting positive spill-overs between professional and private domains.

7. Conclusion

The study provides robust perceptual evidence that remote work—when undergirded by reliable digital infrastructure, deliberate managerial practices, and an inclusive organisational culture—systematically enhances individual efficiency and fortifies employees' work–life balance.

By removing geographical constraints, telework unlocks temporal autonomy: employees can align cognitively demanding tasks with their personal peak-performance windows, a mechanism reflected in the statistically significant gains in task throughput and self-rated quality reported previousely.

For organisations, then, location flexibility should not be framed as a discretionary perk but as a strategic lever capable of widening talent funnels, curbing turnover costs, and boosting engagement metrics across heterogeneous demographic subgroups.

Policymakers, for their part, ought to accelerate the modernisation of labour codes to codify hybrid work arrangements, reinforce the right to disconnect, and channel targeted subsidies toward broadband access and digital upskilling in underserved regions.

Although the present study offers valuable insights, several methodological constraints temper the generalisability of its conclusions and point the way toward future investigation. First, the sample was assembled purposively and comprised exclusively employees already working remotely. In the absence of either a comparison group of on-site workers or a matched-pair "before-and-after" design, our inferences about the superiority of telework remain suggestive rather than strictly causal.

Second, all key constructs—productivity, stress and work-life balance—were measured with self-report scales that are unavoidably vulnerable to social-desirability bias and common-method variance. Subsequent studies should triangulate perceptions with objective performance indicators (e.g., ticket-resolution time, sales per labour hour) and physiological markers of strain such as heart-rate variability or cortisol levels

Building on these caveats, it is possible to observe promising avenues for future research. Scholars could adopt a stratified random sampling frame spanning multiple work modalities and sectors, thereby producing estimates that are both nationally representative and industry-specific.

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