

Employee Productivity as A Moderating Variable of The Effect of Remote Working on Work-Life Balance

Sudirman¹, Deewar Mahesa², Dikky Mooy³
Anauta Lungiding Angga Risdianto⁴, Muhamad Risal Tawil⁵

¹Universitas Tadulako Palu, Indonesia

²Untag Semarang, Indonesia

³Politeknik Negeri Kupang, Indonesia

⁴Politeknik Negeri Madura, Indonesia

⁵Politeknik Baubau, Indonesia

sudirman.udja@gmail.com¹

ABSTRACT

The post-pandemic work paradigm shift has positioned remote working as a permanent work modality across various industrial sectors, bringing significant consequences to the dynamics of employee work-life balance. This study aims to analyze the impact of remote working on work-life balance, while also examining the role of employee productivity as a moderating variable that strengthens or weakens this relationship. Using a quantitative explanatory approach, data were collected through a structured questionnaire from knowledge workers. A theoretical framework was built by integrating Boundary Theory, Conservation of Resources (COR) Theory, and Role Conflict Theory. Data analysis was conducted using Partial Least Squares -based Structural Equation Modeling (PLS-SEM) to test the moderating effect (moderated regression analysis). The results are expected to confirm that remote working has a significant positive effect on work-life balance, but the strength of this relationship is highly dependent on individual productivity levels. Employees with high productivity are able to optimize the flexibility of remote working to achieve a better work-life balance without experiencing role bleed. Conversely, low productivity levels weaken the positive impact of remote working and even trigger burnout due to inefficient work time management. These findings provide theoretical contributions to the organizational behavior literature and practical implications for human resource management in designing adaptive remote work policies.

Keywords : Remote Working, Work-Life Balance, Employee Productivity, Moderating Role, Boundary Theory.

INTROCUCTION

The transition of the workplace landscape toward a highly flexible model has triggered a fundamental reorientation in the interaction patterns between organizations and their workforces in the contemporary era (Gajendran & Harrison, 2007). The widespread adoption of remote *working* following the global pandemic has transformed from a mere emergency response mechanism into a permanent, sustainable business strategy (Wang et al., 2021). This flexibility allows organizations to maintain operational continuity while offering employees greater autonomy regarding the location and timing of tasks (Allen et al., 2015). However, despite the conveniences of digital technologies that support this flexibility, the adoption of

remote working has sparked complex academic debate regarding its implications for individuals' psychological and physical boundaries in the workplace (Felstead & Henseke, 2017).

One of the central aspects most impacted by remote work schemes is work - life balance (WLB) (Kelliher & Anderson, 2010). WLB is defined as a condition in which an individual can balance the demands of work commitments and personal domains without significant friction or role conflict (Greenhaus & Beutell, 1985). On the one hand, early literature emphasized that *remote working* significantly improves WLB by eliminating commuting time, reducing travel stress, and providing schedule flexibility to meet family obligations (Eldridge & Nurius, 1984; Gajendran & Harrison, 2007). On the other hand, recent findings identify a "flexibility paradox," where remote work actually causes the erosion of boundaries between work and personal life (*work-life blur*) and encourages an *always-on* culture that extends actual working hours unbound (Mazmanian et al., 2013; Wheatley, 2012).

Empirical inconsistency in the effects of *remote working* on WLB indicates the existence of antecedent variables or boundary conditions that moderate this relationship (Allen et al., 2015). From the perspective of *Boundary Theory* (Ashforth et al., 2000), individuals differ in how they manage and integrate the boundaries between work and personal domains. Employees who work remotely are required to have high *self-regulation* and role integration skills to prevent task demands from invading the domestic space (Golden et al., 2006). Without adequate self-management mechanisms, workplace flexibility can turn into a psychological burden that triggers *burnout*, anxiety, and dual role conflict that undermine the quality of an individual's WLB (Edmondson, 2018).

Amidst this complexity, employee productivity *has* emerged as an individual factor thought to play a key role in shaping the relationship between *remote working* and WLB (Bloom et al., 2015). Productivity is not only measured by the quantity of output produced, but also includes efficient time management, timely completion of task deadlines, and the ability to focus on work priorities without direct supervision (*self-leadership*) (Grant et al., 2007). Referring to the *Conservation of Resources* (COR) Theory (Hobfoll, 1989), individuals with high productivity have a better ability to conserve and allocate their personal resources (such as energy, focus, and time). High work efficiency allows them to complete professional targets in a shorter duration, leaving sufficient energy and time resources to be allocated to personal and family life (Ten Brummelhuis & Bakker, 2012).

Conversely, employees with low productivity levels when working remotely *tend* to experience procrastination, fragmented focus due to domestic distractions, and decreased work efficiency (Wang et al., 2021). According to Golden and Eddleston's (2020) analysis, the inability to manage output efficiently in a non-office work environment is often compensated for by extending work hours into the evenings or weekends. This extended working hours (*presenteeism*) occurs to meet performance quotas required by management, which ultimately directly undermines

WLB and triggers *work-to-family interference* (Derks et al., 2014). Thus, the productivity variable is suspected not only to be an outcome *but* also to function as a moderating variable that determines whether *remote working* will have a positive or negative impact on an individual's WLB (Sardeshmukh et al., 2012).

Although the importance of discussing productivity and work flexibility has been widely discussed in the HR management literature, most previous studies tend to treat productivity as a dependent *or* mediating variable in *remote working* schemes (Bloom et al., 2015; Gajendran & Harrison, 2007). A fundamental *research gap lies in the lack of empirical testing that positions productivity as a moderating variable* that specifically conditions WLB responses to remote work practices (Kelliher & Anderson, 2010; Sardeshmukh et al., 2012). Ignoring the moderating role of productivity can lead to erroneous generalizations about the effectiveness of *remote working*, as if location flexibility policies will have a uniform WLB impact on all levels of employees regardless of their individual work efficiency capacity (Wang et al., 2021).

Theoretically, testing this moderation model aims to enrich the human resource management literature by integrating *Boundary Theory* and *Conservation of Resources Theory* into a single, integrated framework (Ashforth et al., 2000; Hobfoll, 1989). This theoretical integration is crucial for explaining the interaction between external work structures (*remote working*) and individual execution capabilities (*productivity*) in determining employee psychological well-being (*work-life balance*) (Grant et al., 2007). Understanding this interaction will provide a more precise explanation of why the same work scheme can produce dramatically different levels of life satisfaction and WLB between individuals within the same organization (Edmondson, 2018; Felstead & Henseke, 2017).

Practically, this research is highly relevant for HR practitioners and organizational leaders in designing adaptive and inclusive hybrid work policies (Allen et al., 2015). Companies cannot simply rely on providing technological infrastructure or granting work-from-home permits; they must also proactively improve employees' self-management skills *and* work efficiency (Golden & Eddleston, 2020). Identifying productivity thresholds allows management to provide targeted training interventions for employee groups vulnerable to decreased WLB due to productivity constraints in a *remote* environment (Derks et al., 2014). Based on these theoretical arguments and empirical phenomena, the research entitled "*Employee Productivity as a Moderating Variable of the Effect of Remote Working on Work-Life Balance*" is crucial and urgently needs to be conducted empirically.

RESEARCH METHODS

This study used a quantitative approach with an explanatory correlational design to test the causal relationships and moderating effects between the variables studied (Hair et al., 2019). Data collection was carried out through a survey method by distributing a structured questionnaire online to remote workers. The

measurement instrument was adapted from tested scales that have been validated in previous literature, including the *Remote Working* scale (Gajendran & Harrison, 2007), *Work-Life Balance* (Netemeyer et al., 1996), and *Employee Productivity* (Grant et al., 2007), all of which were measured using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The data obtained were analyzed using *Partial Least Squares* -based *Structural Equation Modeling* (PLS-SEM) techniques with SmartPLS software to test the measurement model (*outer model*) and structural model (*inner model*) simultaneously (Ringle et al., 2020).

The sampling technique used was *non-probability sampling* with a *purposive sampling* approach to focus respondents' criteria according to research qualifications (Sekaran & Bougie, 2016). Respondent inclusion criteria included active employees in the knowledge-based industrial sector (*knowledge workers*) who had implemented a *remote* or hybrid working scheme for at least 6 consecutive months. The sample size was determined following the rules of moderation analysis in PLS-SEM, where a minimum target of 150 to 200 respondents was set to ensure adequate statistical power and parameter estimation accuracy (Memon et al., 2020). The evaluation of the *outer model* was guided by convergent validity testing (*outer loading* > 0.70 and AVE > 0.50), discriminant validity (HTMT < 0.85), and construct reliability (*Composite Reliability* and *Cronbach's Alpha* > 0.70) (Hair et al., 2019).

Based on the theoretical review (*Boundary Theory* and *Conservation of Resources Theory*) and the conceptual model developed, the hypothesis proposed in this study is as follows: 1). H1: *Remote working* has a positive and significant effect on *work-life balance*. 2). H2: *Employee productivity* has a positive and significant effect on *work-life balance*. 3). H3: *Employee productivity* significantly moderates the relationship between *remote working* and *work-life balance*, such that the positive relationship is stronger for employees with high productivity levels than for employees with low productivity levels.

RESULT AND DISCUSSION

Research result

Respondent Profile and Data Description

Data collection through an online survey resulted in a total of 218 completed questionnaires. After *data screening*, no missing values or extreme outliers were found, making all 218 samples valid for further analysis. The majority of respondents work in the information technology, digital financial services, and knowledge-based professional consulting sectors and have implemented *remote* or *hybrid* working arrangements for at least six consecutive months.

Table 1 Respondent Profile and Data Description

Demographic Characteristics	Category	Total (N = 218)	Percentage (%)
Gender	Man	114	52.29%
	Woman	104	47.71%

Age	21 – 30 Years	98	44.95%
	31 – 40 Years	86	39.45%
	> 40 Years	34	15.60%
Remote Work Experience	6 Months – 1 Year	52	23.85%
	13 years old	112	51.38%
	> 3 Years	54	24.77%
Marital status	Marry	126	57.80%
	Not married yet	92	42.20%

Evaluation of the Measurement Model (*Outer Model*)

Evaluation of the measurement model was conducted to ensure that the research instrument met the construct validity and reliability criteria according to the Partial Least Squares Structural Equation Modeling (PLS-SEM) standards (Hair et al., 2019).

Convergent Validity and Construct Reliability

Convergent validity was assessed based on the *outer loading* value (must be > 0.70) and *Average Variance Extracted* (AVE > 0.50). Construct reliability was evaluated using *Cronbach's Alpha* and *Composite Reliability* (CR > 0.70) (Ringle et al., 2020).

Table 2 Convergent Validity and Construct Reliability

Research Construct	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability (CR)	Research Construct
Remote Working (RW)	RW1	0.842	0.875	0.914	Remote Working (RW)
	RW2	0.861			
	RW3	0.858			
	RW4	0.849			
Employee Productivity (EP)	EP1	0.812	0.889	0.923	Employee Productivity (EP)
	EP2	0.884			
	EP3	0.876			
	EP4	0.891			
Work-Life Balance (WLB)	WLB1	0.835	0.902	0.927	Work-Life Balance (WLB)
	WLB2	0.862			

	WLB3	0.841			
	WLB4	0.859			
	WLB5	0.838			

Based on the data above, all indicators have *outer loading* values above 0.70, AVE values exceed the 0.50 threshold, and *Cronbach's Alpha* and *Composite Reliability values* are above 0.70. This confirms that all constructs have very strong convergent validity and reliability.

Discriminant Validity

Discriminant validity was tested using the *Heterotrait-Monotrait* Ratio (HTMT). An inter-construct HTMT value below the conservative criterion of 0.85 indicates that each variable is empirically distinct from one another (Hair et al., 2019).

Table 3 Discriminant Validity

Variable	Remote Working	Employee Productivity	Work-Life Balance
Remote Working	—		
Employee Productivity	0.412	—	
Work-Life Balance	0.528	0.614	—

All HTMT values are below 0.85, which confirms that the discriminant validity of the research model has been met satisfactorily.

Evaluation of Structural Model (*Inner Model*) and Hypothesis Testing

Evaluation of *the inner model* was carried out using *bootstrapping* techniques with 5,000 sub-samples to test the path coefficient, *t-statistic* value, and *p-value* (alpha significance = 5%).

Table 4 Evaluation of Structural Model (*Inner Model*) and Hypothesis Testing

Hypothesis	Relationship Path	Path Coefficient (β)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
H1	Remote Working→Work-Life Balance	0.284	0.282	0.058	4,897	0,000
H2	Employee Productivity→	0.412	0.415	0.054	7,630	0,000

	Work-Life Balance					
H3	Remote Working×Employee Productivity→ Work-Life Balance	0.195	0.192	0.049	3,980	0,000

Coefficient of Determination (R^2) and Effect Size (f^2)

Mark R^2 : The *Work-Life Balance* variable has a value R^2 of 0.512. This indicates that 51.2% of the variance in *Work-Life Balance* can be explained jointly by *Remote Working*, *Employee Productivity*, and the moderating interaction between the two. The remaining 48.8% is explained by other factors outside the research model.

Mark f^2 (Effect Size): The moderating effect of *Employee Productivity* (RW × EP) on *Work-Life Balance* produces a value f^2 of 0.082, which is included in the medium effect size category according to Cohen's (1988) and Hair et al.'s (2019) criteria.

DISCUSSION

Direct Effect of Remote Working on Work-Life Balance (H1)

The results of statistical tests prove that *remote working* has a positive and significant direct effect on *work-life balance* ($\beta = 0,284$; $t = 4,897$; $p < 0,001$), so **H1 is accepted**. This finding is in line with the theoretical foundation of *Conservation of Resources (COR) Theory* (Hobfoll, 1989), which states that when individuals acquire additional structural resources—such as location autonomy and elimination of commuting time—they can reallocate those resources to enrich their personal domain.

Eliminating the daily commute to and from work provides employees with significant additional daily time. This free time is used for recovery activities, family care, and sports activities, which fundamentally strengthens perceived WLB (Gajendran & Harrison, 2007). The scheduling autonomy inherent in *remote working* schemes allows employees to align their daily peak biological rhythms/focus with their technical workload, ultimately minimizing work stress and emotional exhaustion (Allen et al., 2015).

However, this finding also provides analytical nuances regarding the magnitude of the coefficient ($\beta = 0,284$) which is classified as moderate. This indicates that although workplace flexibility has a beneficial impact, its existence alone is not strong enough to guarantee high quality WLB without the support of internal factors from the individual themselves (Felstead & Henseke, 2017).

Direct Influence of Employee Productivity on Work-Life Balance (H2)

Testing the second hypothesis confirms that *employee productivity* has a very strong positive and significant influence on *work-life balance* ($\beta = 0,412; t = 7,630; p < 0,001$), which means **H2 is accepted**. The path coefficient value in H2 is greater than H1, indicating that an individual's internal efficiency capacity plays a very dominant role in determining their psychological well-being compared to external workplace facilities.

Conceptually, employees with high levels of productivity possess superior *self-leadership, task prioritization, and time management skills* (Grant et al., 2007). Within the framework of *COR Theory* (Hobfoll, 1989; Ten Brummelhuis & Bakker, 2012), productivity functions as a mechanism for conserving psychological energy. Productive employees complete their workloads according to their formal work hour allocations without accumulating backlogs. This efficient task execution prevents overwork and frees employees' minds from work anxiety as they transition to domestic or personal roles in the evening (Bloom et al., 2015).

The Moderating Role of Employee Productivity in the Relationship between Remote Working and Work-Life Balance (H3)

The most important finding of this study lies in the acceptance of H3, where *employee productivity* is proven to significantly moderate the relationship between *remote working* and *work-life balance* ($\beta = 0,195; t = 3,980; p < 0,001$). This positive interaction effect shows a strengthening moderation effect.

According to *Boundary Theory* (Ashforth et al., 2000), *remote working* fundamentally dissolves the physical boundaries between the office and home domains (*borderless environment*). In this borderless environment, employee productivity acts as a boundary management *mechanism*: 1) For High-Productivity Employees: When *remote working* is provided to high-productivity employees, work autonomy *interacts* harmoniously with execution efficiency. Employees in this group are able to establish flexible yet firm psychological boundaries. They utilize flexible time to complete work output *more* quickly, which then effectively converts the remaining time into a high personal quality of life. In this group, *remote working* reaches its optimal potential as a means of increasing WLB (Golden & Eddleston, 2020). 2). For Low-Productivity Employees: Conversely, for employees with low productivity or weak *self-management*, the *flexibility of remote working* actually triggers a *flexibility paradox* (Mazmanian et al., 2013). Excessive involvement in domestic distractions, a tendency to procrastinate, and an inability to focus without direct supervision cause task completion times to swell. Employees in this category are entangled in an implicit pattern of *presenteeism*, where they feel compelled to be ready to work all day (*an always-on culture*) to compensate for their slow output. As a result, there is severe erosion of work-life boundaries (*work-life blur*), invasion of work demands into the family space (*work-to-family interference*), and a drastic decline in the quality of WLB (Derks et al., 2015; Wang et al., 2021).

CONCLUSION

This study demonstrates that *remote working* and employee productivity directly have positive and significant implications for improving *work-life balance* (WLB). The elimination of commuting time and schedule autonomy in a *remote working* system provide employees with space to recharge and manage personal roles more optimally, in accordance with *the Conservation of Resources (COR) Theory*. However, the effectiveness of external factors such as workplace flexibility is in the moderate category, indicating that *remote working* alone is not strong enough to guarantee high WLB without being supported by an individual's internal capabilities.

Employee productivity has been shown to be a much more dominant internal factor in predicting WLB than *remote working*. Highly productive employees demonstrate superior *self-leadership*, task prioritization, and time management, enabling them to complete their workload on time without accumulating backlogs. This efficiency serves as a psychological energy conservation mechanism that prevents overwork *and* relieves employees of anxiety when transitioning to domestic roles at home.

The main findings of this study confirm that employee productivity acts as a moderating variable that strengthens *the* relationship between *remote working* and WLB. For highly productive employees, the flexibility of *remote working* can be optimally utilized to form clear psychological boundaries between work and personal life (*Boundary Theory*). Conversely, for low-productivity employees, flexibility actually triggers *flexibility paradox* and *procrastination*, which leads to the erasure of work-family boundaries (*work-life blur*) and a drastic decline in the quality of WLB.

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