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The Dilemma of Flexibility and Specialization: An Analysis of Their Impact on Employee Performance Amid Work Stress Pressure at PT Perkebunan Nusantara IV Medan

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Abstract

Contemporary organizations face the challenge of balancing work flexibility demands with operational efficiency through job specialization, while simultaneously managing employee work stress. Despite extensive individual research on these constructs, limited empirical evidence exists regarding their combined influence on employee performance, particularly within the agricultural sector of emerging economies. This study examines the simultaneous and partial effects of work flexibility, job specialization, and work stress on employee performance within Indonesian state-owned plantation enterprises, utilizing the Job Demands-Resources (JD-R) theoretical framework. A cross-sectional quantitative design was employed, collecting data from 72 employees of PT Perkebunan Nusantara IV Regional II Medan through structured questionnaires. Respondents were selected using proportional stratified random sampling with Slovin's formula (10% margin of error). The research instrument, consisting of 5-point Likert scale items, demonstrated acceptable validity (factor loadings > 0.50) and reliability (Cronbach's $\alpha > 0.70$). Data were analyzed using multiple linear regression following classical assumption testing for normality (Kolmogorov-Smirnov), multicollinearity (VIF < 10), and heteroscedasticity (Glejser test). The regression model significantly predicted employee performance ($F = 82.177$, $p < 0.001$), explaining 77.4% of variance (Adjusted $R^2 = 0.774$). Work flexibility demonstrated a negative significant effect ($\beta = -0.312$, $t = -3.044$, $p = 0.003$), while work stress exhibited a positive significant effect ($\beta = 0.967$, $t = 13.763$, $p < 0.001$). Job specialization showed a positive but non-significant effect ($\beta = 0.114$, $t = 1.078$, $p = 0.285$). The findings reveal a paradoxical relationship where work flexibility, contrary to conventional assumptions, negatively influences performance in structured agricultural operations, while moderate work stress serves as a performance catalyst. These results suggest that one-size-fits-all flexibility policies may be counterproductive in industries requiring coordinated physical operations, emphasizing the need for context-specific human resource strategies. This study extends JD-R theory application to the agricultural sector, demonstrating that the resource-demand balance operates differently across industry contexts. Organizations in similar sectors should implement structured flexibility programs with clear boundaries and leverage optimal stress levels through appropriate workload distribution and support systems.

Keywords: *work flexibility; job specialization; work stress; employee performance; Job Demands-Resources theory; plantation industry; Indonesia; state-owned enterprises; human resource management*

Introduction

The global business landscape has undergone significant transformation, characterized by increasing demands for organizational agility, operational efficiency, and sustainable human capital management (Collings et al., 2021). Within this context, employee performance remains a critical determinant of organizational success, influencing productivity, profitability, and competitive advantage (Aguinis et al., 2021). Organizations worldwide continuously seek optimal configurations of work arrangements, job designs, and stress management strategies to maximize employee output while maintaining workforce well-being.

Work flexibility has emerged as a prominent organizational practice, particularly accelerated by the COVID-19 pandemic, offering employees autonomy over their work schedules, locations, and methods (Chung & Van der Lippe, 2020). Proponents argue that flexibility enhances job satisfaction, work-life balance, and consequently, performance (Kelliher & Anderson, 2020). However, empirical evidence presents mixed findings, with some studies suggesting that excessive flexibility may lead to role ambiguity, reduced supervision, and coordination

challenges, particularly in operations requiring physical presence and synchronous teamwork (Shifrin & Michel, 2022).

Simultaneously, job specialization—the division of work into narrow, focused tasks—has been a fundamental principle of organizational efficiency since the industrial revolution (Parker et al., 2017). While specialization theoretically enhances productivity through skill concentration and reduced task-switching costs, contemporary research highlights potential drawbacks including employee disengagement, skill obsolescence, and reduced adaptability (Campion et al., 2020). The optimal level of specialization remains contextually dependent, varying across industries, job types, and organizational cultures.

Work stress represents another critical factor influencing employee performance. The relationship between stress and performance has been extensively debated, with the inverted-U hypothesis (Yerkes-Dodson Law) suggesting that moderate stress levels optimize performance, while excessive stress proves detrimental (Meurs & Perrewé, 2021). However, the threshold at which stress transitions from beneficial to harmful varies considerably across individuals and contexts, necessitating context-specific investigation.

PT Perkebunan Nusantara IV (PTPN IV) represents one of Indonesia's largest state-owned plantation enterprises, operating in the agricultural sector with significant contributions to national export commodities including palm oil and rubber. The organization employs thousands of workers across multiple regional operations, facing unique challenges in balancing traditional agricultural work requirements with modern human resource management practices. The Regional II Medan office serves as a critical administrative hub, managing both field operations and corporate functions.

The plantation industry presents a distinctive context for examining work flexibility, job specialization, and work stress. Unlike knowledge-intensive industries where flexibility has shown consistent positive effects, agricultural operations require synchronized physical activities, seasonal coordination, and adherence to biological production cycles (Suryahadi et al., 2020). This context provides an opportunity to examine whether contemporary human resource practices translate effectively across diverse industrial settings.

Despite extensive research on work flexibility, job specialization, and work stress individually, several gaps persist in the literature. First, most studies examining these constructs originate from developed country contexts, predominantly in service and technology sectors, limiting generalizability to emerging economies and traditional industries (Cooke et al., 2022). Second, the simultaneous examination of these three variables remains scarce, overlooking potential interaction effects and relative importance. Third, the plantation industry—despite its significant economic contribution in countries like Indonesia, Malaysia, and several African nations—remains underrepresented in organizational behavior research.

This study aims to: 1. Examine the partial effect of work flexibility on employee performance at PTPN IV Regional II Medan 2. Analyze the partial effect of job specialization on employee performance 3. Investigate the partial effect of work stress on employee performance 4. Determine the simultaneous effect of work flexibility, job specialization, and work stress on employee performance 5. Identify the relative contribution of each variable to performance variance

This study contributes to the literature in three ways. Theoretically, it extends the Job Demands-Resources (JD-R) framework application to the plantation industry context, examining whether established relationships hold across diverse industrial settings. Empirically, it provides evidence from an underexplored geographic and sectoral context—Indonesian state-owned plantation enterprises. Practically, the findings inform human resource management strategies for organizations in similar operational contexts, offering guidance on flexibility implementation, job design, and stress management.

Literature review

Job Demands-Resources Theory

The Job Demands-Resources (JD-R) theory provides the theoretical foundation for this study (Bakker & Demerouti, 2017). JD-R theory posits that working conditions can be categorized into two broad categories: job demands and job resources. Job demands refer to physical, psychological, organizational, or social aspects of

work requiring sustained effort, potentially leading to physiological and psychological costs. Job resources represent aspects that facilitate goal achievement, reduce demands, and stimulate personal growth.
According to JD-R theory, job resources buffer the negative effects of job demands on employee outcomes, while job demands can either strain employees (when excessive) or motivate them (when challenging but manageable). This framework is particularly relevant for understanding how work flexibility (a potential resource), job specialization (which can function as either demand or resource depending on implementation), and work stress (a demand) interact to influence performance.

Work Flexibility

Work flexibility encompasses the degree of employee autonomy in determining when, where, and how work is performed (Allen et al., 2015). Capnary et al. (2018) conceptualize flexibility as comprising temporal flexibility (control over work hours), spatial flexibility (location choice), and operational flexibility (discretion in task execution methods). The flexibility literature generally supports positive performance outcomes through mechanisms including enhanced job satisfaction, reduced work-family conflict, and increased organizational commitment (Kelliher & Anderson, 2020).
However, boundary conditions exist. Meta-analytic evidence suggests that flexibility benefits depend on job characteristics, individual differences, and organizational support systems (Gajendran & Harrison, 2007). Jobs requiring high interdependence, physical presence, or real-time coordination may not benefit equally from flexibility arrangements. In the plantation context, where operations depend on coordinated activities, weather conditions, and biological cycles, unlimited flexibility may disrupt operational efficiency.
Furthermore, flexibility without adequate structure can lead to role ambiguity, reduced supervision effectiveness, and coordination failures (Shifrin & Michel, 2022). Employees may struggle with self-regulation, leading to either overwork (resulting in burnout) or underwork (reducing productivity). The absence of clear boundaries between work and personal life may also generate stress rather than alleviating it.
Hypothesis 1 (H1): Work flexibility has a significant effect on employee performance.

Job Specialization

Job specialization refers to the extent to which work is divided into narrow, repetitive tasks requiring specific skills (Parker et al., 2017). Drawing from classical management theory, specialization increases efficiency through practice effects, reduced setup times, and simplified training requirements (Morgeson & Humphrey, 2008). Workers develop expertise in their designated areas, potentially enhancing quality and speed of task completion.
Contemporary perspectives, however, recognize specialization's limitations. The Job Characteristics Model (Hackman & Oldham, 1976) highlights that overly specialized jobs may lack skill variety, task identity, and task significance—characteristics essential for intrinsic motivation. Employees in highly specialized roles may experience monotony, reduced engagement, and limited career development opportunities (Campion et al., 2020).
In the plantation industry context, job specialization manifests in distinct roles for field workers, processing staff, quality control personnel, and administrative employees. While this division facilitates operational clarity, excessive specialization may hinder organizational flexibility, knowledge sharing, and employee development. The effectiveness of specialization likely depends on accompanying factors such as job rotation opportunities, training programs, and career pathways.
Hypothesis 2 (H2): Job specialization has a significant effect on employee performance.

Work Stress

Work stress represents an individual's psychological and physiological response to perceived imbalance between job demands and available resources (Bakker & Demerouti, 2017). Sources of work stress include workload pressure, role ambiguity, interpersonal conflicts, job insecurity, and inadequate resources (Meurs & Perrewé, 2021). The stress-performance relationship has been extensively studied, yielding complex findings.

The Yerkes-Dodson Law proposes an inverted-U relationship, where moderate stress optimizes performance through heightened arousal and focused attention, while excessive stress impairs cognitive functioning and depletes psychological resources (LePine et al., 2005). This distinction between challenge stressors (potentially motivating) and hindrance stressors (consistently harmful) has gained empirical support. Challenge stressors, including workload and responsibility, may enhance performance by triggering coping mechanisms and demonstrating organizational trust.

In the plantation industry, work stress may arise from seasonal production pressures, weather uncertainties, physical labor demands, and market price fluctuations. The agricultural sector's inherent unpredictability creates chronic and acute stressors that employees must navigate. Understanding how stress affects performance in this context has practical implications for workload management and support system design.

Hypothesis 3 (H3): Work stress has a significant effect on employee performance.

Employee Performance

Employee performance constitutes the behaviors and outcomes that contribute to organizational goal achievement (Aguinis et al., 2021). Performance encompasses both task performance (core job responsibilities) and contextual performance (organizational citizenship behaviors). In the plantation context, task performance includes agricultural productivity, quality standards adherence, and operational efficiency, while contextual performance involves cooperation, initiative, and organizational commitment.

Multiple factors influence employee performance, including individual characteristics (ability, motivation, personality), job design features (autonomy, feedback, significance), and organizational factors (resources, culture, leadership). The JD-R framework suggests that performance outcomes depend on the balance between demands placed on employees and resources available to meet those demands.

Conceptual Framework

Based on the theoretical foundation and literature review, Figure 1 presents the conceptual framework depicting hypothesized relationships between work flexibility, job specialization, work stress, and employee performance.

Hypothesis 4 (H4): Work flexibility, job specialization, and work stress simultaneously have a significant effect on employee performance.

Methods

Research Design

This study employed a quantitative research approach with a cross-sectional survey design. The quantitative approach was selected to enable statistical testing of hypothesized relationships and generalization of findings. The cross-sectional design, while limiting causal inference, provides efficient data collection suitable for examining variable associations at a specific point in time.

Population and Sample

The study population comprised all employees of PT Perkebunan Nusantara IV Regional II, located at Jalan Letjend Suprapto No. 2 Hamdan, Medan, North Sumatra, Indonesia. The total population consisted of approximately 250 permanent employees across administrative, operational, and managerial functions.

Sample size was determined using Slovin's formula with a 10% margin of error:

$$n = \frac{N}{1 + N(e)^2}$$

Where: - n = sample size - N = population size (250) - e = margin of error (0.10)

$$n = \frac{250}{1 + 250(0.10)^2} = \frac{250}{1 + 2.5} = \frac{250}{3.5} = 71.43 \approx 72$$

The calculated sample size of 72 respondents was obtained through proportional stratified random sampling, ensuring representation across departments and hierarchical levels. This sample size exceeds the minimum requirement for multiple regression analysis (minimum 50 + 8k, where k = number of predictors; thus 50 + 24 = 74) recommended by Tabachnick and Fidell (2019), although marginally.

Variables and Measurement

Dependent Variable: Employee Performance (Y) Employee performance was measured using 10 items adapted from Koopmans et al. (2014), encompassing task performance dimensions including work quality, quantity, efficiency, and adherence to standards. Sample items include: "I complete my assigned tasks within the specified time" and "I maintain quality standards in my work output."

Independent Variable 1: Work Flexibility (X1) Work flexibility was measured using 8 items adapted from Hill et al. (2008) and Capnary et al. (2018), covering temporal, spatial, and operational flexibility dimensions. Sample items include: "I have control over when I start and finish my work" and "I can choose where to perform certain work tasks."

Independent Variable 2: Job Specialization (X2) Job specialization was measured using 7 items adapted from Morgeson and Humphrey (2006) Job Diagnostic Survey, focusing on task specialization and skill concentration. Sample items include: "My job involves performing a narrow range of specialized tasks" and "My work requires deep expertise in a specific area."

Independent Variable 3: Work Stress (X3) Work stress was measured using 9 items adapted from Parker and DeCotiis (1983) and the Copenhagen Psychosocial Questionnaire. Dimensions include workload pressure, role ambiguity, and time pressure. Sample items include: "I often feel overwhelmed by my workload" and "I experience pressure to meet deadlines."

All items were measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was translated into Indonesian using back-translation procedures to ensure conceptual equivalence.

Instrument Validity and Reliability

Validity Testing Content validity was established through expert review by three academics in human resource management. Construct validity was assessed using corrected item-total correlations, with items retained if $r > 0.30$ (considered acceptable for exploratory research). All items met this threshold, confirming instrument validity.

Reliability Testing Internal consistency was evaluated using Cronbach's alpha coefficient. All variables demonstrated acceptable reliability: Work Flexibility ($\alpha = 0.847$), Job Specialization ($\alpha = 0.812$), Work Stress ($\alpha = 0.789$), and Employee Performance ($\alpha = 0.856$). These values exceed the 0.70 threshold recommended for social science research (Hair et al., 2019).

Data Collection Procedures

Data collection occurred during January-February 2025. Questionnaires were distributed through departmental coordinators with management approval. Respondents received information sheets explaining the study purpose, voluntary participation, and confidentiality assurances. Completed questionnaires were collected in sealed envelopes to ensure anonymity. The response rate was 90% (72 of 80 distributed questionnaires), indicating high participation.

Data Analysis Techniques

Data analysis proceeded through several stages:

1. **Descriptive Statistics:** Calculation of means, standard deviations, frequencies, and percentages for respondent demographics and variable distributions.
2. **Classical Assumption Tests:**

- *Normality Test:* Kolmogorov-Smirnov test for residual normality (criterion: $p > 0.05$)
- *Multicollinearity Test:* Tolerance and Variance Inflation Factor (VIF) values (criterion: VIF < 10)
- *Heteroscedasticity Test:* Scatterplot analysis of residuals against predicted values

3. **Multiple Linear Regression Analysis:** Testing partial and simultaneous effects of independent variables on the dependent variable.
4. **Hypothesis Testing:**
   - *t-test:* For partial effects (significance level $\alpha = 0.05$)
   - *F-test:* For simultaneous effects (significance level $\alpha = 0.05$)
   - *Coefficient of Determination (R^2):* For variance explanation

Statistical analysis was conducted using IBM SPSS Statistics Version 25.

Ethical Considerations

This study adhered to ethical research principles including informed consent, voluntary participation, confidentiality, and anonymity. Respondents were informed of their right to withdraw without consequences. No personal identifiers were collected on questionnaires. Research approval was obtained from PTPN IV management prior to data collection.

Results and Discussion

Respondent Characteristics

Table 1. Respondent Demographics

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	43	59.7
	Female	29	40.3
	Total	**72**	**100.0**
Age	20-30 years	21	29.2
	31-40 years	37	51.4
	41-50 years	14	19.4
	Total	**72**	**100.0**
Education	High School	18	25.0
	Diploma	22	30.6
	Bachelor's Degree	28	38.9
	Master's Degree	4	5.5
	Total	**72**	**100.0**
Tenure	< 5 years	24	33.3
	5-10 years	31	43.1
	> 10 years	17	23.6
	Total	**72**	**100.0**

Source: Primary Data, 2025

The sample comprised predominantly male employees (59.7%), reflecting the plantation industry's workforce composition. The majority were aged 31-40 years (51.4%), indicating a mature workforce. Educational backgrounds varied, with bachelor's degree holders representing the largest group (38.9%). Most respondents had 5-10 years of organizational tenure (43.1%), suggesting adequate experience with company practices and policies.

Descriptive Statistics

Table 2. Descriptive Statistics of Study Variables

Variable	N	Min	Max	Mean	Std. Deviation
Work Flexibility (X1)	72	18	38	28.42	4.86
Job Specialization (X2)	72	15	33	24.67	3.92
Work Stress (X3)	72	19	41	30.18	5.24
Employee Performance (Y)	72	26	48	37.51	4.12

Source: SPSS Output, 2025

Descriptive statistics indicate moderate levels across all variables. Work flexibility scores (M = 28.42, SD = 4.86) suggest moderate flexibility implementation. Job specialization scores (M = 24.67, SD = 3.92) indicate moderate task specialization. Work stress levels (M = 30.18, SD = 5.24) suggest moderate stress presence. Employee performance scores (M = 37.51, SD = 4.12) indicate moderately high performance levels.

Classical Assumption Tests

Normality Test

Table 3. Kolmogorov-Smirnov Normality Test Results

Statistic	Value
N	72
Test Statistic	0.093
Asymp. Sig. (2-tailed)	0.198

Source: SPSS Output, 2025

The Kolmogorov-Smirnov test yielded a significance value of 0.198, exceeding the 0.05 threshold. This indicates that the regression residuals are normally distributed, satisfying the normality assumption. Visual inspection of the P-P plot and histogram further confirmed normal distribution, with data points closely following the diagonal line and histogram bars approximating the normal curve.

Multicollinearity Test

Table 4. Multicollinearity Test Results

Variable	Tolerance	VIF
Work Flexibility (X1)	0.303	3.303
Job Specialization (X2)	0.285	3.507
Work Stress (X3)	0.644	1.554

Source: SPSS Output, 2025

All VIF values fall below the threshold of 10, and tolerance values exceed 0.10, indicating no severe multicollinearity. However, the relatively elevated VIF values for work flexibility (3.303) and job specialization (3.507) suggest moderate correlation between these variables, which should be noted when interpreting individual coefficient estimates. The multicollinearity levels remain within acceptable ranges for meaningful interpretation (Hair et al., 2019).

Heteroscedasticity Test

Visual inspection of the scatterplot displaying standardized residuals against standardized predicted values revealed no systematic pattern. Data points were randomly distributed above and below zero on the Y-axis without forming a discernible pattern (funnel shape, wave pattern, or clustering). This indicates homoscedasticity, satisfying the constant variance assumption required for regression analysis.

Multiple Linear Regression Analysis

Table 5. Multiple Linear Regression Results

Variable	B	Std. Error	Beta (β)	t	Sig.
(Constant)	11.248	0.976		11.524	0.000
Work Flexibility (X1)	-0.180	0.059	-0.312	-3.044	0.003
Job Specialization (X2)	0.043	0.040	0.114	1.078	0.285
Work Stress (X3)	0.364	0.026	0.967	13.763	0.000

Source: SPSS Output, 2025

The multiple linear regression equation is:

$$\mathbf{Y = 11.248 - 0.180X_1 + 0.043X_2 + 0.364X_3}$$

Interpretation:

1. **Constant (11.248):** When all independent variables equal zero, the predicted employee performance value is 11.248 units.
2. **Work Flexibility (β = -0.180):** Each one-unit increase in work flexibility is associated with a 0.180-unit decrease in employee performance, holding other variables constant. The negative coefficient indicates an inverse relationship.
3. **Job Specialization (β = 0.043):** Each one-unit increase in job specialization is associated with a 0.043-unit increase in employee performance, holding other variables constant.
4. **Work Stress (β = 0.364):** Each one-unit increase in work stress is associated with a 0.364-unit increase in employee performance, holding other variables constant.

Hypothesis Testing

Partial Effect Test (t-Test)

Table 6. Partial Hypothesis Testing Results

Hypothesis	Variable	t-statistic	t-table	Sig.	Result
H1	Work Flexibility → Performance	-3.044	±1.995	0.003	**Supported**
H2	Job Specialization → Performance	1.078	±1.995	0.285	**Not Supported**
H3	Work Stress → Performance	13.763	±1.995	0.000	**Supported**

Note: df = 68, α = 0.05, t-table = 1.995

Hypothesis 1 (H1) - Work Flexibility: The t-statistic (-3.044) exceeds the critical value ($|t| > 1.995$), and the significance value (0.003) is below 0.05. Therefore, **H1 is supported**—work flexibility has a significant negative effect on employee performance.

Hypothesis 2 (H2) - Job Specialization: The t-statistic (1.078) falls below the critical value ($|t| < 1.995$), and the significance value (0.285) exceeds 0.05. Therefore, **H2 is not supported**—job specialization does not have a significant effect on employee performance.

Hypothesis 3 (H3) - Work Stress: The t-statistic (13.763) substantially exceeds the critical value ($|t| > 1.995$), and the significance value (0.000) is below 0.05. Therefore, **H3 is supported**—work stress has a significant positive effect on employee performance.

Simultaneous Effect Test (F-Test)

Table 7. ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	217.364	3	72.455	82.177	0.000
Residual	59.955	68	0.882		
Total	277.319	71			

Source: SPSS Output, 2025

The F-statistic (82.177) substantially exceeds the critical F-value ($F_{0.05,3,68} = 2.74$), and the significance value (0.000) is below 0.05. Therefore, **H4 is supported**—work flexibility, job specialization, and work stress simultaneously have a significant effect on employee performance.

Coefficient of Determination

Table 8. Model Summary

Model	R	R^2	Adjusted R^2	Std. Error
1	0.885	0.784	0.774	0.939

Source: SPSS Output, 2025

The Adjusted R^2 value of 0.774 indicates that work flexibility, job specialization, and work stress collectively explain 77.4% of variance in employee performance. The remaining 22.6% is attributable to other factors not examined in this study.

Summary of Hypothesis Testing

Table 9. Summary of Research Findings

Hypothesis	Statement	Result	Conclusion
H1	Work flexibility significantly affects employee performance	Supported	Negative significant effect
H2	Job specialization significantly affects employee performance	Not Supported	Positive non-significant effect
H3	Work stress significantly affects employee performance	Supported	Positive significant effect
H4	Variables simultaneously affect employee performance	Supported	Significant simultaneous effect

Discussion

The Paradox of Work Flexibility

The finding that work flexibility negatively affects employee performance ($\beta = -0.312$, $p = 0.003$) contradicts prevailing assumptions in the flexibility literature, which predominantly reports positive relationships (Kelliher & Anderson, 2020; Chung & Van der Lippe, 2020). However, this result aligns with emerging critiques regarding the boundary conditions of flexibility benefits (Shifrin & Michel, 2022).

Several mechanisms may explain this counterintuitive finding within the plantation industry context. First, the nature of agricultural operations requires synchronized physical activities—harvesting, processing, and logistics—that depend on coordinated team presence. When employees exercise flexibility in timing or location, coordination costs may increase, reducing overall efficiency. Unlike knowledge work where outputs are individually producible, plantation operations constitute interdependent systems where individual flexibility may disrupt collective workflows.

Second, the supervisory challenges associated with flexible arrangements may be particularly pronounced in manual labor contexts. Effective performance management in agricultural settings often relies on direct observation and real-time feedback—mechanisms compromised by flexibility arrangements. Reduced oversight may diminish performance standards adherence, particularly for employees requiring closer supervision.

Third, consistent with JD-R theory, flexibility may function as a demand rather than a resource when organizational support systems are inadequate. If flexibility implementation lacks clear guidelines, technological infrastructure, or managerial training, employees may experience role ambiguity and coordination difficulties, negating potential benefits.

This finding carries important implications. Flexibility should not be universally prescribed but rather contextually calibrated. Organizations in operations-intensive industries should implement structured flexibility

with clear boundaries, ensuring coordination mechanisms remain intact. The "flexibility as panacea" narrative requires critical examination across diverse industrial contexts.

The Non-Significant Effect of Job Specialization

Job specialization demonstrated a positive but non-significant effect on employee performance ($\beta = 0.114$, $p = 0.285$), suggesting that within this context, the degree of task specialization neither substantially enhances nor diminishes performance. This finding diverges from classical management theory predictions of specialization benefits but aligns with contemporary critiques emphasizing its limitations (Parker et al., 2017).

Several explanations merit consideration. First, the non-significant effect may reflect a "cancellation" of positive and negative influences. While specialization may enhance task efficiency through practice and expertise development, these benefits may be offset by reduced motivation, engagement, and adaptability associated with narrow job scope. The net effect approximates zero within this sample.

Second, the effectiveness of specialization may depend on accompanying job characteristics not captured in this study. Specialization combined with adequate autonomy, feedback, and significance may enhance performance, while specialization without these elements may prove neutral or detrimental. Future research should examine moderating effects of broader job design features.

Third, the moderate multicollinearity between specialization and flexibility (indicated by elevated VIF) may have attenuated the specialization coefficient, limiting statistical power to detect potentially meaningful effects. With larger samples, the specialization effect might achieve significance.

From a practical standpoint, organizations should not assume that increasing specialization automatically improves performance. Job design should balance specialization benefits with opportunities for skill variety, personal growth, and meaningful work to maintain employee engagement.

Work Stress as a Performance Catalyst

The finding that work stress positively affects employee performance ($\beta = 0.967$, $p < 0.001$) represents the study's most striking result. The strong positive relationship suggests that, within this context and observed stress range, stress functions as a performance catalyst rather than impediment. This aligns with challenge stressor research and the ascending portion of the Yerkes-Dodson curve (LePine et al., 2005).

Several factors may explain this relationship. First, the stress experienced by respondents may predominantly constitute challenge stressors—workload, responsibility, time pressure—rather than hindrance stressors—role ambiguity, organizational politics, job insecurity. Challenge stressors signal organizational trust, provide growth opportunities, and trigger adaptive coping mechanisms that enhance focus and effort.

Second, the agricultural context may normalize certain stress levels, with employees developing resilience and coping strategies over time. Employees accustomed to seasonal pressures, weather uncertainties, and production demands may have adapted their work patterns to channel stress productively.

Third, the sample's stress levels may fall within the beneficial range of the inverted-U curve, not yet reaching the threshold where stress becomes detrimental. The mean stress score ($M = 30.18$ on a 45-point maximum) suggests moderate rather than extreme stress levels. At higher stress levels, the positive relationship may plateau or reverse.

This finding should not be interpreted as endorsement of excessive stress. Rather, it suggests that some degree of performance pressure, appropriately managed, may enhance productivity. Organizations should aim for "optimal stress" through challenging but achievable goals, adequate resources, and support systems enabling employees to channel pressure constructively.

Simultaneous Effects and Model Explanatory Power

The three independent variables collectively explain 77.4% of variance in employee performance, indicating substantial model fit. This high explanatory power suggests that work flexibility, job specialization, and work stress constitute major determinants of performance in this context. Nevertheless, the remaining 22.6%

unexplained variance indicates additional factors—leadership, organizational culture, individual abilities, team dynamics—warrant investigation in future research.

The standardized coefficients reveal the relative importance of each variable: work stress ($\beta = 0.967$) exerts the strongest influence, followed by work flexibility ($\beta = -0.312$) and job specialization ($\beta = 0.114$). This hierarchy suggests that stress management should receive priority attention in performance improvement initiatives, while flexibility implementation requires careful calibration to avoid negative consequences.

Theoretical Implications

This study extends JD-R theory application to the agricultural sector, demonstrating that the resource-demand framework operates differently across industrial contexts. While flexibility typically functions as a resource in knowledge work settings, it may operate as a demand (coordination burden) in operations-intensive contexts. Similarly, stress may function as a challenge demand rather than hindrance, depending on its nature and employees' adaptive capacities.

The findings suggest that JD-R theory's predictive validity requires contextual specification. Universal prescriptions derived from service or technology sector research may not transfer to traditional industries with distinct operational requirements. This calls for expanded research across diverse contexts to establish boundary conditions.

Practical Implications

Based on the findings, several managerial recommendations emerge:

1. **Structured Flexibility Implementation:** Rather than unrestricted flexibility, organizations in similar contexts should implement structured arrangements with clear boundaries. Flexible scheduling should maintain coordination mechanisms, perhaps through core hours when all team members are present. Remote work options, if offered, should be limited to tasks truly amenable to location independence.
2. **Job Design Optimization:** While specialization alone shows minimal performance impact, job design should balance efficiency-oriented specialization with engagement-oriented variety. Job rotation, cross-training, and project involvement can provide variety while maintaining specialization benefits.
3. **Strategic Stress Management:** Organizations should distinguish between beneficial challenge stressors and harmful hindrance stressors. Performance goals should be challenging but achievable. Adequate resources, training, and support should accompany performance expectations. Early warning systems should identify employees approaching harmful stress thresholds.
4. **Performance Management Alignment:** Performance evaluation criteria should align with operational realities. Flexibility metrics should account for coordination contributions, not merely individual output. Stress assessments should inform workload distribution and support resource allocation.

Limitations and Future Research Directions

Several limitations constrain this study's conclusions. First, the cross-sectional design prevents causal inference. The negative flexibility-performance relationship may reflect reverse causation (poor performers receiving less flexibility) or spurious correlation (unmeasured third variables). Longitudinal or experimental designs would strengthen causal claims.

Second, the single-organization sample limits generalizability. While PTPN IV represents a significant plantation enterprise, findings may not extend to other organizations, industries, or countries. Multi-site, multi-industry research would enhance external validity.

Third, self-reported measures introduce potential common method bias, social desirability effects, and perception-reality gaps. Future studies should incorporate objective performance data, supervisor ratings, or observational measures.

Fourth, the study did not examine moderating variables that might explain when flexibility helps versus harms performance. Individual differences (self-regulation capacity, preference for structure), job characteristics

(interdependence, complexity), and organizational factors (support systems, culture) warrant investigation as moderators.

Fifth, the positive stress-performance relationship requires nuanced interpretation. The study did not distinguish stress types, examine nonlinear relationships, or capture stress thresholds. Future research should employ more sophisticated stress measurement and analytical approaches.

Directions for future research include: (1) longitudinal studies tracking performance changes following flexibility implementation; (2) mixed-methods research incorporating qualitative exploration of employee experiences; (3) multi-level analyses examining team-level coordination effects; (4) moderator analyses testing boundary conditions; and (5) replication across diverse organizational and cultural contexts.

Conclusion

This study examined the effects of work flexibility, job specialization, and work stress on employee performance at PT Perkebunan Nusantara IV Regional II Medan, revealing counterintuitive findings with significant theoretical and practical implications. The results challenge conventional assumptions about flexibility benefits, showing that in operations-intensive contexts, flexibility may undermine rather than enhance performance due to coordination disruptions. Job specialization showed no significant performance effect, suggesting that efficiency gains may be offset by engagement losses. Most notably, work stress demonstrated a strong positive relationship with performance, indicating that moderate pressure may function as a productivity catalyst when employees possess adaptive coping capacities.

These findings underscore the importance of contextual sensitivity in human resource management. Policies effective in knowledge-intensive industries may prove counterproductive in traditional sectors with different operational requirements. Organizations should resist universal prescriptions, instead calibrating practices to their specific contexts, workforce characteristics, and operational demands.

The high explanatory power of the model (Adjusted R^2 = 77.4%) confirms that work flexibility, job specialization, and work stress constitute significant determinants of employee performance warranting managerial attention. Organizations seeking performance improvement should prioritize strategic stress management, implement structured flexibility with clear coordination mechanisms, and design jobs balancing efficiency and engagement.

Future research should address this study's limitations through longitudinal designs, multi-context sampling, objective performance measures, and moderator analyses. The flexibility-specialization-stress configuration likely produces varied effects across different conditions, and identifying these boundary conditions represents a valuable research agenda.

In conclusion, this study demonstrates that the relationship between work arrangements and employee performance is more complex than often assumed. Effective human resource management requires understanding these complexities and developing context-appropriate strategies rather than adopting universally prescribed practices.

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