

WORK ENGAGEMENT AS A MODERATOR OF WORKLOAD AND INTERNAL MOBILITY ON EMPLOYEE PERFORMANCE



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Abstract

This study examines how Workload and Internal Mobility shape Employee Performance, with Work Engagement as a moderating variable, among staff at the Tanjung Emas Customs and Excise Service Office, Indonesia. Despite staffing deficits from 2023 to 2025, the office's Organizational Performance Score reached an "Exceptional" 117.04%, while Customs Clearance Time simultaneously deteriorated, an operational paradox motivating this inquiry. Grounded in Job Demands-Resources (JD-R) Theory, a quantitative cross-sectional design was employed. Data from 118 active employees, selected via purposive sampling, were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Full Collinearity Assessment confirmed that common method bias was not a serious threat, with all structural path VIF values between 1.011 and 1.167, well within the 3.30 threshold. All four hypotheses were supported. Workload exerted a significant negative effect on Employee Performance ($\beta = -0.374$, $p < .001$), while Internal Mobility produced a strong positive effect ($\beta = 0.406$, $p < .001$). Work Engagement significantly moderated both relationships, attenuating the negative impact of Workload and amplifying the positive impact of Internal Mobility. An independent-samples t-test further revealed that employees in split-location arrangements ($n = 35$, 29.7%) reported markedly lower engagement ($M = 2.58$ vs. 3.25 ; $t = -5.21$, $p < .001$; $d = 1.05$), a pattern attributed to what this study terms "geographic dislocation demand", the cumulative psychological burden of sustaining a residential separation between one's posting location and one's family. Practical implications include workload automation, structured peer-support for rotated employees, and affirmative welfare policies for geographically displaced staff.

Keywords: Workload, Internal Mobility, Work Engagement, Employee Performance, JD-R Theory, Geographic Dislocation Demand

INTRODUCTION

Customs enforcement at a major seaport constitutes one of the most operationally intensive environments in public administration. At KPPBC TMP Tanjung Emas, one of Indonesia's principal maritime customs gateways, officers simultaneously process thousands of import declarations, conduct physical cargo inspections, and comply with continuously revised trade regulations. This configuration corresponds precisely to what Job Demands–Resources (JD–R) Theory identifies as sustained hindrance demands, conditions that progressively erode psychological reserves and diminish work engagement (Andrade & Neves, 2024). Yet between 2023 and 2025, despite documented staffing shortfalls, the office's Organizational Performance Score (NKO) paradoxically reached an “Exceptional” rating of 117.04%. Beneath that headline figure, however, a more revealing operational indicator was deteriorating: Customs Clearance Time lengthened from 0.62 to 0.76 days, signalling that the psychological mechanisms sustaining aggregate performance were approaching their limits.

This “Management Puzzle” constitutes the motivating paradox of this study. When aggregate performance indicators improve while operational efficiency measures simultaneously weaken, the central question shifts from whether performance is under strain to what psychological mechanism is preventing that strain from triggering organizational deterioration. Recent evidence from comparable tax and revenue agencies confirms that work engagement and job satisfaction jointly sustain performance even under stringent bureaucratic constraints (Jufrizen et al., 2024). Moreover, broader JD–R research demonstrates that the translation of job demands into performance is highly conditional, often attenuated in employees carrying elevated emotional workload (Ni et al., 2024). This conditionality is particularly salient in public sector contexts because, as Fletcher et al. (2020) document in a systematic review of 188 governmental engagement studies, engagement in public institutions is shaped by regulatory reform pressures, public service motivation, and institutional accountability dynamics that generic private-sector models do not adequately capture.

Two variables are central to these pressures. The first is Workload. JD–R Theory classifies excessive task demands as hindrance demands; specifically, conditions that deplete physiological and psychological resources without commensurate return (Bakker & Demerouti, 2024). Institutional records indicate that the 2024 Workload Analysis Report logged 380,076.20 person-hours of aggregate organizational demand against a structural personnel deficit, exemplifying the broader public sector predicament in which chronic understaffing concentrates demands on a diminishing workforce. The second variable is Internal Mobility. In response to staffing constraints, the organization deploys lateral rotation across functions, a policy that JD–R categorizes as a structural job resource capable of stimulating skill variety and counteracting motivational stagnation (Bakker & Demerouti, 2024; Ibrahim Ahmad et al., 2024). Evidence from comparable Customs settings is, however, inconclusive. Antoro & Widiastuti (2023) found that rotation did not automatically yield performance improvements and could instead trigger transition costs that temporarily impaired individual output.

The proposed resolution to this inconsistency is Work Engagement. The meta-analysis by Corbeanu & Iliescu (2023) establishes engagement as a robust personal resource that functions on two distinct fronts: as a psychological buffer that absorbs the adverse

consequences of excessive workload demands, and as an amplifier that converts the latent developmental potential of rotation into realized performance gains. Without adequate engagement, internal mobility risks generating little more than the administrative relocation of personnel, leaving the performance benefits of rotation unrealized.

Notwithstanding the extensive literatures on workload, job rotation, and work engagement in isolation, the joint moderation dynamics of these three constructs within a regulatory customs context operating under New Public Management reform imperatives remain largely unexamined. This study addresses that gap by testing four theory-derived hypotheses: H1, that Workload exerts a significant negative effect on Employee Performance; H2, that Internal Mobility exerts a significant positive effect on Employee Performance; H3, that Work Engagement moderates the Workload–Performance relationship such that high engagement attenuates the negative effect of workload (Buffering Effect); and H4, that Work Engagement moderates the Internal Mobility–Performance relationship such that high engagement amplifies the positive effect of mobility (Amplifying Effect). The empirical setting KPPBC TMP Tanjung Emas, where performance failures carry consequences for national trade logistics and fiscal revenue, provides a substantively significant context for examining these dynamics..

REVIEW OF LITERATURE

Job Demands-Resources (JD-R) Theory and the Public Sector Context

JD–R Theory, initially formulated by Bakker & Demerouti (2007) and comprehensively refined through two decades of cumulative empirical investigation into its current iteration (Bakker & Demerouti, 2024), provides the unifying theoretical framework for this study. The theory partitions working conditions into two categories: job demands, which require sustained physical or cognitive effort and thereby incur physiological and psychological costs, and job resources, which facilitate goal attainment, buffer the impact of demands, or stimulate personal development. This partition gives rise to two motivationally distinct processes. When demands persistently exceed an employee’s coping capacity, the health impairment process unfolds, depleting psychological reserves and eroding well-being. When adequate resources are available, the motivational process activates, fostering intrinsic commitment and sustaining discretionary effort.

Extending JD–R to a public sector context, however, is not without complication. Drawing on a systematic review of 188 empirical studies spanning governmental, public health, and educational organizations, Fletcher et al. (2020) demonstrate that engagement in public institutions is conditioned by pressures absent from private-sector settings. New Public Management reforms impose a persistent “do more with less” imperative that simultaneously escalates hindrance demands and erodes available resources. KPPBC TMP Tanjung Emas exemplifies Hasenfeld (1972) people-processing organization: its employees classify documents, inspect cargo, and adjudicate regulatory compliance. This institutional character shapes how both demands and resources are psychologically constructed and experienced. Within the present study’s theoretical architecture, Workload occupies the demands side of the JD–R equation, Internal Mobility occupies the resources side, and Work Engagement functions as the personal resource that modulates how both motivational processes ultimately influence performance.

Workload and Employee Performance

Within the JD–R framework, workload constitutes a hindrance demand when it exceeds an employee's available capacity (Spagnoli et al., 2020). When task volume persistently outpaces both available time and cognitive bandwidth, output quality deteriorates and operational accuracy comes under pressure. Sustained overload of this kind accelerates burnout by progressively depleting the psychological reserves required to maintain performance quality over time (Anwar et al., 2024). Mbata & Okemini (2024) argue that organizations must actively manage demand levels, as unmitigated workload intensification compounds exhaustion in ways that are difficult to reverse. At Tanjung Emas Customs and Excise, the introduction of Regulation PER-01/BC/2023 which mandated more stringent physical inspection protocols materially increased cognitive demands on officers already managing high-density document flows. Drawing on evidence from state-owned enterprise settings, (Meliani et al., 2024) confirm that chronically high work intensity drives employees into a reactive task-completion mode in which throughput speed takes priority over verification accuracy.

Internal Mobility and Employee Performance

Internal mobility, defined as the deliberate lateral reassignment of employees across organizational functions, is categorized as a structural job resource under the revised JD–R framework (Bakker & Demerouti, 2024), insofar as it introduces skill variety, creates learning opportunities, and counteracts motivational stagnation. Ibrahim Ahmad et al. (2024) document these beneficial effects in Indonesian public sector contexts. The picture is not uniformly positive, however. Antoro & Widiastuti (2023) report that rotation in comparable Customs settings did not consistently produce performance gains and could instead incur transition costs. Jeong et al. (2023), studying nurses subjected to mandatory rotation, found that rotation-induced stress directly impaired performance when employees lacked job embeddedness and transition support. Tan et al. (2025) corroborate this pattern, showing that while rotating workers broadened their competency base, limited peer support in receiving units systematically delayed the translation of that exposure into confident, effective performance. The structural implication for KPPBC TMP Tanjung Emas is clear: mobility is a genuine job resource, but its performance-generative potential is contingent on the social and psychological infrastructure available to the rotating employee in the receiving unit.

Work Engagement as Moderator

Work Engagement, operationalized through the three dimensions of vigor (psychological energy and mental resilience), dedication (enthusiasm and professional pride), and absorption (deep concentration and immersive focus) is positioned in this study as the personal resource that conditions the relationships among job demands, job resources, and performance outcomes (Schaufeli et al., 2002; Bakker & Demerouti, 2024). The meta-analysis by Corbeanu & Iliescu (2023) establishes that highly engaged employees transform demanding work environments into catalysts for discretionary effort rather than permitting those demands to trigger burnout. Under elevated workload, engaged employees mobilize internal psychological reserves that sustain performance quality without catastrophic energy depletion. When exposed to a new assignment through internal mobility, an engaged employee approaches the transition proactively treating the rotation as a developmental opportunity and accelerating competency acquisition in the new role. Vakola et al. (2021) provide supporting evidence, demonstrating that highly engaged employees actively sought

out resources and crafted their tasks in response to organizational disruption. Extending this finding to an Indonesian context, Kaur & Rahmadani (2023) demonstrate that work engagement significantly amplified the positive effect of job crafting on innovative behavior.

RESEARCH METHOD

Research Design and Sample

This study employs a quantitative, cross-sectional design. The target population comprised all 259 active employees of KPPBC TMP Tanjung Emas. A purposive sampling procedure was applied, with inclusion criteria requiring respondents to be permanent civil servants (excluding outsourced staff), to have accumulated a minimum of two years' tenure ensuring adequate exposure to the organization's workload dynamics, and to have a verifiable history of internal mobility assignments. Given that all 118 eligible employees satisfying these criteria were invited to participate, the procedure approximates a census of the qualifying population within this single-office study site.

Of the 122 responses initially collected, four were excluded during data screening on the grounds that the respondents had no documented internal mobility experience, yielding a final analytic sample of $N = 118$. This sample size satisfies the minimum threshold recommended for PLS-SEM estimation (Hair et al., 2019), with power-analytic approaches increasingly preferred over rule-of-thumb heuristics for this purpose. The sample was predominantly male ($n = 96$, 81.4%), concentrated in the 30–40 age cohort ($n = 77$, 65.3%), held Customs Inspector-level positions ($n = 79$, 66.9%), and had accumulated 11–20 years of service ($n = 66$, 55.9%; 5–10 years: $n = 28$, 23.7%; more than 20 years: $n = 24$, 20.3%). Notably, 35 respondents (29.7%) reported residing in a different city from their immediate family as a consequence of posting arrangements, a demographic feature that subsequently proved analytically significant.

Research Hypothesis

Based on the theoretical framework and the review of literature presented above, this study proposes the following hypotheses:

- H1: Workload has a significant negative effect on Employee Performance.
- H2: Internal Mobility has a significant positive effect on Employee Performance.
- H3: Work Engagement moderates the Workload–Performance relationship such that the negative effect of Workload on Employee Performance is weaker when Work Engagement is high (Buffering Effect).
- H4: Work Engagement moderates the Internal Mobility–Performance relationship such that the positive effect of Internal Mobility on Employee Performance is stronger when Work Engagement is high (Amplifying Effect).

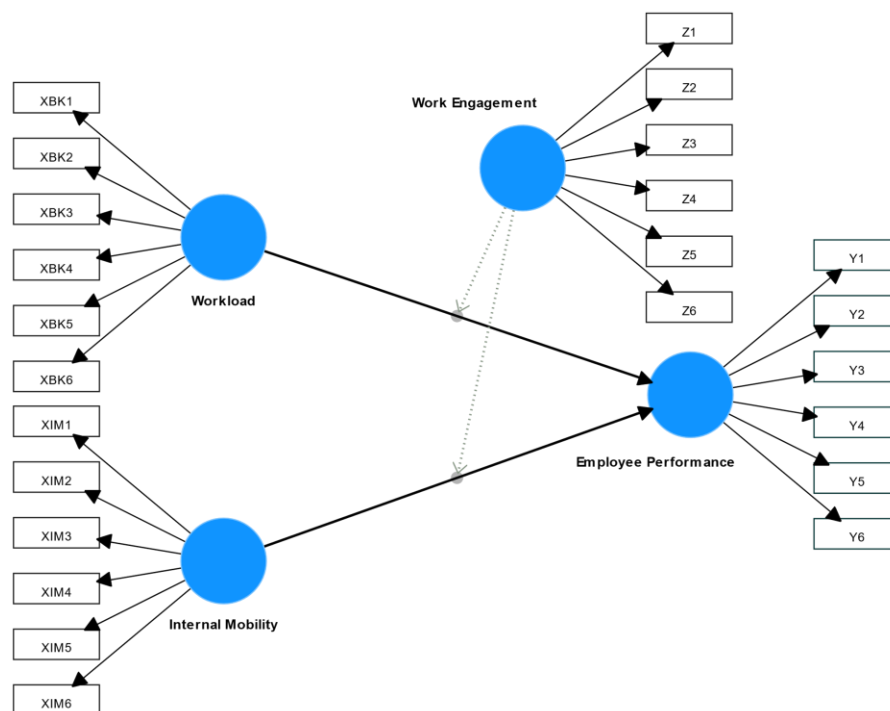


Figure 1.
Structural Model and Moderation Framework

Measures

All four constructs were measured using purpose-developed reflective multi-item scales on a five-point Likert format (1 = Strongly Disagree to 5 = Strongly Agree), adapted from validated instruments and contextualized for the Indonesian customs regulatory environment. Workload (XBK; 6 items) was operationalized following Spagnoli et al. (2020) and Antoro & Widiastuti (2023), capturing quantitative overload, cognitive complexity, time pressure, role conflict, regulatory burden, and administrative load. Internal Mobility (XIM; 6 items) was developed from (Ibrahim Ahmad et al., 2024), Jeong et al. (2023), and Tan et al. (2025), covering learning opportunities, stagnation mitigation, guidance clarity, peer support, competency alignment, and process transparency. Work Engagement (Z; 6 items) was adapted from the Utrecht Work Engagement Scale (Schaufeli et al., 2002) and updated following Bakker & Demerouti (2007), spanning vigor (psychological energy, mental resilience), dedication (work enthusiasm, professional pride), and absorption (deep focus, flow). Employee Performance (Y; 6 items) drew from Corbeanu & Iliescu (2023), Antoro & Widiastuti (2023), and Sakti et al. (2024), encompassing output quantity, technical quality, helping behavior, organizational dedication, regulatory responsiveness, and problem-solving capacity. In addition to these reflective scale items, three supplementary single-item categorical indicators were embedded in the survey instrument. Each item presented respondents with three mutually exclusive, pre-specified response options capturing subjective perceptions of workload intensity, the perceived personal impact of internal mobility, and the primary self-reported driver of work engagement. These items yield nominal categorical data and are reported descriptively in Descriptive Statistics to

contextualise the structural findings; they were not incorporated into the PLS-SEM estimation.

Common Method Bias Assessment

This study was conducted in accordance with the ethical standards of the authors' institution. All participants provided voluntary informed consent prior to completing the survey instrument, and all response data were anonymized before analysis. No personal identifiers were retained, and participation was entirely voluntary with no occupational consequences for declining or withdrawing. Given that all constructs were assessed through self-report within a single survey administration, the potential for common method bias (CMB) was evaluated using the full collinearity assessment procedure recommended by Kock (2015). Variance Inflation Factor (VIF) values were computed for all structural paths and compared against the conservative threshold of 3.30. All VIF values fell between 1.011 and 1.167, well below this threshold, providing robust evidence that common method variance does not constitute a serious threat to the validity of the structural estimates reported in Table 3.

Analytical Strategy

Data were analyzed using SmartPLS 4.0 following a two-stage PLS-SEM estimation approach (Hair et al., 2019). The measurement model was evaluated against four criteria: indicator reliability (outer loadings ≥ 0.70), internal consistency reliability (composite reliability ≥ 0.70), convergent validity (average variance extracted ≥ 0.50), and discriminant validity (HTMT ratio < 0.90 ; Henseler et al. (2015)). Interaction terms for the moderation hypotheses (H3, H4) were constructed using the product-indicator approach with mean-centered indicators, following the procedure recommended by Hair et al. (2019) for moderation analysis within PLS-SEM. Path coefficient significance was assessed via bootstrapping with 5,000 subsamples using the bias-corrected percentile method. Effect sizes (f^2) and predictive relevance (Q^2) were additionally reported to characterize the practical and predictive significance of the structural estimates. Moderation effects were further probed using simple slope analysis following Aiken & West (1991), evaluated at -1 SD, the mean, and $+1$ SD of Work Engagement.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 presents descriptive statistics for all constructs alongside discriminant validity indicators. Mean scores for Workload ($M = 3.14$, $SD = 0.62$), Internal Mobility ($M = 3.12$, $SD = 0.59$), and Work Engagement ($M = 3.05$, $SD = 0.55$) clustered around the midpoint of the five-point scale, consistent with moderate levels of perceived demand and resource availability within this organizational context. Employee Performance ($M = 3.47$, $SD = 0.57$) was marginally above the midpoint, suggesting that respondents generally perceived their own performance as slightly above average. All constructs exhibited sufficient variance to support meaningful structural estimation.

The supplementary single-item categorical indicators revealed notable heterogeneity in employees' subjective experience of the study variables. With respect to workload, 44.9% of respondents selected "challenging but manageable," 30.5% selected "heavy or overloaded," and 24.6% selected "normal or relaxed," indicating a workforce in which a substantial minority already perceives demands as unsustainable. Perceptions of internal

mobility were more equivocal: 41.5% reported no meaningful performance impact, 31.4% reported a positive competency-development effect, and 27.1% described the experience as challenging and requiring effortful adaptation. The distribution of engagement drivers is particularly revealing: whereas 49.2% cited professional responsibility as their primary motivational source and 24.6% cited pride and intrinsic love of work, 26.3% reported motivation by mere obligation fulfilment, a distribution that signals substantial engagement heterogeneity within the workforce and anticipates the moderating effects documented in the structural analysis.

Table 1.
Descriptive Statistics and Discriminant Validity (HTMT)

Variable	Mean	SD	AVE	CR	α	(1) XBK	(2) XIM	(3) Z	(4) Y
(1) XBK	3.14	0.62	0.651	0.918	0.892	---	0.105	0.189	0.513
(2) XIM	3.12	0.59	0.635	0.912	0.886	0.105	---	0.120	0.437
(3) Z	3.05	0.55	0.557	0.883	0.844	0.189	0.120	---	0.511
(4) Y	3.47	0.57	0.706	0.935	0.916	0.513	0.437	0.511	---

Note: N = 118. AVE = Average Variance Extracted; CR = Composite Reliability (ρ_c); α = Cronbach's Alpha. Off-diagonal values are HTMT ratios; all < 0.90 threshold (Henseler et al., 2015); discriminant validity is confirmed. XBK = Workload; XIM = Internal Mobility; Z = Work Engagement; Y = Employee Performance.

Measurement Model

Table 2 reports outer loadings for all measurement indicators. All loadings exceeded the 0.70 threshold recommended by Hair et al. (2019), with one exception: Z4 (Professional Pride, $\lambda = 0.681$), which falls below this threshold but above the minimum acceptable level of 0.40 and was accordingly retained given its theoretical centrality to the dedication sub-dimension of work engagement (Schaufeli et al., 2002). Bootstrapped t-statistics for all retained indicators exceeded 10.00 ($p < .001$), confirming indicator-level reliability throughout. AVE values cleared the 0.50 convergent validity threshold for all constructs (XBK = 0.651; XIM = 0.635; Z = 0.557; Y = 0.706), and all HTMT ratios fell below the 0.90 discriminant validity threshold (Henseler et al., 2015).

Table 2.
Measurement Model: Outer Loadings

Construct	Item	Label	Loading	t	p-value
Workload (XBK)	XBK1	Quantitative Overload	0.756	16.842	< .001
	XBK2	Cognitive Complexity	0.839	24.661	< .001
	XBK3	Time Pressure	0.780	16.662	< .001
	XBK4	Role Conflict	0.782	21.910	< .001
	XBK5	Regulatory Burden	0.862	35.116	< .001
	XBK6	Administrative Load	0.816	23.331	< .001
Internal Mobility (XIM)	XIM1	Learning Opportunities	0.819	25.737	< .001

	XIM2	Stagnation Mitigation	0.793	21.388	< .001
	XIM3	Guidance Clarity	0.846	22.993	< .001
	XIM4	Peer Support	0.800	17.911	< .001
	XIM5	Competency Alignment	0.758	15.794	< .001
	XIM6	Process Transparency	0.761	13.304	< .001
Work Engagement (Z)	Z1	Psychological Energy	0.715	10.216	< .001
	Z2	Mental Resilience	0.754	15.285	< .001
	Z3	Work Enthusiasm	0.843	33.250	< .001
	Z4*	Professional Pride	0.681	10.581	< .001
	Z5	Deep Focus	0.741	12.632	< .001
	Z6	Flow	0.735	13.646	< .001
Employee Performance (Y)	Y1	Output Quantity	0.782	19.152	< .001
	Y2	Technical Quality	0.806	25.933	< .001
	Y3	Helping Behavior	0.815	21.922	< .001
	Y4	Organizational Dedication	0.867	35.013	< .001
	Y5	Regulatory Responsiveness	0.866	35.434	< .001
	Y6	Problem-Solving Capacity	0.900	49.298	< .001

Note: N = 118. Bootstrapped estimates (5,000 subsamples, bias-corrected percentile method).

* Z4 loading = 0.681, falls in acceptable 0.40–0.70 range (Hair et al., 2019); retained given theoretical relevance to the dedication sub-dimension.

Structural Model

The structural model demonstrated strong predictive performance. The explained variance in Employee Performance ($R^2 = 0.611$) indicates that the combined model accounts for 61.1% of variance in performance scores, a moderate-to-substantial result by the benchmarks provided by Hair et al. (2019) and a strong outcome for empirical human resource research. The adjusted R^2 of 0.594 confirms that this estimate is not artificially inflated by the number of predictors. Predictive relevance ($Q^2 = 0.418$) exceeds the 0.25 medium threshold, confirming that the model offers predictive accuracy beyond a naïve benchmark. Model fit was satisfactory: SRMR = 0.076 (below the 0.08 threshold) and NFI = 0.812 (above the 0.80 threshold). Effect size analysis indicated that Internal Mobility carried the largest substantive effect ($f^2 = 0.420$, large), followed by Workload ($f^2 = 0.342$, large), the direct effect of Work Engagement ($f^2 = 0.289$, medium), and both interaction terms ($f^2 = 0.063$ and 0.052 , small-to-medium for moderation effects). Structural path VIF values did not exceed 1.167, ruling out multicollinearity as a confound.

Table 3.
Structural Model Quality Criteria

Criterion	Value	Benchmark	Status
R ² (Employee Performance)	0.611	> 0.50 = Moderate; > 0.75 = Substantial	✓ Moderate-to-Substantial
R ² Adjusted	0.594	—	✓ Not inflated
Q ² (Predictive Relevance)	0.418	> 0.25 = Medium; > 0.50 = Large	✓ Medium-to-Large
SRMR (Estimated Model)	0.076	< 0.08	✓ Good fit
NFI (Estimated Model)	0.812	> 0.80	✓ Acceptable
Max VIF (structural paths)	1.167	< 3.30	✓ No collinearity / no CMB

Note: R² and Q² from SmartPLS 4.0 Algorithm. SRMR and NFI from Model Fit panel (Estimated Model). Benchmarks from (Hair et al., 2019) and (Cohen, 1988).

Hypothesis Testing

Table 4.
Direct Effects: Hypothesis Testing Results

H	Path	β	t	p-value	95% CI	Decision
H1	Workload → Performance	-0.374	6.878	< .001	[-0.481, -0.267]	Supported
H2	Internal Mobility → Performance	0.406	6.373	< .001	[0.279, 0.531]	Supported
—	Work Engagement → Performance	0.354	5.950	< .001	[0.238, 0.471]	Direct effect (included as control variable in structural model)

Table 5. Moderating Effects: Hypothesis Testing Results

H	Interaction Path	β	t	p-value	95% CI	f ²
H3	WE × Workload → Performance	0.149	3.365	0.001	[0.062, 0.236]	0.063
H4	WE × Internal Mobility → Performance	0.134	2.474	0.013	[0.017, 0.229]	0.052

Note: N = 118. Bootstrapped path coefficients (5,000 subsamples, bias-corrected percentile method). 95% CI = percentile bootstrap confidence intervals. Both interaction effects are

significant ($p < .05$) with non-zero confidence intervals, confirming moderation. WE = Work Engagement.

Simple slope analysis (Table 6) confirmed the nature of both moderation effects across the full range of Work Engagement levels. Figure 2 and Figure 3 display the corresponding interaction plots, visualizing the diverging simple slopes at -1 SD, Mean, and $+1$ SD of Work Engagement for the Workload–Performance and Internal Mobility–Performance relationships, respectively.

Table 6.
Simple Slope Analysis of Moderation Effects

WE Level	Focal Predictor	β (Slope)	t	p-value	95% CI	Interpretation
Low WE (-1 SD)	Workload $\rightarrow$ Performance	−0.523	7.508	< .001	[−0.660, −0.386]	Unmitigated damage
Mean WE	Workload $\rightarrow$ Performance	−0.374	6.878	< .001	[−0.480, −0.268]	Main effect
High WE ($+1$ SD)	Workload $\rightarrow$ Performance	−0.225	3.230	0.006	[−0.362, −0.088]	Buffering confirmed
Low WE (-1 SD)	Int. Mobility $\rightarrow$ Performance	0.272	3.248	0.004	[0.108, 0.436]	Limited amplification
Mean WE	Int. Mobility $\rightarrow$ Performance	0.406	6.373	< .001	[0.281, 0.531]	Main effect
High WE ($+1$ SD)	Int. Mobility $\rightarrow$ Performance	0.540	6.449	< .001	[0.376, 0.704]	Amplification confirmed

Note: Simple slopes computed following Aiken & West (1991) and Preacher et al. (2006)

Figure 2.

Interaction Plot: Work Engagement Moderating the Workload–Performance Relationship (H3). Simple slopes at -1 SD, Mean, and $+1$ SD of Work Engagement.

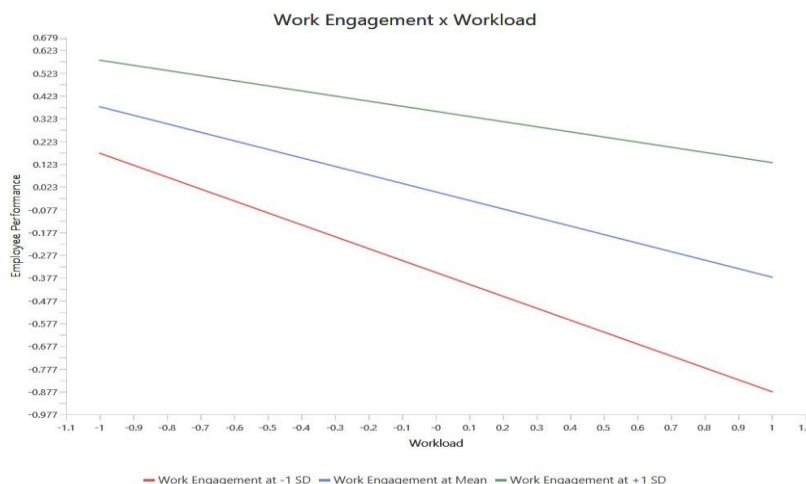
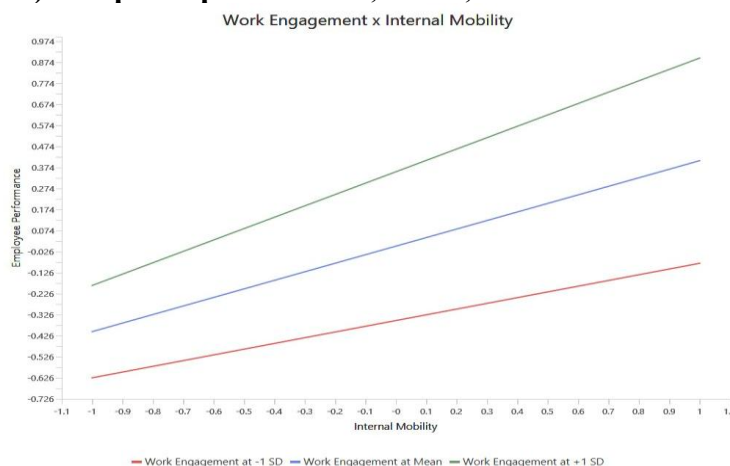


Figure 3.

Interaction Plot: Work Engagement Moderating the Internal Mobility–Performance Relationship (H4). Simple slopes at –1 SD, Mean, and +1 SD of Work Engagement.



Geographic Dislocation Demand: An Exploratory Observation and Theoretical Extension

During demographic profiling of the dataset, a pattern emerged that, while not hypothesized, warranted systematic examination given its magnitude. Of 118 respondents, 35 (29.7%) resided in a different city from their family due to posting conditions. To formally test whether this split-location arrangement was associated with differential engagement levels, independent-samples t-tests and Mann-Whitney U tests were conducted for all four constructs (Table 7).

Table 7.
Split-Location vs. Same-Location Group Comparisons

Variable	Split (n=35) M (SD)	Same (n=83) M (SD)	t	p	U	p (MW)	Cohen's d
Workload (XBK)	3.61 (0.64)	2.95 (0.82)	4.30	< .001	2120	< .001	0.87 (Large)

Int. Mobility (XIM)	2.71 (0.86)	3.29 (0.75)	-3.64	< .001	926	0.002	0.73 (Medium)
Work Engagement (Z)	2.58 (0.61)	3.25 (0.65)	-5.21	< .001	665	< .001	1.05 (Large)
Performance (Y)	2.63 (0.74)	3.82 (0.62)	-9.00	< .001	334	< .001	1.81 (Large)

Note: N = 118 (Split = 35, Same = 83). M = mean composite score; SD = standard deviation. t = independent-samples t-test (two-tailed). U = Mann-Whitney U statistic. p (MW) = Mann-Whitney two-tailed p-value. Cohen's d benchmarks: small = 0.20, medium = 0.50, large = 0.80 (Cohen, 1988). 95% confidence intervals for mean differences (Split minus Same, Welch-corrected): Workload = [0.38, 0.94]; Internal Mobility = [-0.92, -0.25]; Work Engagement = [-0.92, -0.42]; Performance = [-1.48, -0.91]. Significant differences were confirmed across all four variables ($p < .001$).

Table 7 shows a consistent pattern across all four constructs: split-location employees reported higher workload perceptions and lower scores on all other measures compared to same-location employees, with effect sizes ranging from medium ($d = 0.73$) to large ($d = 1.81$). Given the small split-location subsample ($n = 35$), these figures should be treated as preliminary observations.

Discussion

H1: Workload Negatively Affects Employee Performance

The significant negative path coefficient ($\beta = -0.374$, $t = 6.878$, 95% CI [-0.481, -0.267]) confirms H1 and is substantively interpretable beyond its statistical significance. The key diagnostic lies not in the direction of the effect, which is theoretically anticipated, but in which workload indicator drove it. Cognitive complexity scores were the lowest among all workload indicators, whereas quantitative volume indicators were the highest, indicating that officers at Tanjung Emas are not overwhelmed by the intellectual difficulty of their work but by its sheer quantity. This operationalization distinction carries direct practical implications: interventions targeting cognitive upskilling will not resolve a performance deficit whose structural root is administrative volume. The observed speed-accuracy trade-off is not a failure of professional standards but a rational adaptive response to an unsustainable demand equation, consistent with the quantitative overload concept of Spagnoli et al. (2020). Under sustained document queue pressure, officers compress verification time to prevent supply chain disruption, accepting reduced inspection precision as the cost of meeting throughput targets. This dynamic is corroborated by cognitive ergonomics research demonstrating that performance degradation under workload is most pronounced in precision-dependent tasks (Pontiggia et al., 2024). A contextually significant secondary finding is that support-unit employees reported systematically higher workload perceptions than front-line clearance officers, consistent with Dahlan et al. (2024) on invisible administrative burden. Unlike operational units whose task volume follows vessel arrival schedules, support functions absorb unpredictable, multi-layered administrative demands without clearly defined throughput metrics. This structural invisibility means that support-unit workload accumulates without triggering the institutional relief mechanisms

available to clearance units, creating a chronic overload condition that is particularly resistant to standard demand-management interventions.

H2: Internal Mobility Positively Affects Employee Performance

Internal Mobility was the single strongest predictor in the model ($\beta = 0.406$), a result that warrants interpretation beyond simple confirmation that rotation is performance-beneficial. The explanatory value lies in identifying the mechanism. Competency Alignment (XIM5) registered the highest loading among mobility indicators, suggesting that managers have developed, through accumulated institutional knowledge, an informal practice of placing rotated employees in roles congruent with their existing competency profiles. This tacit placement wisdom is not codified in official rotation protocols, yet it appears to be the primary determinant of whether mobility generates performance gains. The present findings thereby extend Antoro & Widiastuti (2023), who documented null effects of rotation in a comparable Customs context, by identifying competency alignment as the conditioning factor that converts rotation from administrative reshuffling into a genuine developmental resource.

A secondary finding warrants interpretive attention. Peer Support at the receiving unit (XIM4, $M = 3.025$; see Table 2) registered the lowest mean among all Internal Mobility indicators, indicating that rotated employees largely manage their own social integration upon arrival. Counterintuitively, this structural gap may itself be stimulating adaptive behavior: among employees with sufficient motivational resources, the absence of formal peer scaffolding appears to prompt proactive self-integration rather than passive withdrawal. Tan et al. (2025) document a structurally similar pattern among temporary nurses in Singapore, where limited onboarding support broadened competency exposure but constrained the speed of its translation into confident practice. At KPPBC TMP Tanjung Emas, the resolution appears different: rather than being constrained by low peer support, engaged employees appear to compensate through increased initiative. Vakola et al. (2021) and Kaur & Rahmadani (2023) both offer theoretical purchase on this selective compensation: only employees with sufficient motivational reserves can convert a resource-poor transition environment into an active job-crafting opportunity. Disengaged employees experiencing the same structural conditions interpret them as organizational indifference rather than a developmental challenge. This mechanism helps account simultaneously for the positive mean effect of mobility on performance and for the significant engagement-based amplification documented in H4: the resource-poor transition environment activates engaged employees while immobilizing disengaged ones, producing a bifurcated performance trajectory that the moderation analysis captures. This pattern suggests that the performance benefits of rotation are selectively realized by employees whose prior motivational resources are sufficient to navigate resource-scarce transition environments productively.

H3 and H4: Work Engagement as Dual Moderator

Both moderation hypotheses were supported. For H3, the significant positive interaction coefficient ($\beta = 0.149$, $p = .001$, 95% CI [0.062, 0.236]) is consistent with the predicted buffering pattern, in which Work Engagement attenuates the negative association between Workload and Performance. Simple slope analysis (Table 6) confirms that this attenuation is practically meaningful: the workload–performance slope shrinks from -0.523 at low engagement to -0.225 at high engagement, representing a 57% reduction in the magnitude of the demand-induced performance penalty. This buffering pattern is consistent

with the meta-analytic finding of Corbeanu & Iliescu (2023) that engaged employees draw on internal psychological reserves to resist demand-driven performance erosion. Indicator-level evidence illuminates the specific psychological resources underlying this buffering mechanism. Work Enthusiasm (Z3, dedication dimension, $\lambda = 0.843$) and Mental Resilience (Z2, vigor dimension, $\lambda = 0.754$) carried the strongest loadings among the six engagement indicators, suggesting that the protective mechanism operates primarily through sustained purposeful engagement and psychological robustness rather than through momentary absorptive states. Employees who experienced their work as meaningful and emotionally significant were able to reframe high document volumes as professional challenges rather than exhausting impositions, a process consistent with the cognitive reframing dynamic documented in studies of public sector engagement under high demands. This pattern is theoretically coherent with Fletcher et al. (2020) observation that public sector employees often sustain performance under demanding conditions through normative commitment to service value rather than through extrinsic incentives. The sense that each clearance decision carries direct consequences for national trade logistics and fiscal revenue appears to function as an autonomous motivational resource that partially compensates for the energetic depletion caused by volume overload.

For H4, the significant positive interaction coefficient ($\beta = 0.134$, $p = .013$, 95% CI [0.017, 0.229]) is consistent with the predicted amplifying pattern, in which Work Engagement strengthens the positive association between Internal Mobility and Performance. At high engagement, the mobility–performance slope nearly doubles relative to the low-engagement condition (from $\beta = 0.272$ to $\beta = 0.540$), confirming that highly engaged employees derive substantially greater performance returns from each rotation assignment. This result is consistent with the mechanism identified by Vakola et al. (2021): engaged employees treat institutionally imposed transitions as growth opportunities rather than disruptions, proactively seeking out resources and adapting their task approach to the new role’s demands. Notably, the amplifying effect is not attributable to accumulated rotation experience. A one-way ANOVA across four rotation-frequency categories (no prior rotation; one to two rotations; three to five rotations; more than five rotations) yielded no significant engagement differences ($F(3, 114) = 0.043$, $p = .958$), confirming that the advantage conferred by high engagement reflects a stable motivational orientation rather than habituation to rotation. Together, the H3 and H4 findings resolve the Management Puzzle motivating this study. The paradoxical rise in aggregate NKO scores despite documented understaffing and deteriorating clearance times is explicable as a bifurcated performance landscape: engaged employees absorbed elevated workload and rotation demands by mobilizing psychological reserves, sustaining aggregate output metrics while precision-dependent process indicators deteriorated. Work Engagement did not eliminate the damage to clearance speed but attenuated it sufficiently to sustain the headline organizational performance rating. The progressive lengthening of Clearance Time from 0.62 to 0.76 days across 2023–2025, however, signals that even a highly engaged workforce cannot indefinitely substitute motivational reserves for structural resource deficits.

Geographic Dislocation Demand: A Theoretical Extension

The split-location analysis revealed large and consistent mean differences across all four constructs (Table 7). Employees maintaining a residential separation from their immediate family as a consequence of posting conditions reported substantially higher

workload perceptions, lower satisfaction with internal mobility experiences, lower work engagement, and markedly lower performance than their co-located counterparts. Effect sizes ranged from $d = 0.73$ (medium) for Internal Mobility to $d = 1.81$ (large) for Employee Performance. It must be stressed that this analysis was entirely exploratory and post-hoc: the split-location comparison was not specified in the original study design but emerged during demographic profiling. With a split-location subsample of only $n = 35$ and a binary operationalization of what is likely a continuous construct, these figures carry meaningful risk of confirmatory bias and must be treated as preliminary observations requiring independent replication rather than established parameter estimates. Bearing these limitations in mind, the cross-construct consistency and magnitude of the pattern warrant a tentative theoretical interpretation. These findings point to a demand that operates independently of job content and scheduling. We provisionally term this “geographic dislocation demand” (GDD): the cumulative psychological burden arising from a sustained residential gap between an employee’s posting location and their immediate family. Unlike conventional workload or role conflict, GDD is not generated by the characteristics of the job itself but by the residential conditions under which that job is performed. Standard JD–R demand taxonomies do not accommodate this category because existing classifications focus on task characteristics rather than posting-induced residential conditions (Bakker & Demerouti, 2024). Convergent evidence from migrant worker research (Qin et al., 2014), Indonesian work-separation families (Zulaifah, 2017), and naval deployment studies (Karin et al., 2025) collectively suggests that posting-location demands constitute a recognizable but theoretically underspecified demand category within the JD–R literature. Broader research on work–home spatial arrangements further corroborates the principle that the physical distance between an employee’s workplace and family residence is a substantive determinant of engagement outcomes (Telu & Kumar, 2025; Wirth et al., 2025), and the performance consequences of family residential separation are independently documented in housing research (Yu et al., 2025). The conceptual boundaries of GDD, including its differentiation from related constructs and the limitations of the binary operationalization employed here, are addressed in the Limitations section

CONCLUSION

All four hypotheses were supported. Work Engagement moderated both the Workload–Performance and Internal Mobility–Performance relationships, buffering the negative impact of workload and amplifying the positive returns of rotation. The core finding is conditionality: neither workload nor mobility determines performance independently; their effects are conditional on the psychological engagement employees bring to the work.

This study makes three contributions to JD–R theory. First, quantitative volume overload, not cognitive difficulty, is the dominant demand stressor in a regulatory Customs context, with direct implications for intervention design: upskilling programs will not resolve a performance deficit whose structural root is administrative volume. Second, the job-crafting mechanism operates under rotation conditions just as it does under organizational change, suggesting cross-context generalizability of engaged self-integration. Third, as an exploratory observation warranting formal confirmatory investigation, the split-location analysis proposes “geographic dislocation demand” (GDD), the psychological burden of sustained residential separation from family, as a demand category currently absent from JD–

R taxonomies. Future research should develop and validate a multi-item GDD scale and replicate this finding across diverse rotational public sector workforces before treating GDD as an established construct.

Because administrative volume, not task complexity, drives performance deterioration, the primary intervention lever is automating high-frequency repetitive processes: specifically, document queue management, routine declaration pre-screening, and administrative data-entry workflows that currently consume officer time without requiring discretionary judgment. This automation should be designed to protect the analytical inspection and regulatory adjudication functions that are core to customs work and cannot be safely delegated to automated systems. Peer-support structures at unit entry points should be formalized through structured buddy systems and 90-day onboarding checklists for incoming rotated staff, to ease rotation transitions and prevent resource-poor environments from immobilizing disengaged employees. Finally, the split-location welfare gap requires affirmative policy attention: nearly 30% of the workforce carries a structural engagement deficit that simultaneously reduces the returns on all other HR interventions, and this deficit is unlikely to respond to engagement training in the absence of residential welfare support.

The single-office, cross-sectional design restricts causal inference and statistical generalization; the theoretical propositions advanced here require replication across diverse DJBC post typologies. Self-report measurement introduces social desirability risk, and the GDD findings remain preliminary given the small split-location subsample ($n = 35$), a binary operationalization, and the construct's undefined boundaries relative to work–family conflict and work separation demand. Longitudinal designs with objective performance data and multi-site sampling represent the priority agenda for future research.

REFERENCES

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Sage. <https://doi.org/10.4135/9781483385426>
- Andrade, C., & Neves, P. C. (2024). Illegitimate Tasks and Work–Family Conflict as Sequential Mediators in the Relationship between Work Intensification and Work Engagement. *Administrative Sciences*, 14(3), 39. <https://doi.org/10.3390/admsci14030039>
- Antoro, S. T., & Widiastuti, N. (2023). Pengaruh Rotasi dan Beban Kerja Terhadap Kinerja Pegawai dengan Kepuasan Kerja Sebagai Variable Intervening di Kantor Pengawasan dan Pelayanan Bea dan Cukai Tipe Madya Pabean B Yogyakarta. *Jurnal Riset Manajemen Akuntansi Indonesia*, 1(2), 1–15. <https://doi.org/10.32477/jrima.v1i2.701>
- Anwar, I., Yasin, N., Jamal, M. T., Rashid, M. H., & Saleem, I. (2024). Does psychological capital alleviate work overload-induced work exhaustion and burnout among teleworkers? A moderated-mediation approach. *Global Knowledge, Memory and Communication*. <https://doi.org/10.1108/GKMC-04-2024-0248>
- Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: state of the art. *Journal of Managerial Psychology*, 22(3), 309–328. <https://doi.org/10.1108/02683940710733115>
- Bakker, A. B., & Demerouti, E. (2024). Job demands–resources theory: Frequently asked questions. *Journal of Occupational Health Psychology*, 29(3), 188–200. <https://doi.org/10.1037/ocp0000376>

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd ed.)*. Lawrence Erlbaum Associates.
- Corbeanu, A., & Iliescu, D. (2023). The Link Between Work Engagement and Job Performance. *Journal of Personnel Psychology*, 22(3), 111–122. <https://doi.org/10.1027/1866-5888/a000316>
- Dahlan, M., Syahir Natsir, & Adfiyani Fadjar. (2024). Effect of Workload and Financial Compensation on Work Morale with Work Engagement as A Moderating Variable. *Tadulako International Journal of Applied Management*, 6(3), 188–197. <https://doi.org/10.59769/tajam.v6i3.146>
- Fletcher, L., Bailey, C., Alfes, K., & Madden, A. (2020). Mind the context gap: a critical review of engagement within the public sector and an agenda for future research. *The International Journal of Human Resource Management*, 31(1), 6–46. <https://doi.org/10.1080/09585192.2019.1674358>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hasenfeld, Y. (1972). People Processing Organizations: An Exchange Approach. *American Sociological Review*, 37(3), 256. <https://doi.org/10.2307/2093466>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Ibrahim Ahmad, Syaifuddin, Sofiyan, & Salman Faris. (2024). The Role of Work Engagement in Mediating Job Rotation on Employee Performance at the Regional Secretariat of Bireuen Regency. *Digital Innovation : International Journal of Management*, 1(4), 113–126. <https://doi.org/10.61132/digitalinnovation.v1i4.89>
- Isbahi, M. B., Zuana, M. M. M., & Toha, M. (2024). The Multi-Social Relation of the Cattle Industry in the Plaosan Subdistrict Animal Market of Magetan Regency. *Malacca: Journal of Management and Business Development*, 1(1), 31–46. <https://doi.org/10.69965/malacca.v1i1.51>
- Jeong, J. A., Jeong, S. H., Kim, H. K., & Kim, H. S. (2023). Impact of Job Rotation Stress on Nursing Work Performance among Clinical Nurses: Mediating Effects of Job Embeddedness and Moderated Mediating Effects of Resilience. *Journal of Korean Academy of Nursing Administration*, 29(5), 503. <https://doi.org/10.11111/jkana.2023.29.5.503>
- Jufrizen, J., Harahap, D. S., & Khair, H. (2024). Leader-Member Exchange and Employee Performance: Mediating Roles of Work Engagement and Job Satisfaction. *Journal of Economics, Business, & Accountancy Ventura*, 26(3), 306–322. <https://doi.org/10.14414/jebav.v26i3.3591>
- Karin, E., Gucciardi, D. F., Rigotti, T., Kunzelmann, A., Kalisch, R., & Crane, M. (2025). The association of multi-system conditions on mental health trajectories during naval deployment. *Military Psychology*, 37(6), 527–543. <https://doi.org/10.1080/08995605.2024.2413249>
- Kaur, G., & Rahmadani, V. G. (2023). Job crafting and innovative behavior among hospitality workers: The moderation effect of work engagement. *Humanitas*:

- Indonesian Psychological Journal*, 20(1), 80–89.
<https://doi.org/10.26555/humanitas.v20i1.138>
- Kock, N. (2015). Common Method Bias in PLS-SEM. *International Journal of E-Collaboration*, 11(4), 1–10. <https://doi.org/10.4018/ijec.2015100101>
- Mbata, S. K., & Okemini, E. B. (2024). Influence of Work-Induced Stress on Employee Job Performance of Selected University Teaching Hospitals in South-South, Nigeria. *Journal of Sociology and Social Work*, 12(3). <https://doi.org/10.15640/jssw.v12p3>
- Meliani, A., Heriyadi, H., Rosnani, T., & Saputra, P. (2024). Workload on SOEs employee performance: Mediating effects of work stress and burnout. *Journal of Management and Digital Business*, 4(3), 697–712. <https://doi.org/10.53088/jmdb.v4i3.1322>
- Ni, Y., Xu, Y., He, L., Wen, Y., & You, G. (2024). Relationship between job demands, work engagement, emotional workload and job performance among nurses: A moderated mediation model. *International Nursing Review*, 71(4), 924–932. <https://doi.org/10.1111/inr.12941>
- Pontiggia, A., Gomez-Merino, D., Quiquempoix, M., Beauchamps, V., Boffet, A., Fabries, P., Chennaoui, M., & Sauvet, F. (2024). MATB for assessing different mental workload levels. *Frontiers in Physiology*, 15, 1408242. <https://doi.org/10.3389/fphys.2024.1408242>
- Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational Tools for Probing Interactions in Multiple Linear Regression, Multilevel Modeling, and Latent Curve Analysis. *Journal of Educational and Behavioral Statistics*, 31(4), 437–448. <https://doi.org/10.3102/10769986031004437>
- Qin, X., Hom, P., Xu, M., & Ju, D. (2014). Applying the job demands–resources model to migrant workers: Exploring how and when geographical distance increases quit propensity. *Journal of Occupational and Organizational Psychology*, 87(2), 303–328. <https://doi.org/10.1111/joop.12047>
- Sakti, P., Parimita, W., & Widyastuti, U. (2024). Factors Explaining Adaptive Performance in Indonesian Government Employees: A Theoretical Approach. *Australasian Accounting Business and Finance Journal*, 19(2). <https://doi.org/10.14453/aabfj.v19i2.06>
- Schaufeli, W. B., Salanova, M., González-romá, V., & Bakker, A. B. (2002). The Measurement of Engagement and Burnout: A Two Sample Confirmatory Factor Analytic Approach. *Journal of Happiness Studies*, 3(1), 71–92. <https://doi.org/10.1023/A:1015630930326>
- Spagnoli, P., Haynes, N. J., Kovalchuk, L. S., Clark, M. A., Buono, C., & Balducci, C. (2020). Workload, Workaholism, and Job Performance: Uncovering Their Complex Relationship. *International Journal of Environmental Research and Public Health*, 17(18), 6536. <https://doi.org/10.3390/ijerph17186536>
- Tan, Y. S. K., Choy, K. H., Gunawan, J., Rusli, K. D. Bin, Lim, V. K. G., Chua, W. L., Liaw, S. Y., & Ang, W. H. D. (2025). Exploring Work Experience, Job Satisfaction, Motivation and Intention to Stay Among Gig and Locum Nurses: A Mixed Methods Study. *Journal of Advanced Nursing*. <https://doi.org/10.1111/jan.70052>
- Telu, S., & Kumar, S. (2025). Towards a sustainable future: a comprehensive review of employee well-being in hybrid work settings. *Management & Sustainability: An Arab Review*, 4(3), 407–430. <https://doi.org/10.1108/MSAR-10-2024-0182>

- Vakola, M., Petrou, P., & Katsaros, K. (2021). Work Engagement and Job Crafting as Conditions of Ambivalent Employees' Adaptation to Organizational Change. *The Journal of Applied Behavioral Science*, 57(1), 57–79. <https://doi.org/10.1177/0021886320967173>
- Wirth, T., Rohwer, E., Jaß, L., Harth, V., & Mache, S. (2025). Hybrid Work in German Public Administration: Social Resources, Occupational Health Literacy and Work Design Competencies in Association with Work Engagement. *Behavioral Sciences*, 15(8), 1123. <https://doi.org/10.3390/bs15081123>
- Yu, X., Hu, D., Zhao, C., & Hu, M. (2025). Housing Debt and Home-Work Separation: Evidence From China. *Asian-Pacific Economic Literature*. <https://doi.org/10.1111/apel.12457>
- Zulaifah, E. (2017). Testing the spillover and crossover effect of work-family interference on the personal and family domain among families with work separation. In *Trends and Issues in Interdisciplinary Behavior and Social Science* (pp. 175–182). CRC Press. <https://doi.org/10.1201/9781315269184-29>