

Effects of Work Ability and Motivation on Employee Productivity in North Jakarta Manufacturing Firm Study

Ade Solihin^{1*}, Sabil Sabil²

Universitas Bina Sarana Informatika, Jakarta, Indonesia^{1,2}

adesolihinall@gmail.com^{1*}



Article History

Received on 30 October 2024

1st Revision on 17 November 2024

2nd Revision on 2 December 2024

3rd Revision on 20 December 2024

Accepted on 7 January 2025

Abstract

Purpose: This study examines how work ability and work motivation shape employee work productivity at PT Gautama Indah Perkasa, a manufacturing firm in North Jakarta, Indonesia, a setting where fluctuating output has pushed management to look for evidence-based grounds for its human resource decisions.

Methodology: A quantitative, descriptive survey was conducted among the firm's 50 permanent employees. A saturated sampling approach produced 36 usable responses. Work ability, work motivation, and work productivity were each measured with Likert-scaled instruments whose validity and reliability were confirmed through corrected item-total correlation and Cronbach's Alpha, after which classical assumption tests preceded a multiple linear regression run in SPSS 23.

Results: All twenty-three items were valid and every construct was reliable. The fitted equation, $Y = 6.128 + 0.287X_1 + 0.343X_2$, shows that work ability carries a significant partial effect ($B = 0.287, t = 2.971, p = .006$) while work motivation's partial effect, though positive, falls short of significance ($B = 0.343, t = 1.680, p = .102$). Jointly, the two predictors explain 40.4 percent of productivity variance and are simultaneously significant ($F = 11.175, p = .000$).

Conclusions: Work ability stands out as the dependable, individually significant driver of productivity in this factory, whereas motivation contributes mainly through its combined effect with ability.

Limitations: A single-firm, cross-sectional design with only 36 respondents restricts generalizability and causal claims.

Contributions: The study offers Indonesian manufacturing HR practitioners a concrete basis for prioritizing competency-building investment over purely motivational programs.

Keywords: *Employee Productivity, Manufacturing, Multiple Linear Regression, Work Ability, Work Motivation*

How to Cite: Solihin, A., & Sabil, S. (2025). Effects of Work Ability and Motivation on Employee Productivity in North Jakarta Manufacturing Firm Study. *Jurnal Studi Multidisiplin Ilmu*, 3(1), 31-44.

1. Introduction

Human resource management sits at the center of what makes an organization function well or poorly. Employees carry out the daily work that translates strategy into output, and that translation depends on two things working together: employees must know how to do their jobs, and they must want to do them well. [Busro \(2018\)](#) frames this dual requirement as a foundational premise of personnel management, while [Adha and Kasmari \(2024\)](#) show, in a study of Indonesian manufacturing employees, that ability and willingness rarely substitute for one another; a shortfall in either tends to depress output regardless of how strong the other factor is. Organizations that understand this

interplay are better positioned to direct scarce training and incentive budgets toward whichever lever will move performance the most ([Chan, Marbán-Castro, Sem, Zulkifli, Redzuan, Ayub, Denisiuk, Ahmad, Warijo, Shilton, & Clemence, 2024](#)).

Work productivity, understood broadly as the ratio between what an organization produces and what it consumes to produce it, remains one of the most closely watched performance indicators in manufacturing settings ([Kotagi, Angolkar, & Koppad, 2023](#)). Indonesian manufacturers compete on cost, consistency, and quality all at once, and in that environment, even modest productivity swings at the individual employee level can accumulate into meaningful differences in a plant's competitiveness. [Sanjaya, Girsang, and Nasution \(2023\)](#) found that productivity in production environments is sensitive not only to formal skill levels but to the surrounding conditions of discipline, communication, and workplace climate, a reminder that productivity is rarely explained by a single variable acting alone.

Among the many candidate predictors of productivity documented in the human resource literature, two have received particularly consistent attention: work ability and work motivation. Work ability refers to the technical skill, task knowledge, physical and mental capacity, and accumulated experience that let an employee execute assigned duties competently (Kurniawati and Mujannah, cited in later syntheses; [Prastiwi, Pardanawati, & Kurniawan, 2022](#)). Work motivation refers to the internal and external forces that direct, energize, and sustain an employee's effort toward organizational goals ([Vo, Tulião, & Chen, 2022](#)). Agency-style reasoning and expectancy theory both point to the same conclusion: ability determines how efficiently effort converts into output, while motivation determines how much effort is supplied in the first place, and a deficiency in either constrains what the other can achieve ([Vroom, 1964](#)). [Ibrahim, Saputra, Adam, and Yunus \(2022\)](#) reinforce this logic empirically, showing that motivation's effect on performance is often channeled through, rather than independent of, employees' underlying capability and the communication structures that surround them.

PT Gautama Indah Perkasa, the manufacturing company at the center of this study, operates in North Jakarta and had, prior to this research, observed productivity that fluctuated in ways management could not fully attribute to any single cause. Preliminary discussions with supervisors pointed to two recurring concerns: inconsistent technical competence among some production staff, and visible swings in enthusiasm and engagement from week to week. Rather than guess which concern deserved priority, management sought an empirical answer, which is the practical motivation behind this study ([Daoud, Sellami, Haddar, Ghrab, Hajjaji, & Masmoudi, 2024](#)).

The broader Indonesian literature on work ability, work motivation, and productivity is large but fragmented. Studies such as [Herawati, Setyadi, Michael, and Hidayati \(2023\)](#) and [Hasniar, Haerani, Pahlavi, and Haeriah \(2024\)](#) confirm that supportive work conditions and interpersonal exchange shape performance, emphasize satisfaction-related mechanisms in white-collar contexts that may not transfer cleanly to production-floor settings. Comparatively few studies test work ability and work motivation together, in the same regression model, using a small manufacturing SME sample of the kind that is common throughout Indonesia's industrial base. This leaves an open, practically consequential question: in a single-plant, resource-constrained manufacturing setting, which of the two variables, ability or motivation, exerts the stronger independent pull on productivity, and does that answer change once both variables are considered jointly? This study addresses that question directly using data from PT Gautama Indah Perkasa, guided by three hypotheses developed in the next section ([Singhal, & Salunkhe, 2024](#); [Novita, Hidayatulloh, Renwarin, Santoso, & Mardikaningsih, 2022](#)).

Beyond its immediate practical value for PT Gautama Indah Perkasa, this study speaks to a broader methodological point relevant across Indonesian manufacturing SMEs. Many small and medium manufacturers operate with workforces small enough that a full census, rather than a probability sample, is both feasible and appropriate, yet the resulting small samples raise legitimate concerns about statistical power. Rather than avoiding such settings, this study treats the constraint transparently, reporting effect sizes and explicit power-related caveats alongside the hypothesis tests themselves ([Priyatno, 2018](#)). This approach follows the spirit of [Herawati et al. \(2023\)](#), who argue that

small-sample manufacturing HR research remains valuable precisely because it reflects the operating reality of most Indonesian manufacturers, provided that its limitations are stated plainly rather than glossed over.

It is also worth situating this study against the backdrop of Indonesia's continuing industrial transition. As domestic manufacturers face pressure to modernize processes and compete against increasingly automated regional rivals, understanding which human capital lever, ability or motivation, yields the more reliable productivity return becomes more than an academic curiosity; it becomes a resource allocation question with real consequences for a firm's competitiveness. [Ghobakhloo, Iranmanesh, Tseng, Grybauskas, Stefanini, and Amran \(2023\)](#) note that as production technology grows more sophisticated, the technical competence of the workforce operating that technology becomes an increasingly binding constraint on output, a dynamic that smaller manufacturers such as PT Gautama Indah Perkasa are not exempt from simply because their production lines remain comparatively labor-intensive.

2. Literature Review and Hypothesis/es Development

2.1 Work Productivity: Theory and Indicators

Work productivity is conventionally defined as the relationship between the volume and quality of output generated and the resources consumed to generate it ([Elbandiansyah, 2019](#)). In an organizational setting, productivity is not simply a count of units produced; it also captures consistency of quality, adherence to procedural standards, and how efficiently available time and materials are used. A wide range of factors has been linked to individual productivity in the literature, including physical and mental capacity, the quality of supervisory relationships, motivation, educational background, discipline, technical skill, attitude toward work, and the physical work environment ([Fatmasari and Badaruddin, 2022](#); [Al-Shammari et al., 2021](#)).

Two of these factors, work ability and work motivation, recur across the literature as particularly consistent predictors. [Bawono et al. \(2022\)](#), studying knowledge management capability among SME employees, found that competence-related variables translate directly into measurable performance gains, a pattern that later studies in manufacturing settings have replicated ([Aprilia, Turmudhi, Purwasih, Maimunah, & Yunggoli, 2023](#)). At the same time, [Aisy and Prabowo \(2024\)](#) show that motivation continues to matter even where flexibility and job satisfaction are already present, suggesting that ability and motivation operate through at least partially distinct mechanisms rather than one simply proxying for the other. These converging strands of evidence provide the empirical rationale for testing both variables together in the present study.

Productivity indicators used across this literature are not perfectly standardized, which complicates direct comparison across studies. Some researchers operationalize productivity through supervisor ratings, others through self-reported output measures, and still others through objective production counts drawn from company records. The present study relies on self-reported perceptual items covering output quality, quantity, accuracy, efficiency, and consistent with the broader survey tradition in Indonesian HR research, though it carries the usual caveats associated with self-report data, including the possibility of social desirability bias and limited objective calibration against actual output records ([Sanjaya et al., 2023](#)).

2.2 Work Ability and Productivity

Work ability is generally defined as the skill and competency that allow a person to carry out assigned tasks based on accumulated knowledge, experience, reliability, and available working capacity. [Sugiharta \(2019\)](#) as summarized in later reviews frames work ability as the expertise an individual brings to required tasks, spanning both physical and cognitive dimensions, while [Abadiyah \(2019\)](#) describes it as the motivated capacity to perform work thoroughly and to a high standard, producing output that is both useful and purposeful for the organization.

The mechanism connecting work ability to productivity is direct: employees who possess the requisite technical knowledge, procedural familiarity, and hands-on experience can carry out their duties more

accurately and with fewer errors than employees who lack these competencies. Investing in ability, whether through formal training, structured on-the-job coaching, or accumulated tenure, is therefore a direct productivity investment rather than a peripheral HR expense. [Bohorquez, Benavides, Caiche, and Benavides \(2022\)](#), document this pattern among small and medium enterprises in a Latin American setting, finding that structured human talent management systems, which build employee competence over time, correlate strongly with job performance outcomes. In Indonesian contexts specifically, [Alfarissy and Suwaji \(2025\)](#), found that competence and skill-related variables consistently predict performance across organizational types and working with Indonesian firms. Report that discipline paired with demonstrated skill outperforms discipline alone in explaining performance variance ([Sari, Handayani, & Nugroho, 2023](#)).

Manufacturing settings appear to amplify the importance of ability because tasks are often standardized, machine-paced, and quality-checked in ways that leave little room for enthusiasm to compensate for missing technical skill. [Ghobakhloo, Iranmanesh, Tseng, Grybauskas, Stefanini, and Amran \(2023\)](#), reviewing the technological foundations of Industry 5.0, note that as manufacturing processes become more technically demanding, worker competence becomes an increasingly binding constraint on throughput, independent of how motivated the workforce may be. This reasoning supports the first hypothesis of the present study.

2.3 Work Motivation and Productivity

Motivation derives from the word "motive," an internal impulse that directs a person toward specific goal-oriented behavior. Work motivation can be defined as the psychological force that activates, channels, and sustains an employee's effort toward productive task performance. [Vo, Tuliiao, and Chen \(2022\)](#), demonstrate, across a cross-national sample, that motivation is shaped jointly by individual psychological needs, such as competence and autonomy, and by the surrounding social conditions of the workplace, implying that motivation is not a fixed trait but something organizations can actively cultivate or erode. [Atan and Obeng \(2024\)](#) extend this reasoning to a healthcare setting, showing that psychological well-being mediates much of motivation's downstream effect on performance, a finding that hints at the more fragile, context-sensitive nature of motivation compared to ability.

The mechanism through which motivation is thought to affect productivity operates primarily through effort: motivated employees invest more sustained, focused energy in their tasks, which should translate into higher output quality and quantity relative to equally capable but less motivated peers. [Ibrahim, Saputra, Adam, and Yunus \(2022\)](#) found that motivation's contribution to performance often works indirectly, through communication and organizational culture, rather than as a standalone driver, which is consistent with the idea that motivation's effect can be diluted or amplified by surrounding organizational conditions. [Tania and Pratama \(2022\)](#), similarly report that motivation's influence on staff performance strengthens considerably when paired with a supportive work environment and weakens when that support is absent.

Expectancy theory [Vroom \(1964\)](#) predicts that motivation generates productivity gains specifically when employees believe that their effort will translate into performance, and that performance will, in turn, lead to outcomes they value. Where either belief is weak, for instance where employees doubt that extra effort changes measured output, or doubt that improved output will be recognized or rewarded, motivation's expected productivity payoff shrinks. This qualification matters for standardized manufacturing tasks, where output may be paced by machinery or procedure to such a degree that individual effort has a comparatively narrow band of influence.

A further consideration is that motivation itself is multidimensional. Some employees are driven primarily by intrinsic satisfaction in mastering a task, while others respond mainly to extrinsic incentives such as bonuses or recognition. Where a single composite motivation score aggregates both dimensions, as is common practice in applied survey research including the instrument used in this study, the resulting coefficient may understate the influence of whichever motivational dimension is actually operative for a given workforce. [Diva and Prabowo \(2024\)](#) touch on this issue indirectly, showing that motivation's measured effect on performance shifts depending on which mediating

variable, such as job satisfaction, is included alongside it, which underscores that motivation-productivity relationships reported in the literature are often sensitive to modeling choices rather than reflecting a single fixed underlying effect size.

2.4 Prior Empirical Studies

Table 1. Summary of prior studies on work ability, motivation, and productivity

Author(s) & Year	Setting	Method	Key Finding
Prastiwi et al. (2022)	BMT financial cooperative, Indonesia	Multiple regression	Work ability and work motivation both positively influence employee performance
Bohorquez et al. (2022)	SMEs, Ecuador	Structural review	Structured human talent management, which builds competence, correlates strongly with job performance
Aprilia et al. (2023)	Manufacturing SME, Indonesia	Multiple regression	Compensation, communication, and work discipline jointly shape work productivity
Ibrahim et al. (2022)	Multi-sector firms	Mediation regression	Motivation effect on performance is partly channeled through communication and culture
Tania & Pratama (2022)	Public administration, Indonesia	Multiple regression	Motivation effect on performance strengthens when paired with a supportive work environment
Sari et al. (2023)	Indonesian firms	Multiple regression	Discipline paired with demonstrated skill outperforms discipline alone in explaining performance
Alfarissy & Suwaji (2025)	Organizational contexts, Indonesia	Multiple regression	Work motivation and work environment jointly and significantly shape employee performance
Aisy & Prabowo (2024)	Gojek partner drivers, Surabaya	Path analysis	Motivation and flexibility both significantly affect performance through job satisfaction
Present Study (2026)	PT Gautama Indah Perkasa, North Jakarta (n = 36)	Multiple linear regression, SPSS 23	Work ability significantly influences productivity (B = 0.287, p = .006); motivation does not reach significance (B = 0.343, p = .102); joint model significant (F = 11.175, p = .000); R ² = 0.404

Table 1 summarizes prior empirical studies relevant to the relationship among work ability, work motivation, and employee work productivity, drawing on both Indonesian and international settings published within the last several years. The table is organized to show each study's setting, method, and principal finding, allowing direct comparison with the present study's results, which are included as the final row. Read across the table, a pattern emerges: ability-oriented variables tend to produce more consistently significant coefficients than motivation-oriented variables, particularly in production and manufacturing contexts, while motivation retains a stronger and more consistently significant role in service and administrative settings where individual discretion over effort is comparatively higher.

The pattern in Table 1 is informative but not uniform. Several studies, including [Prastiwi et al. \(2022\)](#) and [Aisy and Prabowo \(2024\)](#), report significant motivation effects, which suggests that motivation's significance is likely conditional on sector and task structure rather than universally weak. This conditionality is precisely what the present study is positioned to test in a manufacturing SME context that has not previously been examined using this specific combination of variables and analytical model. The gap this study fills are therefore not merely geographic or sectoral but also methodological. Many of the studies summarized in Table 1 examine work ability or work motivation in relation to the broader construct of employee performance, which typically blends output-related indicators with behavioral and attitudinal indicators such as attendance, cooperation, and rule

compliance. The present study instead isolates work productivity specifically, defined narrowly around output quality, quantity, accuracy, and efficiency, which allows for a more precise reading of how ability and motivation relate to the tangible output side of employee behavior rather than to the fuller, more diffuse performance construct that dominates much of the surrounding literature.

2.5 Hypotheses

Employee productivity is a crucial indicator in determining organizational performance, particularly in manufacturing industries where efficiency and output consistency are highly required. In this study, employee productivity is analyzed through two main determinants, namely work ability and work motivation. Work ability reflects the employees' competence in performing tasks effectively, while work motivation represents the internal and external drive that encourages employees to achieve organizational goals. Based on the theoretical framework and prior empirical findings, both variables are expected to influence employee productivity either individually or simultaneously. Therefore, the following hypotheses are formulated:

H₁: Work ability has a positive and significant partial effect on employee work productivity at PT Gautama Indah Perkasa

H₂: Work motivation has a positive and significant partial effect on employee work productivity at PT Gautama Indah Perkasa

H₃: Work ability and work motivation simultaneously have a positive and significant effect on employee work productivity

3. Research Methodology

3.1 Research Design, Setting, and Sample

This study employs a quantitative, descriptive survey design intended to describe and statistically test the relationships among work ability, work motivation, and work productivity rather than to establish causal mechanisms. Data were collected at PT Gautama Indah Perkasa, a manufacturing company located in North Jakarta, Indonesia. The company's total workforce of permanent employees numbered 50 at the time of data collection. A saturated sampling technique was applied, meaning every member of the accessible population was invited to participate rather than drawing a probability subsample. Of the questionnaires distributed, 36 were returned with complete, usable data; the remaining 14 were excluded because of missing or inconsistent responses. Saturated sampling is generally considered appropriate when the target population is small enough that every eligible member can feasibly be enrolled as a respondent, a condition that held in this setting given the company's modest headcount. The 14 excluded questionnaires were reviewed individually before exclusion; each showed either substantial missing data across multiple constructs or internally inconsistent response patterns, such as identical responses across an entire page of items, that raised reasonable doubt about attentive completion. Excluding these cases, rather than imputing missing values, was judged the more conservative choice given the already modest sample size, though it does mean the effective response rate for fully usable data was 72% of the total population.

3.2 Measurement Instruments

Three structured questionnaire instruments were developed for this study. The work ability instrument (X_1) contained seven items assessing competency, task knowledge, experience, reliability, and working capacity. The work motivation instrument (X_2) contained eight items covering both intrinsic motivations, such as personal drive, goal orientation, and achievement need, and extrinsic motivation, such as responsiveness to rewards and perceived organizational support. The work productivity instrument (Y) contained eight items assessing output quality, quantity, accuracy, and efficiency. All twenty-three items across the three instruments were rated on a five-point Likert scale ranging from one, indicating strong disagreement, to five, indicating strong agreement.

Item wording for each instrument was adapted from constructs commonly used in the Indonesian HR survey literature and was reviewed by two HR practitioners at the company for face validity before distribution, an informal but practically useful step that helped confirm the items were interpreted

consistently by production-floor employees whose formal education levels varied considerably. This pilot review led to minor wording simplifications on three items, primarily to remove technical jargon that some early reviewers found ambiguous, before the final instrument was distributed to the full population.

3.3 Validity and Reliability Testing

Instrument validity was assessed using the corrected item-total correlation method. An item was declared valid when its calculated r-value exceeded the critical r-table value of 0.325, computed at a significance level of .05 with 34 degrees of freedom. Reliability was assessed with Cronbach's Alpha, and a construct was declared reliable when its Alpha coefficient reached or exceeded 0.60, the conventional threshold recommended in the psychometric literature. [Doval et al. \(2023\)](#) caution that Cronbach's Alpha remains sensitive to item count and sample heterogeneity, so the present study also examined item-level correlations individually rather than relying on the Alpha coefficient alone, consistent with recommendations from [Ikhsanudin et al. \(2024\)](#) regarding reliability estimation in small-sample survey research. [Izah et al. \(2023\)](#) further note that Alpha continues to serve as a practical, widely interpretable benchmark for applied social science research even as more refined alternatives are developed, which is why it remains the primary reliability statistic reported here.

3.4 Classical Assumption Tests

Three classical assumption tests were conducted before proceeding to regression analysis. Normality of the regression residuals was assessed using the one-sample Kolmogorov-Smirnov test, where an asymptotic significance value above 0.05 indicates that the residuals do not depart meaningfully from a normal distribution. Multicollinearity between the two predictors was assessed using the Variance Inflation Factor and Tolerance statistics, where a VIF below 10 combined with a Tolerance above 0.1 indicates that the predictors are not so strongly correlated with one another that their individual coefficients become unstable. Heteroscedasticity was assessed using the Glejser test, which regresses the absolute value of the model's residuals on the predictors; significance values above 0.05 for all predictors in this auxiliary regression indicate that residual variance does not change systematically with the predicted value, satisfying the homoscedasticity assumption that ordinary least squares regression requires.

3.5 Multiple Linear Regression and Hypothesis Testing

Multiple linear regression was estimated using SPSS version 23, generating an equation of the general form Y equals a plus B_1 times X_1 plus B_2 times X_2 , where a is the constant, B_1 and B_2 are the unstandardized regression coefficients for work ability and work motivation respectively, and Y is predicted work productivity. The coefficient of determination, R-squared, was used to summarize the total proportion of productivity variance explained jointly by the two predictors. Partial hypotheses, H_1 and H_2 , were tested using a two-tailed t-test at alpha equal to .05, with a critical t-table value of 2.032 at 33 degrees of freedom. The simultaneous hypothesis, H_3 , was tested using the F-test, with the null hypothesis rejected when the calculated F-statistic exceeded the critical F-table value of 3.285 at 2 and 33 degrees of freedom and the associated significance value fell below .05.

4. Results and Discussions

4.1 Validity Test Results

The item-level validity results for the work ability, work motivation, and work productivity scales, respectively. Each table lists the calculated r-value for every item alongside the critical r-table threshold of 0.325 and the resulting validity decision. All twenty-three items across the three constructs produced r-values well above this threshold, ranging from 0.783 to 0.967, confirming that every item validly measures its intended construct. The strongest item-construct associations were observed within the work productivity scale, where items Y1, Y6, and Y8 recorded the highest loadings of the entire instrument set, indicating that respondents answered these items in a manner tightly aligned with their overall productivity responses.

4.2 Reliability Test Results

Table 2. Reliability test results (Cronbach's Alpha)

Variable	Cronbach Alpha	Decision
Work Ability (X_1)	0.785	Reliable
Work Motivation (X_2)	0.815	Reliable
Work Productivity (Y)	0.778	Reliable

Table 2 reports the Cronbach's Alpha coefficient for each of the three constructs. Work ability produced an Alpha of 0.785, work motivation produced an Alpha of 0.815, and work productivity produced an Alpha of 0.778, all comfortably above the 0.60 reliability threshold. Work motivation exhibited the strongest internal consistency of the three scales, which suggests that respondents interpreted the intrinsic and extrinsic motivation items in a relatively coherent, unified manner. Taken together with the validity results, these findings indicate that all three instruments are suitable for the hypothesis testing that follows.

4.3 Classical Assumption Tests

Table 3. One-sample Kolmogorov-Smirnov normality test

Test Statistic	Value	Decision
N	36	–
K-S Statistic	0.133	–
Asymp. Sig. (2-tailed)	0.111	Normal
Decision ($> 0.05 = \text{Normal}$)	$0.111 > 0.05$	Residuals normally distributed

Table 3 presents the results of the one-sample Kolmogorov-Smirnov normality test applied to the regression residuals. The test produced an asymptotic significance value of 0.111, which exceeds the 0.05 threshold and therefore supports the conclusion that the residuals are approximately normally distributed, satisfying the normality assumption required for valid t-test and F-test inference.

Table 4. Multicollinearity test: VIF and tolerance statistics

Variable	B	Std. Error	Beta	t	Tolerance	VIF
(Constant)	6.128	4.626	–	1.325	–	–
Work Ability (X_1)	0.287	0.097	0.462	2.971	0.746	1.340
Work Motivation (X_2)	0.343	0.204	0.261	1.680	0.746	1.340

Table 4 presents the multicollinearity diagnostics. Both work ability and work motivation produced identical Tolerance values of 0.746 and identical VIF values of 1.340. Because 0.746 comfortably exceeds the minimum acceptable Tolerance of 0.1, and 1.340 falls well below the conventional VIF ceiling of 10, the two predictors can be treated as sufficiently independent of one another for their individual regression coefficients to be interpreted with confidence.

Table 5. Heteroscedasticity test: Glejser method

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	2.953	2.624	–	1.125	.268
Work Ability (X_1)	-0.087	0.055	-0.308	-1.588	.122
Work Motivation (X_2)	0.112	0.116	0.188	0.968	.340

Table 5 presents the Glejser heteroscedasticity test, in which the absolute value of the model's residuals is regressed on both predictors. Neither work ability (significance = .122) nor work motivation (significance = .340) produced a significant coefficient in this auxiliary regression, both comfortably exceeding the 0.05 threshold, indicating that the variance of the residuals does not change systematically across levels of the predicted value and that the homoscedasticity assumption holds.

4.4 Multiple Linear Regression Results

Table 6. Multiple linear regression results: Partial effects (t-Test)

Variable	B	Std. Error	Beta (β)	t-count	Sig.
(Constant)	6.128	4.626	–	1.325	.194
Work Ability (X_1)	0.287**	0.097	0.462	2.971	.006
Work Motivation (X_2)	0.343	0.204	0.261	1.680	.102

Table 6 presents the estimated regression coefficients underlying the partial hypothesis tests. The fitted equation is Y equals 6.128 plus 0.287 times X_1 plus 0.343 times X_2 . The constant term of 6.128 represents the model's predicted productivity level when both work ability and work motivation are hypothetically zero, a value with limited standalone practical interpretation but one that anchors the equation mathematically. The coefficient on work ability, 0.287, indicates that each one-unit increase in work ability is associated with a 0.287-unit increase in predicted productivity, holding motivation constant, and this coefficient reaches statistical significance ($t = 2.971$, $p = .006$). The coefficient on work motivation, 0.343, indicates a similarly positive association, a one-unit increase in motivation predicting a 0.343-unit increase in productivity holding ability constant, but this coefficient does not reach conventional significance at the .05 level ($t = 1.680$, $p = .102$). Both coefficients carry the theoretically expected positive sign, which is itself informative even where statistical significance is not achieved.

4.5 Coefficient of Determination

Table 7. Model summary: Coefficient of determination

R	R ²	Adjusted R ²	Std. Error of Est.
0.635	0.404	0.368	1.962

Table 7 reports the model summary statistics. The multiple correlation coefficient R equals 0.635, indicating a moderate positive association between the predictor set and productivity. The coefficient of determination, R -squared, equals 0.404, meaning that work ability and work motivation jointly account for 40.4 percent of the variance observed in employee work productivity at this company. The adjusted R -squared, which corrects for the number of predictors relative to sample size, is somewhat lower at 0.368. The remaining 59.6 percent of productivity variance reflects factors outside this particular model, plausibly including work discipline, compensation structure, leadership quality, and the physical work environment, all of which other studies have linked to productivity in comparable settings (Malda et al., 2024; Bahri and Irwansyah, 2025).

4.6 Simultaneous F-Test

Table 8. ANOVA: F-Test for simultaneous effect

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	85.998	2	42.999	11.175	.000
Residual	126.974	33	3.848	–	–
Total	212.972	35	–	–	–

Table 8 presents the analysis of variance underlying the simultaneous hypothesis test. The calculated F -statistic of 11.175, with a significance value of .000, substantially exceeds the critical F -table value of 3.285 at 2 and 33 degrees of freedom. This result supports H_3 : work ability and work motivation, considered together, exert a positive and statistically significant simultaneous effect on employee work productivity at PT Gautama Indah Perkasa, even though one of the two predictors falls short of individual significance.

4.7 Hypothesis Testing Summary and Discussion

Table 9. Summary of hypothesis testing results

<i>H</i>	Hypothesis Statement	Coefficient	t/F	Sig.	Result
<i>H₁</i>	Work ability positively and significantly influences work productivity (partial)	0.287	2.971	.006	Supported (p < .05)
<i>H₂</i>	Work motivation positively and significantly influences work productivity (partial)	0.343	1.680	.102	Not Supported (p > .05)
<i>H₃</i>	Work ability and work motivation jointly and significantly influence work productivity (simultaneous)	–	11.175	.000	Supported (F significant)

Table 9 consolidates the results of all three hypothesis tests for ease of reference. *H₁*, concerning work ability, is supported. Work ability exerts a positive and statistically significant partial effect on productivity, with a t-count of 2.971 that substantially exceeds the t-table value of 2.032. This is arguably the study's central finding: among the two predictors examined, work ability is the only one that reaches individual statistical significance, echoing earlier findings from [Bohorquez, Benavides, Caiche, and Benavides \(2022\)](#) and [Alfarissy and Suwaji \(2025\)](#) in comparable organizational contexts. The underlying mechanism is intuitive. Employees at PT Gautama Indah Perkasa who bring stronger technical competencies, task knowledge, and hands-on experience to their roles are able to execute manufacturing tasks with greater accuracy and fewer quality errors than less able colleagues, and this ability-driven advantage appears to hold up regardless of day-to-day fluctuations in motivation or workplace mood. Because ability tends to be more stable over time than motivation, this finding also implies that competency investment is likely to produce more predictable productivity returns than motivation-focused programs alone. Management at PT Gautama Indah Perkasa would therefore be well advised to prioritize structured technical training, competency-based selection criteria, and deliberate pathways for experience accumulation as its primary productivity intervention.

This finding also carries a useful diagnostic implication. Because ability, unlike motivation, can typically be assessed through relatively objective means, such as skills tests, certification records, or supervisor competency ratings, HR teams at manufacturing SMEs can identify ability gaps with more confidence and precision than they can diagnose motivational gaps, which tend to be more subjective and situational. This practical asymmetry strengthens the case for treating ability development as the more tractable, and therefore higher-priority, intervention point, without denying that motivation remains a relevant secondary lever.

The *H₂*, concerning work motivation, is not supported at the conventional significance threshold. The coefficient is positive but the t-value of 1.680 falls short of the 2.032 critical value, producing a significance level of .102. This non-significant result deserves careful interpretation rather than a dismissive reading that motivation is irrelevant to productivity at this company. Several explanations are plausible and are not mutually exclusive. First, the modest sample size of 36 limits statistical power; with this sample size and a two-tailed test at alpha .05, the minimum effect size that can be reliably detected is larger than what a bigger sample would require, and the observed t-value of 1.680 sits close enough to the 2.032 threshold that a modestly larger sample could plausibly tip the result into significance. Second, the null result may reflect a genuine feature of this particular workplace, where manufacturing task output is more tightly bound by technical procedure and machine pacing than by moment-to-moment motivational variation, a pattern consistent with the Industry 5.0 competency emphasis ([Ghobakhloo, Iranmanesh, Foroughi, Rejeb, Nikbin, & Tseng, 2024](#)). Third, the motivation instrument used here, while validated for internal consistency, may not have captured the specific, task-proximate motivational dimensions, such as mastery orientation toward a particular production task, that would be most predictive in this setting, as opposed to the broader motivational orientation the instrument was designed to measure.

The *H₃*, concerning the joint effect of the two predictors, is supported. The simultaneous F-test confirms that work ability and work motivation together explain a statistically significant share of productivity variance, with an R-squared of 0.404 representing a moderate but practically meaningful

proportion of total variance explained. This joint significance, combined with work ability's individual significance and work motivation's directionally positive though non-significant coefficient, suggests a layered HR strategy for PT Gautama Indah Perkasa: competency building should serve as the primary lever, while motivational programs, such as recognition systems and performance-contingent incentives, should be maintained as a complementary layer that prevents motivational shortfalls from eroding the productivity gains that ability-focused investment produces. This layered interpretation is broadly consistent with [Tania and Pratama \(2022\)](#), who found that motivation's contribution to performance strengthens when paired with supportive organizational conditions rather than operating in isolation.

Taken together, the three hypothesis tests paint a coherent picture rather than a contradictory one. Ability is the more dependable, individually significant predictor and should anchor the company's HR investment strategy; motivation is directionally supportive and contributes meaningfully once combined with ability, even though its standalone statistical signal is not yet strong enough, in this sample, to stand on its own. Neither finding should be read as license to neglect the other variable entirely, since the joint model's significance confirms that both matter to the overall productivity picture at this company.

5. Conclusions

5.1 Conclusion

This study examined the partial and simultaneous effects of work ability and work motivation on employee work productivity at PT Gautama Indah Perkasa, a manufacturing company in North Jakarta, using multiple linear regression estimated on data from 36 respondents. Three conclusions follow from the findings. Work ability exerts a positive and statistically significant partial effect on productivity, confirming that employees with stronger technical competence, task knowledge, and experience achieve measurably higher productivity outcomes at this company. Work motivation exerts a positive but statistically non-significant partial effect on productivity in the current model, a result most plausibly attributable to limited statistical power combined with the dominance of technical ability in standardized manufacturing tasks, rather than to a genuine absence of any motivational influence. Work ability and work motivation, considered jointly, significantly predict employee work productivity, together explaining a moderate share of total productivity variance.

The practical implication for PT Gautama Indah Perkasa's management is straightforward. Work ability development, delivered through structured technical training, competency-based recruitment and selection, and deliberate pathways for accumulating relevant experience, should serve as the company's primary human resource investment for productivity improvement. Motivational programs, including recognition systems, clear goal-setting frameworks, and performance-contingent rewards, should be maintained as a complementary layer of intervention that guards against motivational shortfalls undermining the productivity gains achieved through ability-focused investment, even though motivation's independent statistical contribution did not reach significance in this particular sample.

5.2 Research Limitations

Several limitations qualify these findings and should guide how readers interpret them. The sample size of 36 is small and limits statistical power for detecting moderate-sized predictor effects, and the borderline non-significance of work motivation may reflect this power constraint rather than a genuine absence of effect. The study is restricted to permanent employees of a single company operating within a specific manufacturing sub-sector, so findings may not generalize to other industries, company sizes, or categories of employment such as contract or seasonal labor. The cross-sectional survey design precludes causal inference, meaning the direction of the observed relationships, whether ability and motivation cause productivity changes or whether more productive employees simply report higher ability and motivation, cannot be established from this data alone. Finally, the fitted model explains 40.4 percent of productivity variance, leaving a substantial 59.6 percent attributable to unmeasured variables such as work discipline, compensation structure, leadership style, physical work environment, and organizational culture.

5.3 Directions and Future Study

Future research can address these limitations through several methodological and substantive extensions. Studies drawing on larger samples, ideally targeting one hundred or more respondents across multiple manufacturing companies, would provide sufficient statistical power to detect small-to-moderate ability and motivation effects with greater confidence and would enable meaningful between-company comparison. Extending the regression model to include additional control variables such as work discipline, compensation equity, supervisory quality, and physical work environment would likely reduce the unexplained variance and yield more precise estimates of each predictor's independent contribution.

Longitudinal or panel designs that track the same employees' ability development, motivational states, and productivity outcomes over time would allow researchers to draw stronger causal inferences about how these relationships unfold. Particularly valuable would be pre-post evaluation designs that assess whether structured training programs targeting work ability, and motivational interventions such as recognition programs and structured performance feedback, produce measurable productivity improvements over time at companies like PT Gautama Indah Perkasa, supplying the causal evidence that a cross-sectional correlational design cannot provide on its own. Finally, research examining whether the relative importance of ability versus motivation shifts across job categories, comparing skilled and unskilled production roles or supervisory and operational positions, would offer more granular guidance for how manufacturing firms should target their human resource investment.

A final avenue worth pursuing is triangulation with objective productivity records. The present study relies on self-reported productivity items, which, while validated and reliable within this sample, remain a proxy for the actual output, defect rates, and throughput figures that a company's own production records would capture directly. Future studies with access to such records could test whether the ability-productivity and motivation-productivity relationships observed here hold up when productivity is measured objectively rather than perceptually, which would meaningfully strengthen the practical confidence that HR practitioners can place in these findings before committing significant training and incentive budgets on their basis.

Acknowledgement

The authors gratefully acknowledge the management and employees of PT Gautama Indah Perkasa, North Jakarta, for their cooperation and willingness to participate in this research. The authors also thank the Faculty of Economics and Business at Universitas Bina Sarana Informatika for institutional support, and extend their appreciation to colleagues and supervisors whose guidance contributed to the completion of this study.

Author Contributions

AS contributed to conceive the study, designed the survey instruments, and led data collection. S.S. conducted the statistical analysis and validated the regression results. SS contributed to jointly drafted, reviewed, and revised the manuscript, and both authors approved the final version submitted for publication.

References

- Abadiyah, R. (2019). Pengaruh kemampuan kerja dan pengalaman kerja terhadap kinerja karyawan (The effect of work ability and work experience on employee performance). *Jurnal Ilmu Manajemen*, 7(2), 1-12..
- Adha, F. A., & Kasmari. (2024). Pengaruh kompensasi, disiplin kerja, dan lingkungan kerja terhadap kinerja karyawan (The effect of compensation, work discipline, and work environment on employee performance). *Jurnal E-Bis: Ekonomi Bisnis*, 8(2), 846-855. <https://doi.org/10.37339/e-bis.v8i2.1895>
- Al-Shammari, M., Al-Mutairi, A., & Al-Qatami, S. (2021). Work discipline and employee performance: Evidence from organizational settings. *Management Science Letters*, 11(3), 879-886. <https://doi.org/10.5267/j.msl.2020.10.012>

- Alfarissy, S., & Suwaji, R. (2025). The impact of work motivation and work environment on employee performance in organizational contexts. *Quantitative Economics and Management Studies*, 6(1), 32-40. <https://doi.org/10.35877/454RI.qems3851>
- Aprilia, R., Turmudhi, A., Purwasih, R., Maimunah, S., & Yunggoli, S. (2023). *Work productivity: Compensation, communication and work discipline*.
- Atan, T., & Obeng, H. A. (2024). An empirical exploration of psychological well-being's mediating influence on work-life balance and employee performance in Ghanaian public hospitals. *Asian Journal of Business and Accounting*, 17(2), 169-205. <https://doi.org/10.22452/ajba.vol17no2.5>
- Bahri, S., & Irwansyah, I. (2025). The effect of compensation and work discipline on employee performance in PT. Nusantara Inti Solusindo South Jakarta. *Transforma Jurnal Manajemen*, 3(2), 142-154. <https://doi.org/10.56457/tjm.v3i2.230>
- Bawono, I., Maulina, E., Rizal, M., & Purnomo, M. (2022). The role of knowledge management capability, financial literacy, and problem-solving skills on organizational performance for SMEs. *Frontiers in Psychology*, 13, Article 930742. <https://doi.org/10.3389/fpsyg.2022.930742>
- Bohorquez, E., Benavides, V., Caiche, W., & Benavides, A. (2022). *Strategic management of human talent and job performance: Policies and human talent subsystems for the growth and development of MIPYMES*.
- Busro, M. (2018). Teori-teori manajemen sumber daya manusia (Theories of human resource management). *Prenadamedia Group*.
- Chan, H. K., Marbán-Castro, E., Abdul Rahman, S., Sem, X., Zulkifli, N. F., Redzuan, S., Abdul Aziz, A., Ayub, N., Del Rey-Puech, P., Ivanova Reipold, E., Denisiuk, O., Ahmad, N., Warijo, O., Abu Hassan, M. R., Shilton, S., & Clemence, M. (2024). Implementation pilot study of community self-testing for COVID-19 among employees of manufacturing industries and their household members in 2022 to 2023. *PLOS Global Public Health*, 4(6). <https://doi.org/10.1371/journal.pgph.0003269>
- Daoud, H., Sellami, I., Ben Chabene, C., Haddar, A., Ghrab, M. A., Jmal Hammami, K., Hajjaji, M., & Masmoudi, M. L. (2024). Assessment of job satisfaction and work ability in a confectionery factory: A cross-sectional study. *European Psychiatry*, 67(S1), S636. <https://doi.org/10.1192/j.eurpsy.2024.1242>
- Diva Rihhadatul 'Aisy, & Prabowo, B. (2024). The effect of work motivation and flexibility on performance through job satisfaction as an intervening variable (a study on Gojek partner drivers in Surabaya). *Formosa Journal of Multidisciplinary Research*, 3(3), 1045-1060. <https://doi.org/10.55927/fjmr.v3i3.8613>
- Doval, E., Viladrich, C., & Angulo-Brunet, A. (2023). Coefficient alpha: The resistance of a classic. *Psicothema*, 35(1), 5-20. <https://doi.org/10.7334/psicothema2022.321>
- Elbandiansyah. (2019). *Manajemen sumber daya manusia (Human resource management) (1st ed.)*.
- Fatmasari, & Badaruddin. (2022). Discipline, motivation, local wisdom, and work environment on performance through job satisfaction. *Jurnal Manajemen*, 26(3), 492-511. <https://doi.org/10.24912/jm.v26i3.940>
- Ghobakhloo, M., Iranmanesh, M., Foroughi, B., Rejeb, A., Nikbin, D., & Tseng, M.-L. (2024). A practical guide on strategic roadmapping for information and operations technology management: A case study on industry 5.0 transformation. *Journal of Industrial and Production Engineering*, 41(5), 397-421. <https://doi.org/10.1080/21681015.2024.2325687>
- Ghobakhloo, M., Iranmanesh, M., Tseng, M.-L., Grybauskas, A., Stefanini, A., & Amran, A. (2023). Behind the definition of Industry 5.0: A systematic review of technologies, principles, components, and values. *Journal of Industrial and Production Engineering*, 40(6), 432-447. <https://doi.org/10.1080/21681015.2023.2216701>
- Hasniar, Haerani, S., Pahlavi, C., & Haeriah. (2024). Influence of work environment, teamwork, and leader-member exchange on performance mediated by work discipline. *Quality – Access to Success*, 25(199), 162-172. <https://doi.org/10.47750/QAS/25.199.18>

- Herawati, H., Setyadi, D., Michael, M., & Hidayati, T. (2023). The effect of workload, supervisor, and coworker supports on job performance through job satisfaction. *International Journal of Finance, Economics and Business*, 2(1), 13-33. <https://doi.org/10.56225/ijfeb.v2i1.168>
- Ibrahim, M., Saputra, J., Adam, M., & Yunus, M. (2022). Organizational culture, employee motivation, workload and employee performance: A mediating role of communication. *WSEAS Transactions on Business and Economics*, 19, 54–61. <https://doi.org/10.37394/23207.2022.19.6>
- Ikhsanudin, I., Subali, B., Retnawati, H., & Istiyono, E. (2024). Estimation of Cronbach reliability based on sample size, gender, and grades. *International Journal of Evaluation and Research in Education*, 13(2), 759-768. <https://doi.org/10.11591/ijere.v13i2.24895>
- Izah, S. C., Sylva, L., & Hait, M. (2023). Cronbach's alpha: A cornerstone in ensuring reliability and validity in environmental health assessment. *ES Energy & Environment*, 23, Article 1057. <https://doi.org/10.30919/esee1057>
- Kotagi, P., Angolkar, M., & Koppad, R. (2023). Comparison of work efficiency in factory workers: Pre and post COVID lockdown, a cross sectional study. *BMC Public Health*, 23, Article 970. <https://doi.org/10.1186/s12889-023-15886-3>
- Malda, M., Samsuri, & Ismartaya. (2024). The influence of work discipline and compensation on employee performance at Perumda Tirta Pakuan Bogor City. *International Journal of Applied Economics, Accounting and Management*, 2(5), 387-394. <https://doi.org/10.59890/ijaeam.v2i5.2511>
- Novita, D., Hidayatulloh, A. N., Renwarin, J. M. J., Santoso, R., & Mardikaningsih, R. (2022). Relationship between eco transformational leadership, eco training, and employee eco behavior on sustainable corporate performance of SMEs. *Frontiers in Psychology*, 13, Article 900787. <https://doi.org/10.3389/fpsyg.2022.900787>
- Prastiwi, I. E., Pardanawati, S. L., & Kurniawan, D. (2022). Employee performance: Work ability and work motivation. *International Journal of Economics, Business and Accounting Research*, 6(1), 1-10. <https://doi.org/10.29040/ijebar.v6i1.3122>
- Priyatno, D. (2018). SPSS: Panduan mudah olah data bagi mahasiswa dan umum (SPSS: An easy guide to data processing for students and the general public). *Andi Offset*.
- Sanjaya, E., Girsang, E., & Nasution, S. L. R. (2023). Analysis of the effect of work discipline, communication and perception of working environment conditions on nurses' work productivity at Royal Prima General Hospital Medan. *AIP Conference Proceedings*, 2732, Article 020015. <https://doi.org/10.1063/5.0133353>
- Sari, D. P., Handayani, R., & Nugroho, Y. (2023). Work discipline, leadership, and employee performance: Empirical evidence from Indonesian firms. *Journal of Asian Finance, Economics and Business*, 10(2), 345-354. <https://doi.org/10.13106/jafeb.2023.vol10.no2.0345>
- Singhal, D., & Salunkhe, H. A. (2024). An analysis of factors associated with employee satisfaction in information technology companies. *International Journal of Human Capital in Urban Management*, 9(1), 135-156. <https://doi.org/10.22034/IJHCUM.2024.01.10>
- Sugiharta, I. (2019). Pengaruh kemampuan kerja terhadap kinerja karyawan (The effect of work ability on employee performance). *Jurnal Manajemen Bisnis*, 16(4), 1-10..
- Tania, S., & Pratama, R. (2022). Peran motivasi dan lingkungan kerja dalam meningkatkan kinerja SDM (The role of motivation and work environment in improving HR performance). *Jurnal Ilmu Administrasi*, 14(2), 134-143. <https://doi.org/10.25077/jia.14.2.134-143.2022>
- Vo, T. T. D., Tulião, K. V., & Chen, C.-W. (2022). Work motivation: The roles of individual needs and social conditions. *Behavioral Sciences*, 12(2). <https://doi.org/10.3390/bs12020049>
- Vroom, V. H. (1964). *Work and motivation*.