Influence of Competence, Work Motivation, and Work Environment on Productivity at PT Binuang Mitra Bersama Indonesia

Devina Azharia

Affiliation: Magister Manajemen, Institut Teknologi dan Bisnis Asia: Magister Manajemen, Indonesia
Email Correspondence: dazharia@gmail.com

Abstract

Introduction/Main Objectives: This study examines the impact of competence, work motivation, and work environment on employee productivity at PT Binuang Mitra Bersama Blok Dua in Binuang City, South Kalimantan. Given the strategic importance of the mining sector to Indonesia's economy, improving productivity through effective human resource management is essential for sustaining operational competitiveness.

Background Problems: Employee productivity in mining companies is influenced by multiple human resource factors. Identifying how competence, motivation, and the work environment contribute to productivity is crucial for designing effective workforce management strategies.

Research Methods: A quantitative causal-associative approach was employed. The sample consisted of 70 permanent employees selected from a population of 196 using the Slovin formula. Data were collected through questionnaires from May to June 2025. The analysis included validity and reliability testing, classical assumption tests (normality, multicollinearity, and heteroskedasticity), and hypothesis testing using F-tests and t-tests.

Findings/Results: The results indicate that competence, work motivation, and work environment each have a positive and significant effect on employee productivity, both partially and simultaneously.

Conclusion: The study concludes that a holistic human resource strategy emphasizing competence development, motivation enhancement, and a supportive work environment is essential for achieving sustainable productivity improvements.

Keywords: Competence; Motivation; Work Environment; Productivity; Management

Introduction

The mining sector plays a strategic role in Indonesia's economy, not only as a contributor to Gross Domestic Product (GDP) and foreign exchange earnings, but also as a provider of employment that drives regional economic growth (Statistics Indonesia, 2024). However, the industry faces various challenges, including commodity price fluctuations, operational complexity, international competition, and high demands for operational efficiency, particularly in transforming labor, equipment, and energy inputs into mining outputs. Productivity is a fundamental indicator that reflects a company's performance and operational effectiveness. One of the key factors determining the success of mining companies is employee productivity, which is influenced by competence, work motivation, and the work environment.

PT Binuang Mitra Bersama Block Two (PT BMBBD) is a coal mining company operating in South Kalimantan that has experienced fluctuations between planned production and actual production over the past six years. Production achievements have often been unstable and have not consistently met annual targets. This condition has prompted the company to strengthen human resource performance, as it indicates internal issues that affect employee performance and productivity. This study focuses on the main variables of competence, work motivation, work environment, and employee productivity. These variables were selected due to their critical role in enhancing labor productivity in the high-risk and reliability-demanding mining industry. High productivity is essential to achieve optimal production targets and to strengthen corporate competitiveness in the global market.

Previous research by Amuntai et al. (2024) provides evidence that competence has a positive effect on employee productivity at PT Ajidharma Corporindo. Similarly, Sulistyo (2024) supports these findings, showing that competence significantly influences productivity performance at the Jetty Division of PT AKP in Marunda. Competence, which encompasses employees' knowledge, skills, and abilities in performing their tasks, serves as a fundamental foundation for effective and efficient performance. Currently, PT Binuang Mitra Bersama Block Two (PT BMBBD) is facing increasing operational complexity and rapid technological development, both of which heavily depend on employee competence. A major concern related to competence at PT BMBBD lies in employees' educational backgrounds and work experience. Employee educational backgrounds are relatively diverse, as linear educational qualifications are not always required during recruitment, provided that candidates possess sufficient experience and certifications. To minimize competency gaps that may negatively impact the company, PT BMBBD has implemented training programs aimed at enhancing employee skills and reducing potential disparities in competence.

Regarding the work environment variable, previous research by Nugroho (2021) at the Statistics Indonesia Office of Blitar Regency indicates that although the work atmosphere is supportive, its impact on employee productivity is not statistically strong. In contrast, studies by Widhiastuti and Hidayati (2022) at PT Metal Hitech Engineering Gresik found that the work environment has a significant effect on work productivity, while research by Alqawi et al. (2024) at RS Medika Bekasi shows that the work environment has a strong positive influence on employee performance. However, Alam and Sarpan (2024), in their study at PT Lion Wings, found that the work environment does not partially affect productivity performance, suggesting the presence of other more dominant factors influencing employee performance. These findings indicate that the work environment both physical and non-physical is frequently identified as an important factor that can either enhance or hinder employee productivity.

In addition to the work environment, work motivation is an internal driving factor that plays a crucial role in improving employee productivity. Motivation encourages individuals to work harder, demonstrate enthusiasm, and exhibit loyalty and responsibility toward their tasks. Numerous studies indicate that employee motivation contributes positively to performance,

thereby supporting organizational productivity. Motivated employees tend to show higher levels of engagement, initiative, and persistence in completing tasks, particularly in challenging work conditions such as those found in the mining sector. Preliminary observations of employees at PT BMBBD indicate varying levels of enthusiasm, involvement, and dedication, which are influenced by several factors. These include the company's compensation and benefits system, clear career development and promotion opportunities, and recognition and appreciation of employee performance, all of which play vital roles in shaping work motivation.

Based on these conditions, this study aims to examine and contribute to the understanding of the effects of competence, work motivation, and work environment on employee productivity at PT BMBBD. The study emphasizes empirical analysis within the context of Indonesia's coal mining industry, an area where research remains relatively limited, while integrating key factors that serve as primary drivers of employee performance. The expected contribution of this research is to enrich the human resource management literature and provide practical implications for managing productivity in the mining sector, particularly for PT BMBBD.

Research Methods

The research method employed in this study is a quantitative approach, which focuses on testing theories through numerical measurement of research variables and the application of measurable statistical procedures. This study adopts a causal-associative research design aimed at analyzing cause-and-effect relationships between independent variables and the dependent variable. In this context, the independent variables are competence, work motivation, and work environment, while the dependent variable is employee productivity performance.

This research was conducted at PT Binuang Mitra Bersama Block Two (PT BMBBD), located in Bungur District, South Kalimantan, and was carried out from May to June 2025. Data were collected using questionnaires distributed to respondents via Google Forms. The population of this study comprised all permanent employees of PT BMBBD, totaling 196 individuals. The sample size was determined using the Slovin formula with a margin of error of 10%, calculated as follows:

$$\text{Slovin} = N / [1 + N(0.1)^2]$$
$$= 196 / [1 + 196(0.1)^2]$$
$$= 66.4$$

Based on this calculation, the sample size was rounded up to 70 respondents. This method was chosen to ensure that the sample remained representative while also considering limitations in research time and resources. Accordingly, the selected sample is expected to adequately reflect the characteristics of the population, allowing the research findings to be generalized.

The research instrument consisted of a questionnaire developed based on the operational indicators of the variables, namely Competence (X1), Work Motivation (X2), Work Environment (X3), and Employee Productivity (Y). Each variable was represented by several statement items and measured using a Likert scale. Prior to data collection, the instrument was tested for validity and reliability.

Validity testing is a crucial aspect of data collection instruments, as it indicates the extent to which an instrument accurately measures the intended construct, ensuring that the data obtained are relevant and aligned with the research objectives (Paramita et al., 2021). The validity test employed the Pearson Correlation method, which correlates the score of each questionnaire item with the total score. The criteria for validity assessment are as follows (Rosita et al., 2021):

- If the calculated r-value exceeds the r-table value at a 5% significance level, the questionnaire item is considered valid.
- If the calculated r-value is lower than the r-table value at a 5% significance level, the questionnaire item is considered invalid.

Reliability testing, on the other hand, assesses the degree of stability, consistency, predictability, and accuracy of the questionnaire, aiming to determine whether respondents would provide consistent answers when the same instrument is administered at different times. For Likert-scale instruments, the most commonly used reliability test is Cronbach's Alpha, with the following interpretation:

- An α value ≥ 0.6 indicates that the instrument is reliable (consistent).
- An α value < 0.6 indicates that the instrument lacks reliability and requires revision or removal of inconsistent items.

The collected data were then analyzed using multiple linear regression to examine the relationship and influence of each independent variable on the dependent variable (Sudariana & Yoedani, 2021). The general form of the multiple linear regression equation is expressed as:

$Y = α + b_1X_1 + b_2X_2 + b_3X_3 + … + b_nX_n + e$

Where:
Y = dependent variable
α = constant (intercept)
b = regression coefficient of the independent variables
X = independent variables
e = error term (residual)
The analysis was conducted in several stages, beginning with classical assumption tests, including tests of normality, multicollinearity, and heteroskedasticity, to ensure that the regression model is free from bias and appropriate for implementation. Once the model satisfied these assumptions, an F-test was conducted to examine the significance of the simultaneous (collective) effect of the independent variables on the dependent variable, followed by t-tests (partial tests) to assess the individual effect of each independent variable.

Decision-making for the F-test was based on the significance (Sig.) value in the ANOVA table. A Sig. value < 0.05 indicates that the independent variables simultaneously have a significant effect on the dependent variable, whereas a Sig. value > 0.05 indicates no simultaneous effect. Similarly, decisions for the t-test were based on the significance (Sig.) value. A Sig. value < 0.05 indicates that an independent variable partially has a significant effect on the dependent variable, while a Sig. value > 0.05 indicates no partial effect.

Through these analytical stages, the research findings are expected to explain the extent to which competence, work motivation, and work environment influence employee productivity performance at PT BMBBD.

Result

The results of the study indicate that primary data collection was conducted over a three-week period, from 3 to 26 June 2025, using a Google Form–based questionnaire distributed to employees of PT BMBBD. A total of 86 questionnaires were collected, of which 70 were deemed valid and consistent with the predetermined sample criteria. All respondents were company employees holding positions as foremen and non-staff workers. The questionnaire consisted of 12 items measuring competency (X1), 12 items measuring work motivation (X2),

13 items measuring work environment (X3), and 8 items measuring productivity (Y). The competency variable reflects respondent characteristics showing that the majority of employees possess professional competency certifications, with 36 percent certified by the National Professional Certification Agency (BNSP), 14 percent by the Ministry of Manpower (Kemnaker), 3.5 percent by the Oil and Gas Authority (Migas), and 46.5 percent by other certification institutions. This indicates that most employees have received formal training related to occupational safety and mining operational procedures, which contributes to improved competency, workplace safety, and compliance with applicable regulations. In terms of length of service, the majority of respondents (59.3 percent) have worked for six to ten years, while 18.6 percent have worked for five years or less, and 22.1 percent have worked for eleven to twenty years. This extended tenure reflects substantial work experience in understanding operational procedures and occupational risks in the mining sector, thereby supporting productivity and reducing workplace accidents, as more experienced employees tend to be more adaptive, better at managing energy, and more cautious in performing their duties. Based on age characteristics, the questionnaire results show that most employees are within the productive age range, dominated by those aged 31–40 years (40.7 percent), followed by those aged 20–30 years (36 percent), and those aged 41–56 years (2.3 percent). This composition demonstrates a balance between younger employees who are energetic and adaptable and senior employees who are more experienced, thereby fostering organizational synergy. In terms of educational background, the majority of employees hold a senior high school qualification or equivalent (59.3 percent), followed by diploma or bachelor's degrees (30.2 percent), junior high school qualifications (7 percent), and master's degrees (3.5 percent). This condition indicates that PT BMBBD's workforce is predominantly composed of operational personnel, while a smaller proportion of employees with higher educational qualifications play roles in analytical and strategic functions.

Based on the questionnaire data collected from employees of PT Binuang Mitra Bersama Blok Dua (PT BMBBD), this study analyzed four main variables, namely competence, work motivation, work environment, and employee productivity. The competency variable (X1) was measured through three indicators: work skills, knowledge, and work attitude, resulting in an overall average score of 4.15, which falls within the good category. The work skills indicator obtained an average score of 3.97, indicating that employees generally possess adequate technical capabilities. However, a notable weakness was identified in the ability to operate heavy mining equipment in accordance with standard operating procedures, which recorded the lowest mean score of 2.94. In contrast, higher scores were observed in task completion, implementation of occupational safety and health procedures, and equipment maintenance, reflecting strong discipline and compliance among employees. The knowledge indicator achieved an average score of 4.07, demonstrating that employees have a solid understanding of mining work procedures, safety regulations, and company policies, although knowledge related to equipment maintenance remained relatively lower, suggesting the need for additional technical training. The highest score was recorded for the work attitude indicator, with an average of 4.43, indicating a very positive attitude characterized by responsibility, adherence to regulations, obedience to procedures, and strong teamwork. Overall, these findings suggest that employee competence at PT BMBBD supports both work safety and productivity, although improvements in technical skill mastery, particularly heavy equipment operation, remain necessary.

Employee motivation (X2) was measured using three indicators: needs for achievement, needs for power, and needs for affiliation, yielding an overall average score of 4.13, categorized as high. The needs for achievement indicator recorded the highest average score of 4.22, reflecting strong intrinsic motivation among employees to achieve challenging targets, improve their skills, and take pride in work accomplishments. This indicates that employees are driven primarily by personal growth and performance excellence. The needs for power indicator obtained a lower average score of 3.76, showing that while employees are comfortable

contributing ideas and leading teams, they do not strongly prioritize dominance or authority as a primary motivational factor. Recognition and influence in decision-making were perceived as less critical compared to achievement-oriented motivation. Meanwhile, the needs for affiliation indicator achieved a very high average score of 4.42, highlighting the importance employees place on harmonious relationships, teamwork, and mutual support in the workplace. Taken together, these results demonstrate that employee motivation at PT BMBBD is largely driven by achievement and social affiliation rather than authority, providing a strong foundation for collaborative and performance-oriented human resource strategies.

The work environment variable (X3) was assessed through physical and non-physical indicators, resulting in an overall average score of 3.81, categorized as good. The physical work environment indicator recorded a moderate average score of 3.52, indicating that basic working conditions such as lighting, air circulation, and occupational health facilities are considered adequate. However, noise levels, workplace safety, and temperature comfort received relatively lower evaluations, suggesting the need for improvements in physical working conditions to enhance employee comfort. In contrast, the non-physical work environment indicator achieved a higher average score of 4.11, reflecting strong interpersonal relationships, effective communication with supervisors, supportive leadership, and a collaborative organizational culture. Although opportunities for career development were rated slightly lower than other non-physical aspects, they were still perceived positively. Overall, these findings indicate that while physical working conditions require further attention, the strong non-physical environment plays a significant role in maintaining employee satisfaction and supporting productivity.

Employee productivity (Y) was measured using eight indicators related to work output, quality, consistency, and resilience, resulting in an average score of 3.52, classified as moderately high. Employees demonstrated strong performance in improving work results over time, maintaining daily work enthusiasm, and sustaining motivation under work pressure. However, aspects related to problem-solving ability, accuracy, and meeting quality standards were rated slightly lower, indicating that productivity has not yet reached its optimal level. These results suggest that while employees generally perform well and consistently, further improvements are needed, particularly in technical problem-solving skills, work precision, and stress management.

Overall, the findings of this study reveal that competence, motivation, and work environment collectively form an interconnected system that influences employee productivity at PT BMBBD. High competence enhances employees' ability to perform tasks effectively, strong motivation drives effort and persistence, and a supportive work environment especially in its non-physical aspects creates conditions that enable employees to perform optimally. These results emphasize the importance of adopting a holistic human resource management approach that simultaneously focuses on competency development, motivation enhancement, and continuous improvement of the work environment to ensure sustainable productivity in the mining industry.

Table 1 Results of the Validity Test of Competency Variables (X1)

Item Variables	R count	R Table	Result
X1.1	0,480	0,231	Valid
X1.2	0,579	0,231	Valid
X1.3	0,579	0,231	Valid
X1.4	0,774	0,231	Valid
X1.5	0,818	0,231	Valid
X1.6	0,709	0,231	Valid
X1.7	0,495	0,231	Valid
X1.8	0,748	0,231	Valid

Item Variables	R count	R Table	Result
X1.9	0,604	0,231	Valid
X1.10	0,674	0,231	Valid
X1.11	0,746	0,231	Valid
X1.12	0,824	0,231	Valid

Source: Data processed, 2025

Table 2 Results of the Motivation Variable Validity Test (X2)

Item Variables	R count	R Table	Result
X2.1	0,647	0,231	Valid
X2.2	0,625	0,231	Valid
X2.3	0,779	0,231	Valid
X2.4	0,654	0,231	Valid
X2.5	0,658	0,231	Valid
X2.6	0,590	0,231	Valid
X2.7	0,681	0,231	Valid
X2.8	0,519	0,231	Valid
X2.9	0,669	0,231	Valid
X2.10	0,752	0,231	Valid
X2.11	0,438	0,231	Valid
X2.12	0,670	0,231	Valid

Source: Data processed, 2025

Table 3 Results of Validity Test of Work Environment Variables (X3)

Item Variables	R count	R Table	Result
X3.1	0,584	0,231	Valid
X3.2	0,699	0,231	Valid
X3.3	0,664	0,231	Valid
X3.4	0,708	0,231	Valid
X3.5	0,720	0,231	Valid
X3.6	0,683	0,231	Valid
X3.7	0,499	0,231	Valid
X3.8	0,661	0,231	Valid
X3.9	0,556	0,231	Valid
X3.10	0,581	0,231	Valid
X3.11	0,665	0,231	Valid
X3.12	0,730	0,231	Valid
X3.13	0,764	0,231	Valid

Source: Data processed, 2025

Tabel 4 Hasil Uji Reliabilitas Variabel Produktivitas (Y)

Item Variables	R count	R Table	Result
Y1	0,889	0,60	Reliabel
Y2	0,891	0,60	Reliabel
Y3	0,891	0,60	Reliabel
Y4	0,894	0,60	Reliabel
Y5	0,886	0,60	Reliabel
Y6	0,888	0,60	Reliabel
Y7	0,897	0,60	Reliabel
Y8	0,901	0,60	Reliabel

Source: Data processed, 2025

Before analyzing the questionnaire results, the first stage involved conducting validity and reliability tests to ensure that each questionnaire item was capable of accurately measuring the research variables. The validity test employed the Pearson Product Moment correlation, using the criterion that the calculated correlation coefficient (r-count) must exceed the r-table

value of 0.231 at a 5% significance level. The results indicate that all research instruments met the required validity criteria. For the competence variable (X1), all 12 questionnaire items demonstrated Cronbach's Alpha values equal to or greater than 0.60, indicating that all items were reliable for measuring employee competence. Similarly, the motivation variable (X2), which consisted of 12 items, showed Cronbach's Alpha values exceeding the minimum threshold of 0.60 for each item, confirming that the instrument was reliable in measuring employee motivation. The work environment variable (X3), measured through 13 items, also produced Cronbach's Alpha values greater than or equal to 0.60, signifying that all items were reliable indicators of the work environment construct. Likewise, the productivity variable (Y), consisting of 8 items, demonstrated Cronbach's Alpha values above 0.60 for all statements, confirming the reliability of the productivity measurement instrument. Overall, the results of the validity and reliability tests indicate that all questionnaire items across the four variables fulfilled the required criteria and were appropriate for use in this study. Following this stage, classical assumption tests were conducted, which included tests of normality, multicollinearity, and heteroscedasticity, to ensure that the regression model met the necessary statistical assumptions prior to hypothesis testing.

Table 5 Normality Test Results

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		70
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	2.23679534
Most Extreme Differences	Absolute	.069
	Positive	.059
	Negative	-.069
Test Statistic		.069
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

Source: Data processed, 2025

The normality test was conducted using the Kolmogorov–Smirnov method with a significance level of 0.05 as the basis for analysis. If the significance value exceeds 0.05, the data are considered to be normally distributed; conversely, if the significance value is less than 0.05, the data are deemed not normally distributed (Paramita et al., 2021). Based on the results presented in the table, the significance value (p-value) obtained from the Kolmogorov–Smirnov test is 0.20, which is greater than 0.05. Therefore, it can be concluded that the data in this study are normally distributed.

Table 6 Multicollinearity Test Results

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	X1	.387	2.585
	X2	.369	2.713
	X3	.692	1.445

a. Dependent Variable: Y
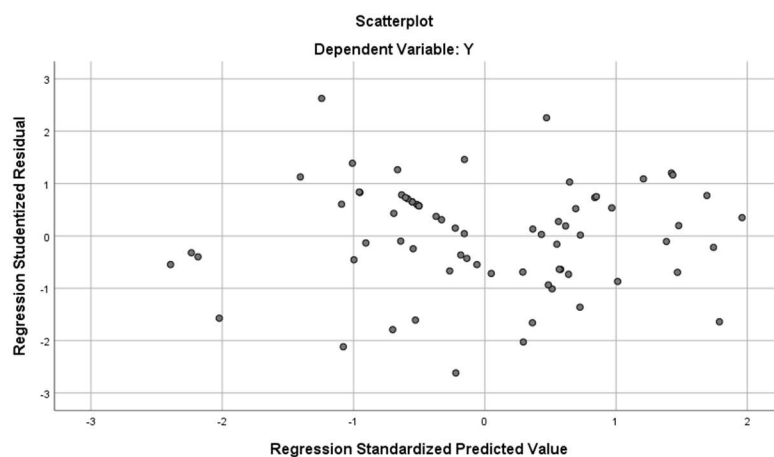
Source: Data processed, 2025

The multicollinearity test is conducted to detect the presence of strong linear relationships among predictor (independent) variables in the model. Based on the test results shown in the table, it can be concluded that there is no multicollinearity problem in the regression model, as all Tolerance values of the independent variables (X) are greater than 0.100 and all VIF values of the independent variables (X) are less than 10.00.

Tabel 7 Uji Heteroskedastisitas-Uji Glejser

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.081	1.617		1.905	.061
	X1	.052	.047	.211	1.086	.281
	X2	-.064	.049	-.257	-1.292	.201
	X3	-.015	.028	-.077	-.534	.595

a. Dependent Variable: ABS_RES

Source: Data processed, 2025

Figure 1 Heteroscedasticity-Scatter Plot Test

Source: Data processed, 2025

The basis for analysis using the scatter plot graph is that if a certain pattern appears such as points forming a regular pattern (wavy, widening and then narrowing) this indicates the presence of heteroskedasticity. If there is no clear pattern and the points are scattered above and below zero on the Y-axis, then heteroskedasticity does not occur (Ghozali, 2018). Based on the Glejser test, it can be stated that the research data pass the heteroskedasticity test, or in other words, the data are homogeneous. This is evident from the significance values obtained for each independent variable, all of which are greater than 0.05. Likewise, based on the Scatter Plot figure, the points appear to be randomly distributed and do not form any specific regular pattern (wavy, widening and then narrowing), indicating that there is no heteroskedasticity problem and that the data are homogeneous.

The third stage is hypothesis testing, which is conducted through the coefficient of determination test, the simultaneous significance test (F-test), and subsequently the individual parameter significance test (t-test).

Figure 2 Determination Coefficient Test Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.840[a]	.706	.692	2.287

a. Predictors: (Constant), X3, X1, X2

Source: Data processed, 2025

Figure 3 Results of Simultaneous Significance Test (Statistical Test F)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	828.047	3	276.016	52.769	.000[b]
	Residual	345.224	66	5.231		
	Total	1173.271	69			

a. Dependent Variable: Y
b. Predictors: (Constant), X3, X1, X2

Source: Data processed, 2025

Figure 4 Results of the significance test of individual parameters (statistical test t)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.725	2.730		-.632	.530
	X1	.301	.080	.403	3.756	.000
	X2	.238	.083	.314	2.854	.006
	X3	.149	.048	.250	3.111	.003

a. Dependent Variable: Y

Source: Data processed, 2025

The results of the coefficient of determination test show that the adjusted R-square (Adj R-square) value is 0.692, which means that approximately 69.2% of the dependent variable can be explained by the independent variables. The remaining 31.8% is influenced by other

variables not included in the model. In the F-test, the significance value obtained is 0.000 < 0.05, indicating that the result is significant and the hypothesis is accepted. This shows that competence, motivation, and the work environment simultaneously affect productivity. The significance value of the F-test also indicates that the regression model used in this study is appropriate.

Furthermore, the t-test results show that the significance value for the competence variable (X1) is 0.000. This value is less than 0.05, so it can be concluded that competence (X1) has a partial effect on work productivity (Y). The next independent variable is work motivation (X2), which has a significance value of 0.006. This value is also less than 0.05, indicating that work motivation (X2) has an effect on work productivity (Y). The next independent variable is the work environment (X3). The significance value for the work environment variable is 0.003, which is less than 0.05, indicating that the work environment (X3) affects work productivity (Y).

Based on the results of the research sample collected through distributed questionnaires and the variable testing stage, this study shows that competence has a positive and significant effect on employee productivity at PT BMBBD. This means that the higher the competence possessed by employees, the higher their work productivity. Competence, which includes knowledge, skills, and attitudes, makes employees more efficient, more adaptive to change, and more proactive in improving their performance. The findings emphasize the importance of developing employee competence through training, job rotation, and recruitment selection that emphasizes the relevance of candidates' abilities to the positions being filled. These results are in line with previous studies conducted by Amuntai et al. (2024) and Sulistiyo (2024), although they differ from the findings of Syamssuri (2017) and Suherman et al. (2024), who stated that competence does not always have an effect on employee work productivity.

Regarding the motivation variable, the results show that motivation has a positive and sufficiently significant effect on employee productivity at PT BMBBD. Employees with high levels of motivation tend to be more diligent, persistent, and committed in completing their tasks and responsibilities. They are less likely to give up when facing challenges and actively seek the best ways to achieve goals, investing their time and energy to produce high-quality work. Internal drivers such as the need for recognition, appreciation, and self-development, as well as external drivers such as incentives and promotions, have been proven to increase both the quantity and quality of employee performance output. Motivation is also correlated with employees' mental and emotional engagement, which enhances focus, creativity, and initiative at work. A work environment that fosters motivation creates an atmosphere in which employees feel more valued and encouraged to contribute optimally. The practical implication for PT BMBBD is the need to strengthen employee motivation programs through fair and transparent reward systems, career development opportunities, training, and a more positive and communicative work environment. Appropriate strategies are expected to contribute to the achievement of organizational goals and to improve overall company productivity. These findings are consistent with studies by Nugroho (2021), Amuntai et al. (2024), and Sulistiyo (2024), which state that motivation has a positive effect on work productivity, although they differ from studies by Dhyan and Parashakti (2021), Leihitu et al. (2022), and Alam and Sarpan (2024), who argue that motivation does not affect productivity without support from other factors such as training, work culture, and reward systems.

The results for the next variable, the work environment, indicate that the work environment also has a significant and positive effect on employee productivity at PT BMBBD. A conducive work environment, both physically such as comfortable, safe, clean conditions and adequate facilities and non-physically such as organizational culture, relationships among colleagues, and leadership has been proven to enhance work focus, reduce distractions, lower stress levels, and encourage effective communication and collaboration. As a result, employees become more motivated, engagement increases, and initiative develops further, contributing

to greater synergy and improved quality of work output, both individually and as a team. The implication of this study is that PT BMBBD needs to continue consistently evaluating and improving the work environment, including upgrading facilities, applying ergonomic principles, fostering a positive culture through open communication, and developing a supportive leadership style. These efforts are believed to help maximize employee productivity potential and contribute to the company's success and growth.

Discussion

Based on the results of the partial data analysis, competence has a significant effect on work productivity at PT Binuang Mitra Bersama Blok Dua (PT BMBBD). This finding indicates that the higher the level of competence possessed by employees, the higher the level of work productivity achieved within the company. The results of this study clearly demonstrate that competence has a positive and significant influence on employee productivity at PT BMBBD. This finding is consistent with various human resource management theories and previous empirical studies that emphasize the importance of individual quality in achieving optimal organizational performance.

The significant influence of competence on productivity can be explained through several mechanisms. First, employees who possess high levels of competence encompassing knowledge (cognitive aspects), skills (psychomotor aspects), and attitudes (affective aspects) relevant to their job roles tend to complete their tasks more efficiently and effectively. Such employees have a stronger understanding of work procedures, are able to operate equipment or systems with minimal errors, and can identify creative solutions when facing work-related challenges. These capabilities directly contribute to increased work output, both in terms of quantity and quality.

Second, strong competence is often associated with higher adaptability and initiative. In a dynamic work environment such as that of PT BMBBD, competent employees are better prepared to adapt to technological changes, new work processes, or evolving market demands. They do not merely wait for instructions but are proactive in identifying opportunities to improve performance and add value to the organization. Collectively, this proactive behavior contributes to overall improvements in company productivity.

These findings are highly relevant for PT BMBBD. Given that employee competence is a strategic organizational asset, the company should continuously invest in competency development through structured training and development programs, job rotation, and professional certification initiatives. Furthermore, during recruitment and selection processes, PT BMBBD is encouraged not only to consider educational background but also to carefully assess the level of competence relevant to the position being filled. By doing so, the company can ensure that its human resources consistently meet the competency standards required to achieve productivity targets and maintain competitive advantage within the industry.

The results of this study are in line with previous research conducted by Amuntai et al. (2024) and Sulistiyo (2024), which found that competence has a positive effect on work productivity. However, these findings differ from studies by Syamsuri (2017) and Suherman et al. (2024), which reported that competence does not significantly influence productivity. Such differences suggest that productivity may not always be directly linked to competence alone, as other factors such as work facilities and the work environment may also play an important role in enhancing employee productivity.

Based on the results of the partial data analysis, work motivation has a significant effect on employee productivity at PT BMBBD. This indicates that higher levels of work motivation

among employees lead to increased productivity within the organization. The findings of this study convincingly reveal that motivation has a positive and significant influence on employee productivity at PT BMBBD. This result strengthens theoretical foundations in organizational behavior and human resource management, which emphasize that both internal and external motivational drivers are critical determinants of employee performance and work output. The significant effect of motivation on productivity can be explained through several aspects. First, motivated employees tend to demonstrate higher levels of effort and persistence in completing their tasks. They are less likely to give up when facing challenges, actively seek the best ways to achieve their goals, and are willing to invest additional time and energy to produce high-quality work. These internal drives whether arising from personal needs such as recognition and self-development or from external incentives such as bonuses and promotions directly enhance both the quantity and quality of work output.

Second, strong motivation is closely associated with increased focus, creativity, and initiative. Motivated employees are more mentally and emotionally engaged in their work, enabling them to think more innovatively when solving problems, identify opportunities for improvement, and take initiatives beyond standard job descriptions. A work environment that fosters motivation creates conditions in which employees feel valued and purpose-driven, thereby encouraging them to contribute their best efforts.

These findings have important practical implications for PT BMBBD. Given the central role of motivation in productivity, the company is advised to continuously evaluate and strengthen its motivational programs. Such efforts may include developing fair and transparent reward and recognition systems, providing opportunities for career development and relevant training, fostering a positive and supportive work environment, and enhancing effective communication between management and employees. By understanding the key drivers of employee motivation and implementing appropriate strategies, PT BMBBD can not only sustain but also enhance work productivity, ultimately contributing to the achievement of the company's strategic objectives.

The results of this study are consistent with previous research conducted by Nugroho (2021), Amuntai et al. (2024), and Sulistiyo (2024), which found that motivation positively influences work productivity. However, these findings differ from studies by Dhyan and Parashakti (2021), Leihitu et al. (2022), and Alam and Sarpan (2024), which reported that motivation does not significantly affect productivity. These discrepancies suggest that motivation alone may not be sufficient to improve productivity without the support of other factors such as training, organizational culture, and effective reward systems.

Based on the results of the partial data analysis, the work environment has a significant effect on employee productivity at PT BMBBD. This indicates that the more favorable the work environment perceived by employees, the higher the level of productivity achieved within the organization. The findings of this study clearly demonstrate that the work environment has a positive and significant influence on employee productivity at PT BMBBD. This result aligns with a wide range of management and industrial psychology literature, which emphasizes that both physical and non-physical workplace conditions play a crucial role in shaping employee behavior, mood, and ultimately performance.

The significant influence of the work environment on productivity can be explained through several aspects. First, a conducive work environment characterized by comfort, safety, cleanliness, and adequate facilities enhances employees' physical and psychological well-being. Employees who feel comfortable at work are more focused on their tasks, experience fewer distractions, and tend to have lower stress levels. This enables them to allocate their energy and attention more effectively, thereby improving efficiency and the quality of work output.

Second, the work environment also includes non-physical aspects such as organizational culture, interpersonal relationships, and leadership style. A positive, supportive, and collaborative environment encourages effective communication, fosters a sense of belonging, and increases employee engagement. When employees feel supported, appreciated, and maintain good relationships with colleagues and supervisors, they are more motivated to contribute, take initiative, and collaborate to achieve organizational goals. This creates synergy that collectively enhances team and organizational productivity.

These findings carry important practical implications for PT BMBBD. Considering the central role of the work environment in productivity, the company is encouraged to continuously evaluate and improve workplace conditions, both physical and non-physical. This may include upgrading work facilities, ensuring proper ergonomics, maintaining clean and organized workspaces, and, equally important, building a positive organizational culture, promoting open communication, and providing leadership training to develop supportive management styles. By investing in an optimal work environment, PT BMBBD can empower employees to achieve their highest productivity potential, thereby contributing to the company's long-term success and growth.

The results of this study are consistent with previous research conducted by Nugroho (2021), Widhiastuti and Hidayati (2022), and Ismandra (2025), which found that the work environment positively influences productivity. However, these findings differ from studies by Basri et al. (2024) and Alam and Sarpan (2024), which reported no significant effect of the work environment on productivity. Such differences may be attributed to the presence of other dominant factors, such as training, motivation, or work stress. Studies reporting non-significant effects often suggest the need for improvements in facilities and workplace comfort to generate a more tangible impact on productivity.

Based on the results of the data analysis, competence, motivation, and work environment simultaneously have a significant effect on employee productivity at PT BMBBD. This indicates that higher levels of competence, motivation, and a supportive work environment, when present together, lead to increased productivity. The findings of this study comprehensively indicate that competence, motivation, and work environment collectively have a significant influence on employee productivity at PT BMBBD. This result confirms that productivity improvement cannot be achieved by focusing on a single factor alone but rather emerges from a synergistic interaction between individual capabilities, internal motivational drives, and supportive external conditions.

Employees with high levels of competence reflected in relevant knowledge, skills, and attitudes are better equipped to perform their tasks efficiently. However, these competencies can only be fully optimized when supported by strong motivation, which encourages employees to exert maximum effort, demonstrate initiative, and persist in achieving goals. Furthermore, both competence and motivation function most effectively within a conducive work environment one that provides adequate facilities, fosters collaboration, and offers managerial support so that employees feel comfortable, valued, and motivated to perform at their best. Therefore, PT BMBBD is encouraged to adopt a holistic approach to human resource management by investing not only in improving employee skills and knowledge but also in strategies that foster motivation and consistently create a positive and empowering work environment. Such an integrated approach is essential to ensuring sustainable productivity improvement and long-term organizational success.

Conclusion

Overall, the results of this study indicate that competence, work motivation, and work environment simultaneously have a significant effect on employee productivity at PT BMBBD.

Improvements in productivity are not the result of a single factor, but rather emerge from a synergistic combination of individual capabilities, internal motivation, and external support. High levels of competence can be optimized when accompanied by strong employee motivation, and the effectiveness of these factors is further enhanced when supported by a conducive, comfortable, and safe work environment. These findings emphasize the importance of adopting a holistic approach to human resource management, whereby PT BMBBD should consistently develop employee competencies, maintain and strengthen work motivation, and continuously create a positive work environment to ensure sustainable improvements in organizational productivity.

For future research, it is recommended to incorporate additional variables such as leadership style, organizational culture, and workload, as well as to consider qualitative or mixed-method approaches. Such approaches may provide deeper insights from employees' perspectives and generate more comprehensive findings. Furthermore, future studies may expand the scope of research by increasing sample size and including multiple research locations, thereby enhancing the generalizability of the results to broader organizational and industrial contexts.

Acknowledgement

References

Alam, I. K., & Sarpan. (2024). Pengaruh Kompensasi, Disiplin Kerja Dan Lingkungan Kerja Terhadap Produktivitas Kerja Karyawan Pada Pt. Lion Wings. *Ikraith-Ekonomika*, 7(2), 261–267. https://doi.org/10.37817/ikraith-ekonomika.v7i2.3355

Alqawi, D., Ali, H., & Fauzi, A. (2024). Determinasi Produktivitas Kerja Melalui Motivasi : Analisis Lingkungan Kerja, Disiplin, Keselamatan dan Kesehatan Kerja (K3) Terhadap Tenaga Kesehatan RS. Satria Medika Bekasi. *Jurnal Ekonomi Manajemen Sistem Informasi (JEMSI)*, 5(3), 367–380.

Amuntai, K., Bukhori, M., & Ruspitasari, W. (2024). Pengaruh Lingkungan Kerja, Motivasi Dan Kompetensi Terhadap Produktivitas Kerja Karyawan Di Perusahaan Pt. Ajidharma Corporindo. *Jurnal Ilmiah Riset Aplikasi Manajemen*, 2(1), 670–679. https://doi.org/10.32815/jiram.v2i1.52

Badan Pusat Statistik. (2024). *Statistik Sektor Pertambangan Indonesia*.

Ghozali, I. (2018). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 26* (Cet. 10). Badan Penerbit Universitas Diponegoro. Semarang.

Ismandra. (2025). Pengaruh Lingkungan Kerja dan Disiplin Kerja terhadap Kinerja Karyawan Aparatur Sipil Negara di Dinas Sosial Kota Palembang Pengaruh Lingkungan Kerja dan Disiplin Kerja terhadap e-ISSN : 2809-8862 Kinerja Karyawan Aparatur Sipil Negara di Dinas Sosial p-I. Co-Value: Jurnal Ekonomi, Koperasi & Kewirausahaan, 15(9).

Nugroho, K. J. (2021). Analisis Beban Kerja, Motivasi Kerja Dan Lingkungan Kerja Terhadap Produktivitas Kerja Pegawai Pada Badan Pusat Statistik Kabupaten Blitar. *Otonomi*, *21*(1), 156. https://doi.org/10.32503/otonomi.v21i1.1650

Paramita, R. Wi. D., Rizal, N., & Sulistyan, R. B. (2021). *Metode Penelitian Kuantitatif*. Widya Gama Press.

Rosita, E., Hidayat, W., & Yuliani, W. (2021). Uji Validitas Dan Reliabilitas Kuesioner Perilaku Prososial. *FOKUS (Kajian Bimbingan & Konseling Dalam Pendidikan)*, *4*(4), 279. https://doi.org/10.22460/fokus.v4i4.7413

Sudariana, & Yoedani. (2021). Analisis Statistik Regresi Linier Berganda. *Seniman Transactions on Management and Business*, *2*(2), 1–11.

Sulistiyo. (2024). *Pengaruh Kompetensi, Motivasi, dan Fasilitas Terhadap Produktivitas Jetty PT AKP di Marunda Jakarta Utara*. Institus Teknologi dan Bisnis Asia.

Widhiastuti, A. Y., & Hidayati, R. A. (2022). Pengaruh Reward, Kompensasi, Dan Lingkungan Kerja Terhadap Produktivitas Kerja Karyawan Pada Pt Metal Hitech Engineering Gresik. *SENTRI: Jurnal Riset Ilmiah*, *1*(2), 445–454. https://doi.org/10.55681/sentri.v1i2.248