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THE EFFECT OF WORK MOTIVATION AND WORK ABILITY ON THE WORK PRODUCTIVITY OF PALM OIL HARVESTERS AT PTPN IV ADOLINA AFDELING II PLANTATION

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Abstract

Work productivity is one of the important factors in determining the operational success of oil palm plantation companies, especially in the harvesting section. This study aims to analyze: (1) the effect of work motivation on work productivity; (2) the effect of work ability on work productivity; and (3) the effect of work motivation and work ability simultaneously on the work productivity of harvesters at PTPN IV Regional I Adolina Plantation Afdeling II. This study uses an explanatory research method with a quantitative approach. The research sample consisted of 48 oil palm harvesters selected using a saturated sampling technique. Data were obtained through questionnaires and analyzed using descriptive analysis, validity tests, reliability tests, classical assumption tests, multiple linear regression analysis, t-tests, F-tests, and coefficients of determination (R^2) with the help of SPSS version 23. The results of the study indicate that work motivation and work ability simultaneously have a significant effect on work productivity. Partially, work motivation does not have a significant effect on work productivity, while work ability has a positive and significant effect on work productivity. Therefore, the company needs to improve the work ability of harvesters through technical training, job coaching, and periodic evaluations to increase harvester work productivity.

Keywords: work ability, work motivation, oil palm harvesters, work productivity, harvester productivity

INTRODUCTION

The agribusiness sector is a crucial pillar of national economic development, contributing to job creation, increased exports, and strengthened rural economies. In the modern agribusiness system, human resources are a strategic factor determining production success, particularly in the palm oil plantation subsector. Labor productivity is a crucial indicator as it relates to company efficiency and competitiveness. According to Stephen P. Robbins and Timothy A. Judge (2022), labor productivity is influenced by motivation, ability, and the work environment. The increasingly competitive palm oil industry demands that harvesters possess strong technical skills and work discipline. However, harvesting activities still rely heavily on human labor, making harvester productivity a key factor in company success. Research by Supriatna et al. (2025) shows that low harvest productivity is more influenced by variations in motivation and ability than by technical plant factors.

Theoretically, work motivation is the driving force that determines the direction and intensity of work behavior, while work capability encompasses a worker's knowledge, skills, and capacity to complete tasks effectively. According to Anwar Prabu Mangkunegara (2021), work productivity is the result of the interaction between workforce capability and motivation. Research by Wicaksono et al. (2023) shows that high motivation without adequate capability cannot produce optimal productivity. Research by Sibuea et al. (2025) and Rahim and Kamarulzaman (2023) also demonstrates that motivation and work capability positively influence plantation workforce productivity. However, research specifically examining oil palm harvesters on state-owned plantations is still limited, particularly in the context of PTPN IV Kebun Adolina Afdeling II. Based on initial observations, several problems were found, such as low work discipline, late completion of work, and harvesting errors due to less than optimal technical skills of harvesters. These conditions indicate the importance of research on the influence of work motivation and work ability on the work productivity of oil palm harvesters at PTPN IV Kebun Adolina Afdeling II, both partially and simultaneously.

THEORETICAL BASIS

Work motivation

Work motivation is an internal and external drive that influences an individual's intensity, direction, and persistence in achieving organizational goals. Stephen P. Robbins and Timothy A. Judge (2022) define work motivation as a process that explains an individual's intensity, direction, and persistence in achieving organizational goals. Meanwhile, Anwar Prabu Mangkunegara (2021) states that work motivation is a condition that drives employees to achieve organizational goals. In this study, indicators of work motivation include: (1) need for achievement, (2) rewards and recognition, (3) work responsibility, (4) opportunities for development, and (5) work conditions and security (Mangkunegara, 2021; Robbins & Judge, 2022).

Work Ability

Work capability is an individual's capacity to perform work effectively, encompassing knowledge, skills, experience, and physical and mental abilities. According to Anwar Prabu Mangkunegara (2021), work capability comprises intellectual and physical abilities that support work performance. Robbins & Judge (2022) also state that work capability is an individual's capacity to perform various tasks at work. The indicators of work capability in this study include: (1) work knowledge, (2) work skills, (3) work experience, and (4) physical condition and endurance (Mangkunegara, 2021; Rahim & Kamarulzaman, 2023).

Work Productivity

Work productivity is the ability of the workforce to produce optimal output by utilizing available inputs effectively and efficiently. Anwar Prabu Mangkunegara (2021) explains that productivity is the ratio between the output produced and the input used in the work process. Robbins & Judge (2022) add that work productivity relates to an individual's ability to produce work results that meet quality standards within a certain period. Work productivity indicators in this study include: (1) work quantity, (2) work quality, (3) work efficiency, and (4) compliance with work procedures (Mangkunegara, 2021; Wicaksono et al., 2023).

RESEARCH METHODOLOGY

This study uses explanatory research with a quantitative approach to analyze the influence of work motivation and work ability on the work productivity of oil palm harvesters at PTPN IV Kebun Adolina Afdeling II. According to Sugiyono (2023), a quantitative approach is used to test the relationship between variables through statistical analysis. The research method used is a survey with a census technique, where the entire population of 48 harvesters was used as a research sample due to the relatively small population. The study was conducted at PTPN IV Kebun Adolina Afdeling II, Serdang Bedagai Regency, North Sumatra.

The research data consisted of primary and secondary data. Primary data were obtained through a questionnaire using a five-point Likert scale, while secondary data were obtained from company documents and other supporting reports. Research variables included work motivation, work ability, and work productivity, measured based on their respective indicators. Prior to use, the research instrument was tested through validity and reliability tests to ensure its suitability (Sugiyono, 2023). Data analysis techniques used descriptive and inferential statistics. Inferential analysis included classical assumption tests, multiple linear regression analysis, t-tests, F-tests, and coefficients of determination (R^2) to determine the partial and simultaneous effects of independent variables on work productivity. All data were processed using SPSS.

RESULTS AND DISCUSSION

RESULTS

Classical Assumptions

Normality

Normality tests were performed using the Kolmogorov-Smirnov (KS) test and the Normal Probability Plot (PP Plot). Data were declared normally distributed if the significance value (Asymp. Sig.) > 0.05 and the points on the PP Plot followed the diagonal line.

Table 1. Normality Test Results
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		48
Normal Parameters [a,b]	Mean	.0000000
	Standard Deviation	4.35747484
Most Extreme Differences	Absolute	.088
	Positive	.051
	Negative	-.088
Test Statistics		.088
Asymp. Sig. (2-tailed)		.200 [c,d]

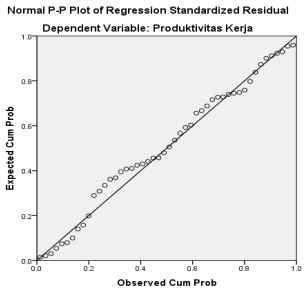

Figure 1. Results of the P-Plot Normality Test

Based on Table 1, the results of the One-Sample Kolmogorov-Smirnov (KS) normality test show an Asymp. Sig. (2-tailed) value of 0.200 > 0.05, so the residual data is declared normally distributed. This is also supported by Figure 1 in the Normal Probability Plot (PP Plot) graph which shows points spread along the diagonal line. Thus, the regression model has met the assumption of normality.

Multicollinearity

Multicollinearity testing is performed by examining the Tolerance and Variance Inflation Factor (VIF) values. A regression model is considered free of multicollinearity if the Tolerance value is greater than 0.10 and the VIF value is less than 10.

Table 2. Multicollinearity Test Results

Independent Variable	Collinearity Statistics	
	Tolerance	VIF
Work motivation	0.698	1,433
Work Ability	0.698	1,433

Based on Table 2, the Work Motivation (X1) and Work Ability (X2) variables have a Tolerance value of 0.698 > 0.10 and a VIF value of 1.433 < 10. Thus, the regression model is declared not to experience multicollinearity between independent variables.

Heteroscedasticity

Heteroscedasticity testing is performed using a scatterplot test, which examines the distribution of points between the residual and predicted values. If the points are randomly distributed and do not form a specific pattern, heteroscedasticity is not present.

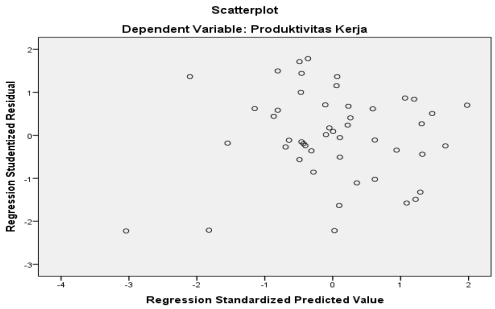

Figure 2. Scatterplot Heteroscedasticity Test Results

Based on Figure 2, the results of the heteroscedasticity test show that the scatterplot points are randomly distributed above and below 0 without forming any particular pattern. Thus, the regression model does not exhibit heteroscedasticity.

Multiple Linear Regression Analysis

Multiple linear regression was used to determine the effect of the independent variables, namely work motivation (X1) and work ability (X2), on the dependent variable, namely work productivity (Y). Through this analysis, it can be determined whether work motivation and work ability have a positive or negative influence on employee work productivity. The results of the multiple linear regression analysis can be seen in Table 3.

Table 3. Results of Multiple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8,042	7,477		1,075	.288
	Work motivation	-.063	.110	-.058	-.571	.571
	Work Ability	1,168	.139	.854	8,424	.000

Based on the results of multiple linear regression analysis, the regression equation obtained is:

$$Y=8.042-0.063X1+1.168X2$$

The constant value of 8.042 indicates that work productivity remains at 8.042 when work motivation and work ability are considered constant. The Work Motivation variable (X1) has a negative coefficient of -0.063 with a significance value of 0.571 > 0.05, so it does not have a significant effect on work productivity. Meanwhile, the Work Ability variable (X2) has a positive coefficient of 1.168 with a significance value of 0.000 < 0.05, which means that work ability has a positive and significant effect on harvester work productivity.

Significance Test

Simultaneous Test (F Test)

Simultaneous hypothesis testing (F test) is used to determine whether independent variables simultaneously influence the dependent variable. The F coefficient and sig. coefficient values show the level of significance between the independent variables Work Motivation (X1) and Work Ability (X2) simultaneously on Work Productivity (Y).

Table 4. Simultaneous Test Results (F Test)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1875,396	2	937,698	47,283	.000 [b]
	Residual	892,417	45	19,831		
	Total	2767.813	47			

Based on Table 4, the calculated F value is 47.283 > F table 3.20 with a significance value of 0.000 < 0.05. This indicates that Work Motivation (X1) and Work Ability (X2) simultaneously have a significant effect on Work Productivity (Y). Thus, increasing work motivation and work ability together can increase the work productivity of oil palm harvesters at PTPN IV Adolina Plantation Afdeling II.

Partial Test (t-Test)

Partial hypothesis testing (t-test) is used to determine the partial influence of the independent variable (X) on the dependent variable (Y). The decision making criteria in the t test are as follows:

1) If Sig < 0.05 or t count > t table, then H_0 is rejected and H_a is accepted, meaning that the independent variable has a significant effect on the dependent variable.
2) If Sig ≥ 0.05 or t count ≤ t table, then H_0 is accepted, meaning there is no significant influence.

Table 5. Partial Test Results (t-Test)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8,042	7,477		1,075	.288
	Work motivation	-.063	.110	-.058	-.571	.571
	Work Ability	1,168	.139	.854	8,424	.000

Based on Table 5, the t-test results show that the Work Motivation variable (X1) has a calculated t value of -0.571 < t table 2.014 with a significance of 0.571 > 0.05, so it does not have a significant effect on Work Productivity (Y). Meanwhile, the Work Ability variable (X2) has a calculated t value of 8.424 > t table 2.014 with a significance of 0.000 < 0.05, so it has a positive and significant effect on Work Productivity. This shows that work ability is an important factor in increasing the work productivity of oil palm harvesters at PTPN IV Adolina Plantation Afdeling II.

Coefficient of Determination (R^2)

The coefficient of determination (R^2) is used to determine the ability of independent variables to explain variations in the dependent variable. The R^2 value ranges from 0 to 1, where a value closer to 1 indicates that the work motivation and work ability variables are stronger in explaining work productivity, while a value closer to 0 indicates the presence of other factors outside the model that influence work productivity.

Table 6. Results of the Determination Coefficient Test (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823 [a]	.678	.663	4,453

Based on Table 6, the R Square value is 0.678 and the Adjusted R Square is 0.663. This indicates that 66.3% of the variation in Work Productivity can be explained by the variables Work Motivation (X1) and Work Ability (X2), while the remaining 33.7% is influenced by other factors outside the study. In addition, the R value of 0.823 indicates that the relationship between the independent variables and Work Productivity is in the very strong category.

DISCUSSION

The Influence of Work Motivation and Work Ability on Work Productivity

The results of the study indicate that work motivation and work ability simultaneously have a significant effect on the work productivity of oil palm harvesters at PTPN IV Adolina Plantation, Division II. This indicates that work productivity is not influenced by a single factor, but rather by a combination of work motivation and workers' technical abilities in carrying out harvesting tasks. This finding aligns with the opinions of Anwar Prabu Mangkunegara (2021) and Stephen P. Robbins and Timothy A. Judge (2022), who stated that work productivity is influenced by motivation and work ability. Research by Wicaksono et al. (2023) also explains that workers with

high motivation and good work ability tend to have more optimal productivity. In addition, Sibuea et al. (2025) found that work motivation and technical competence together contribute significantly to increasing the productivity of oil palm plantation workers. Thus, increasing harvester work productivity needs to be supported through efforts to increase motivation and develop work abilities on a sustainable basis.

The Influence of Work Motivation on Work Productivity

The results of the study indicate that work motivation does not significantly influence the work productivity of oil palm harvesters. This indicates that the level of work motivation possessed by harvesters has not been able to directly influence work productivity increases. This condition may occur because harvester productivity is more influenced by technical factors such as work skills, experience, physical condition, and the ability to use harvesting tools rather than motivational drive alone. The results of this study are not in line with the theory of Robbins & Judge (2022), which states that work motivation plays a role in increasing the intensity and perseverance of individuals in achieving organizational goals. In addition, research by Wicaksono et al. (2023) and Sibuea et al. (2025) also found that work motivation has a positive effect on work productivity. The difference in the results of this study indicates that in the physical and technical work of oil palm harvesting, work ability is a more dominant factor than work motivation. Thus, the increase in work productivity of harvesters at PTPN IV Kebun Adolina Afdeling II is more influenced by technical ability and work experience than work motivation factors.

The Influence of Work Ability on Work Productivity

The results of the study indicate that work ability has a positive and significant effect on the work productivity of oil palm harvesters. Work ability in this study includes work knowledge, technical skills, work experience, as well as the physical condition and endurance of workers. Harvesters with good work ability tend to be more able to achieve harvest targets, maintain the quality of the harvest, and work effectively and efficiently. The results of this study are in line with the theory of Anwar Prabu Mangkunegara (2021), which states that work ability is an individual's capacity to carry out work, both from an intellectual and physical aspect. In addition, research by Rahim & Kamarulzaman (2023) shows that workers with high work ability are more easily able to meet work targets and produce better productivity. Research by Sibuea et al. (2025) also found that increasing work ability through training and technical competency development has a positive impact on the productivity of oil palm plantation workers. Thus, work ability is a major factor determining the level of harvester productivity at PTPN IV Kebun Adolina Afdeling II.

CONCLUSION

Based on the results of hypothesis testing and research discussion, it can be concluded that Work Motivation and Work Ability simultaneously have a significant effect on the Work Productivity of oil palm harvesters at PTPN IV Adolina Plantation Afdeling II. This shows that increasing work motivation and work ability together can increase employee work productivity. However, partially Work Motivation does not have a significant effect on Work Productivity, so that work motivation has not become the main factor that directly determines harvester productivity. Meanwhile, Work Ability is proven to have a positive and significant effect on Work Productivity. The better the knowledge, skills, work experience, and physical condition of workers, the higher the work productivity produced by oil palm harvesters at PTPN IV Adolina Plantation Afdeling II.

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