

# ANALYSIS OF WORKING HOURS AND WORKLOAD ON WORK PRODUCTIVITY WITH JOB SATISFACTION AS A MODERATING VARIABLE AT PT PLN BINJAI CITY CUSTOMER SERVICE UNIT

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## Abstract

This study aims to analyze the effect of working hours and workload on work productivity with job satisfaction as a moderating variable at PT PLN Binjai Kota Customer Service Unit. The research method used is a quantitative approach with Partial Least Square (PLS) analysis technique. The study population was all employees of ULP Binjai Kota, with a sample of 83 respondents. The results showed that working hours had a positive and significant effect on work productivity, while workload had a negative and significant effect on work productivity. In addition, job satisfaction was proven to have a positive and significant effect on work productivity and moderated the relationship between working hours and workload with work productivity. The R Square value of 0.836 indicates that the variables of working hours, workload, and job satisfaction are able to explain the variable of work productivity by 83.6%. These findings are expected to be managerial considerations in managing working hours and workload to improve employee satisfaction and productivity within PT PLN ULP Binjai Kota.

**Keywords:** *Working Hours, Workload, Job Satisfaction, Work Productivity*

## INTRODUCTION

In an era of increasingly competitive business climate, employee productivity is a key determinant of organizational success. According to Hasibuan (2021), employee productivity is the ability of employees to produce output in accordance with established targets within a specific timeframe. Employee productivity levels are influenced by various factors, including working hours, workload, and job satisfaction. Working hours are a crucial aspect of human resource management that directly impacts productivity. According to Mangkunegara (2020), appropriately managing working hours can improve employee efficiency and effectiveness. This aligns with research by Putri and Prasetyo (2022), which shows that excessive working hours tend to decrease productivity by causing physical and mental fatigue. Besides working hours, workload is also a significant factor influencing productivity. A workload that matches employees' abilities can motivate them to work optimally. Conversely, an excessive workload can cause stress and lead to decreased performance (Hidayat & Ramadhani, 2021). Research by Susanti and Wijaya (2023) found that excessive workload is a major cause of decreased productivity in service companies in Indonesia.

On the other hand, employee job satisfaction plays a crucial role as a moderating variable, strengthening or weakening the influence of working hours and workload on productivity. Robbins and Judge (2022) stated that employees who are satisfied with their jobs tend to be highly motivated and able to work more productively even when facing heavy workloads. Research by Mutia and Sari (2020) also demonstrated that job satisfaction acts as a significant moderator in the relationship between workload and employee productivity in the public sector. PT PLN Binjai Kota Customer Service Unit, as one of the public service units in North Sumatra, faces the challenge of maintaining employee productivity amidst increasing service demands. In practice, employees face tight working hours and workloads that vary depending on the volume of customers served. Initial observations indicate that some employees are experiencing work fatigue, which is impacting productivity. Therefore, an in-depth analysis is needed to determine how working hours and workload affect productivity, as well as how job satisfaction can moderate this influence.

Thus, this research is expected to provide theoretical and practical contributions to the management of PT PLN Binjai City Customer Service Unit in formulating policies for managing working hours, optimal workload distribution, and efforts to increase job satisfaction to support sustainable employee productivity.

## **LITERATURE REVIEW**

### **Theoretical Framework**

#### **Work Productivity**

##### **Understanding Work Productivity**

Mahawati et al. (2021) defines work productivity as the ability of an individual or group to produce output, either in the form of goods or services, which increases qualitatively or quantitatively over time.

##### **Work Productivity Indicators**

To measure work productivity, Mahawati et al. (2021) suggest several indicators that can be used:

- 1) Quantity of Work: The amount of work that can be completed in a given time period.
- 2) Work Quality: The level of accuracy, neatness, and conformity of work results to established standards.
- 3) Punctuality: The ability to complete work according to the specified time limit.
- 4) Work Spirit: The enthusiasm and motivation of employees in carrying out daily tasks.
- 5) Attendance: The level of employee attendance reflects commitment to work.

#### **Job satisfaction**

##### **Understanding Job Satisfaction**

Luthans (2021) "Job satisfaction is an emotional response to a job situation. It is determined by how well outcomes meet or exceed expectations." Job satisfaction is an emotional response to work, depending on the results obtained compared to employee expectations.

##### **Job Satisfaction Indicators**

To measure job satisfaction, Luthans (2021) identified several indicators that reflect the level of employee satisfaction:

- 1) Enjoyable work: The extent to which employees feel happy and satisfied with the type of work they do.
- 2) Job according to ability: The match between the tasks given and the employee's skills and competencies.
- 3) Salary commensurate with work: The suitability between the compensation received and the workload and responsibilities.
- 4) Satisfied with the nominal salary received: The level of employee satisfaction with the amount of salary they receive.
- 5) Promotion certainty: Employees' confidence in the opportunity for promotion in the future.
- 6) Promotion system: Employee perceptions of fairness and transparency in the promotion process in the organization.
- 7) Moral support from superiors: The extent to which superiors provide emotional support and motivation to employees.

#### **Workload**

##### **Understanding Workload**

Tarwaka et al. (2021) define workload as the combination of a person's work capacity and the demands of the tasks they must complete. Workload becomes high when work demands exceed a worker's capacity.

##### **Workload Indicator**

Tarwaka also stated that workload can be measured using subjective and objective indicators. The main indicators are:

- 1) Subjective Indicators:
  - Complaints of fatigue (physical and mental)
    - Work stress
    - Muscle tension
    - Decreased concentration
    - Difficulty sleeping
    - Complaints of pain or discomfort while working
- 2) Objective Indicators:
  - Heart rate during and after work (cardiac workload)



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## Research Location and Research Time

The research location was conducted at PT PLN (Persero) Binjai City Customer Service Unit, located at Jl. Jendral Sudirman No. 94, Pekanbaru Binjai, Binjai City District, Binjai City, North Sumatra 20742. The research was conducted for 3 months, from April to June 2025.

## Population and Sample

In this study, the population consisted of 83 individuals working in the customer service unit. The sample size represents a subset of the population and its characteristics. The sample was used because it was impossible for researchers to study the entire population due to time, cost, and manpower constraints.

## Research Data Sources

The data sources used in this study are primary data.

## RESULTS AND DISCUSSION

### Outer Model Analysis

Outer Model Analysis musing PLS Algorithm, produces:

### Validity Test

**Table 1. ValuesOuter Loadings**

	Workload	Workload * Satisfaction	Working hours	Working Hours * Satisfaction	Job satisfaction	Work Productivity
Workload * Job Satisfaction		1,044				
Working Hours * Job Satisfaction				1,029		
X1.1			0.841			
X1.2			0.825			
X1.3			0.791			
X1.4			0.850			
X2.1	0.932					
X2.2	0.887					
X2.3	0.899					
X2.4	0.877					
X2.5	0.908					
X2.6	0.912					
Y1						0.947
Y2						0.939
Y3						0.930
Y4						0.890
Z1					0.831	
Z2					0.818	
Z3					0.841	
Z4					0.849	
Z5					0.870	
Z6					0.889	

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	Workload	Workload * Satisfaction	Working hours	Working Hours * Satisfaction	Job satisfaction	Work Productivity
Z7					0.793	

Source: Smart PLS Output, 2025

Based on the values in Table 1 above, it shows the results of testing the outer model through the loading factor value /Based on outer loadings, all indicators in each variable have a loading value of  $\geq 0.70$ . This indicates that each indicator is able to represent the construct being measured validly and robustly. Therefore, it can be concluded that all items in the questionnaire have met the convergent validity criteria and can be used in further analysis. For more details on the above values, see the following figure.

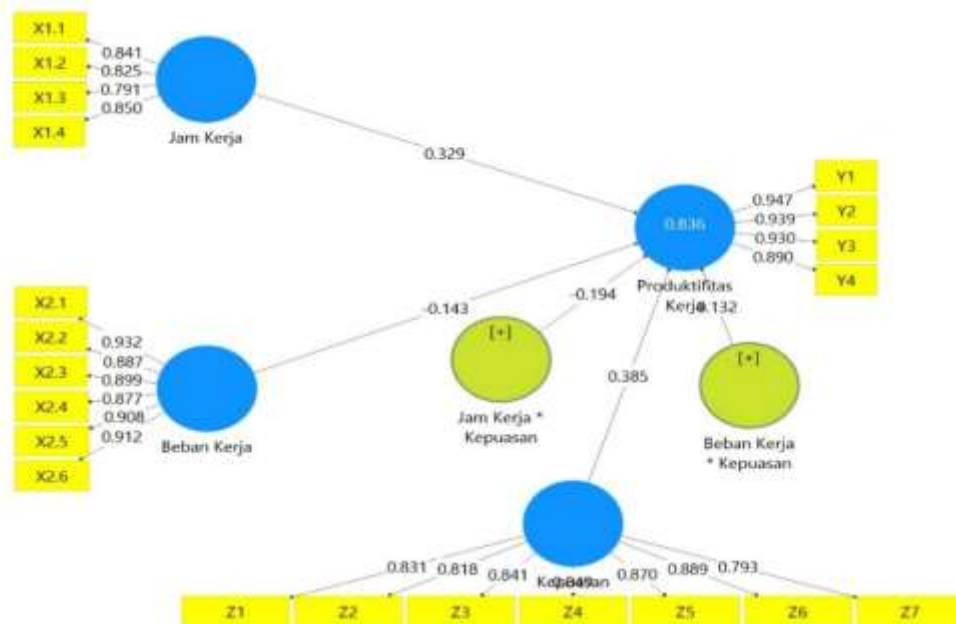


Figure 1. Outer Loadings

In this study there are two equations consisting of structural equation 1 and structural equation 2.

Substructure Equation 1:

$$Y1 = \beta_1 X1 + \beta_3 (X1 * Z) + e1$$

$$Y1 = 0.329X1 - 0.194(X1 * Z) + e1$$

Substructure Equation 2:

$$Y2 = \beta_2 X2 + \beta_4 (X2 * Z) + e2$$

$$Y2 = -0.143X2 + 0.132(X2 * Z) + e2$$

## Reliability Test

Table 2. Construct Reliability and Validity Test

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Workload	0.955	0.957	0.964	0.815
Workload * Satisfaction	1,000	1,000	1,000	1,000
Working hours	0.847	0.860	0.896	0.684
Working Hours * Satisfaction	1,000	1,000	1,000	1,000
Job satisfaction	0.932	0.941	0.945	0.709
Work Productivity	0.945	0.946	0.961	0.859

Source: Smart PLS Output, 2025

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Table 2 above shows that the reliability test results show that the Cronbach's Alpha and Composite Reliability values for all constructs are above 0.70. This indicates that all indicators have high internal consistency and can be relied upon to measure their respective constructs. Therefore, the research instrument is deemed reliable and suitable for use in testing the structural model.

## Coefficient of Determination (R<sup>2</sup>)

Evaluating a model with PLS begins by examining the R-square for each dependent latent variable. The table below shows the results of R-square estimation using SmartPLS.

**Table 3. R Square Results**

	R Square	R Square Adjusted
Work Productivity	0.836	0.829

Source: Smart PLS, 2025

In table 3, there is an R square value for work productivity of 0.836, meaning that working hours, workload and job satisfaction are 0.836 or 83.6%, the remainder is in other variables outside the model.

## Structural Model Testing (Inner Model)

### Hypothesis Testing

#### Direct Influence Between Variables

The direct influence between variables can be seen in the path coefficients. The data processing results show the direct influence values, as shown in the following table.

**Table 4. Path Coefficients (Direct Effect)**

	Original Sample	T Statistics	P Values	Conclusion
Working Hours -> Work Productivity	0.329	4,785	0,000	Accepted
Workload -> Work Productivity	-0.143	2,223	0.027	Accepted
Job Satisfaction -> Work Productivity	0.385	6,427	0,000	Accepted
Working Hours * Satisfaction -> Work Productivity	-0.194	3,091	0.002	Accepted
Workload * Satisfaction -> Work Productivity	0.132	2,038	0.042	Accepted

Source: Smart PLS Output, 2025

In the results of Table 4 there are direct influence values which will be explained as follows:

1. Working hours have a positive and significant effect on work productivity, with a t-statistic value of 4.785 above 1.96 and a significance value of 0.000 below 0.05. This indicates that working hours have a positive and significant effect on work productivity, as the significance value is below 0.05. The results of this study align with previous research, which found that workload has a negative and significant effect on employee effectiveness (Fuad & Lutarlean, 2021).
2. Workload has a positive and significant effect on work productivity with a t-statistic value of 2.223 above 1.96 and a significance level of 0.027 below 0.05, indicating that workload has a positive and significant effect on work productivity because the significance value is below 0.05. The results of this study are consistent with previous research which stated that workload has a positive and significant effect on work productivity (Ariani et al., 2020).
3. Job satisfaction has a positive and significant effect on work productivity with a t-statistic value of 6.427 above 1.96 and a significance level of 0.000 below 0.05, indicating that job satisfaction has a positive and significant effect on work productivity, as the significance value is below 0.05. The results of this study align with previous research, indicating that job satisfaction has a positive and significant effect on employee productivity at PD. Pembangunan Kota Medan (Prayudi, 2021).
4. Working hours have a negative and significant effect on work productivity which is strengthened by job satisfaction with a t-statistic value of 3.091 above 1.96 and a significance of 0.002 below 0.05 means that working



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hours have a negative and significant effect on work productivity because the significance value is below 0.05. Here, job satisfaction acts as a moderating variable in strengthening the influence between working hours and work productivity.

5. Workload has a positive and significant effect on work productivity with a t-statistic value of 2.038 above 1.96 and a significance of 0.042 below 0.05 means that workload has a positive and significant effect on work productivity because the significance value is below 0.05. Here, job satisfaction acts as a moderating variable in strengthening the influence between workload and work productivity.

## CONCLUSION

1. Working hours have a positive and significant effect on work productivity at PT PLN Binjai City Customer Service Unit.
2. Workload has a negative and significant effect on work productivity at PT PLN Binjai City Customer Service Unit.
3. Work productivity has a positive and significant effect on work productivity at PT PLN Binjai City Customer Service Unit.
4. Working hours have a negative and significant effect on work productivity which is reinforced by job satisfaction at PT PLN Binjai City Customer Service Unit.
5. Workload has a positive and significant effect on work productivity which is strengthened by job satisfaction at PT PLN Binjai City Customer Service Unit.

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