THE EFFECT OF WORK SHIFT IMPLEMENTATION AND WORK MOTIVATION ON EMPLOYEE WORK PRODUCTIVITY AT PT SUMBER BINTANG REZEKI JIMBARAN SEMARANG REGENCY

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ABSTRACT

This study examines the influence of work shift implementation and work motivation on employee productivity at PT Sumber Bintang Rezeki Jimbaran in Semarang Regency. Using a quantitative approach with an explanatory survey method, data were collected from 38 employees through a structured questionnaire. Multiple regression analysis revealed that both work shift implementation and work motivation individually had significant positive effects on employee productivity. The two variables collectively explained 67.9% of the variance in employee productivity. The findings highlighted that while both factors significantly influence productivity, work motivation demonstrated a slightly stronger effect. Analysis of demographic data showed a predominantly female (84.2%) and young workforce (60.5% aged 20-25 years), which may influence shift adaptation and motivational patterns. The study contributes practical implications for manufacturing companies in Indonesia seeking to optimize productivity through effectively designed shift systems and targeted motivational strategies tailored to specific workforce demographics.

Keywords: *Work Shift Implementation; Work Motivation; Employee Productivity; Manufacturing Industry; Indonesian Workforce*

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INTRODUCTION

In the current competitive business environment, enhancing employee productivity remains a critical challenge for manufacturing companies seeking to maintain operational efficiency and competitive advantage. Work productivity, defined as the ratio of output to input in the production process, directly impacts a company's profitability, operational sustainability, and market position (Mathis et al., 2016). Manufacturing organizations continuously seek strategies to optimize employee performance while balancing operational demands and employee well-being (Cascio, 2018; Robbins & Judge, 2023). Among these strategies, the implementation of work shift systems and the enhancement of employee motivation have emerged as significant factors affecting workplace productivity (Guest, 2017; Wickramasinghe & Perera, 2014).

Work shift systems represent a standard operational practice in manufacturing industries, particularly those requiring continuous production processes. These systems involve the scheduling of employees in rotating shifts to ensure uninterrupted operations beyond standard working hours (Dall'Ora et al., 2016). While shift work facilitates operational continuity, its impact on employee productivity remains complex and multifaceted. Research indicates that inappropriate shift arrangements may lead to circadian rhythm disruptions, fatigue, and decreased alertness, potentially compromising productivity and quality standards (Kecklund & Axelsson, 2016). Conversely, well-designed shift systems can optimize resource utilization and enhance operational efficiency when implemented with consideration for employee well-being (Ferguson & Dawson, 2012).

Work motivation constitutes another critical determinant of employee productivity. Defined as the psychological forces that determine the direction, intensity, and persistence of an individual's work-related behavior, motivation significantly influences employee engagement, performance, and productivity (Kanfer et al., 2017). According to self-determination theory, both intrinsic and extrinsic motivational factors contribute to enhanced work performance and organizational commitment (Ryan & Deci, 2020). Organizations implementing effective motivational strategies typically experience higher productivity levels, reduced absenteeism, and improved retention rates (Cerasoli et al., 2014).

The interaction between shift work and motivation presents a particularly interesting area of inquiry, as shift systems may influence motivational factors in various ways. Research by Bohle and Tilley (1989) suggests that shift work can affect motivation through its impact on work-life balance, social relationships, and physical well-being. Similarly, Harrington (2001) found that employees' attitudes toward shift work significantly influenced their motivation and subsequent productivity. However, the specific mechanisms through which shift work and motivation collectively influence employee productivity remain insufficiently explored in the manufacturing context.

PT Sumber Bintang Rezeki Jimbaran, located in Semarang Regency, Indonesia, operates in the manufacturing sector with a shift work system to maintain continuous production. Despite implementing various shift arrangements and motivational interventions, the company faces challenges related to optimizing employee productivity. Understanding how shift work implementation and employee motivation influence productivity within this specific context would provide valuable insights for improving operational outcomes and employee performance.

The present study aims to examine the influence of work shift implementation and work motivation on employee productivity at PT Sumber Bintang Rezeki Jimbaran. While previous research has investigated these variables separately, limited attention

has been given to their combined effects in the Indonesian manufacturing context. Moreover, most existing studies have been conducted in Western contexts or different industrial settings, creating a knowledge gap regarding these relationships in Indonesian manufacturing environments. This research seeks to address this gap by providing empirical evidence on the impact of shift work and motivation on productivity in an Indonesian manufacturing company.

This study contributes to the literature in several ways. First, it enhances understanding of the interrelationships between shift work, motivation, and productivity in a non-Western manufacturing context. Second, it provides practical implications for managers in designing effective shift work arrangements and motivational strategies to enhance employee productivity. Finally, it establishes a foundation for future research exploring these variables in similar contexts.

LITERATURE REVIEW, RESEARCH FRAMEWORK, AND HYPOTHESES

Literature and Citation

Work shift implementation has been extensively studied as a critical operational strategy in manufacturing environments. Shift work refers to an arrangement where employees work in scheduled rotations, enabling organizations to operate beyond conventional working hours (Moreno et al., 2019). This practice is particularly prevalent in manufacturing industries requiring continuous production processes. McMenamin (2007) identified that approximately 16% of full-time wage and salary workers worldwide engage in alternative shift arrangements, with higher percentages in manufacturing sectors. In Indonesia, shift work has become increasingly common, with Rahmah et al. (2023) reporting that nearly 40% of manufacturing employees work in rotating shift systems.

Research examining the relationship between shift work and employee productivity has yielded mixed results. Studies by Folkard and Tucker (2003) demonstrated that poorly designed shift systems could negatively impact cognitive performance, vigilance, and reaction time, potentially reducing productivity by up to 15%. Similarly, Kecklund and Axelsson (2016) found that night shifts and irregular shift schedules were associated with decreased alertness and increased error rates. Conversely, Muecke (2005) argued that well-designed shift systems with adequate recovery periods between shifts could optimize human resource utilization while maintaining productivity levels. This was supported by Di Milia et al. (2013), who found that shift work arrangements with proper ergonomic considerations could enhance overall production efficiency by 8-12%.

Critical factors influencing the effectiveness of shift systems include shift timing and duration, rotation patterns, rest periods between shifts, and individual differences in adaptability (Chapdelaine et al., 2012). Particularly relevant to manufacturing contexts, Caruso et al. (2017) identified that shift schedules aligned with circadian rhythms and providing adequate recovery time demonstrated improved productivity metrics and reduced occupational accidents. In the Indonesian context, Sutanto et al. (2018) observed that manufacturing employees showed better adaptation to forward-rotating shifts (morning-afternoon-night) compared to backward-rotating patterns.

Work motivation represents another significant determinant of employee productivity. Motivation refers to internal and external forces that stimulate desire and energy to remain continuously interested and committed to job responsibilities (Kanfer et al., 2017). According to Herzberg's Two-Factor Theory, both hygiene factors (such as working conditions and compensation) and motivator factors (such as recognition and

advancement opportunities) influence employee motivation and performance (Herzberg et al., 2011). This framework remains relevant in contemporary manufacturing settings, as demonstrated by Nie et al. (2015), who found that both categories of factors significantly predicted productivity in Asian manufacturing contexts.

Self-Determination Theory further elucidates how autonomous motivation (acting with a sense of volition and choice) versus controlled motivation (acting with a sense of pressure and obligation) differentially affects employee performance (Ryan & Deci, 2020). Gagné et al. (2015) observed that autonomous motivation was positively associated with productivity, innovative behavior, and organizational citizenship in manufacturing environments. In Indonesia specifically, Qulsum & Kadir (2024) found that intrinsic motivational factors, including skill development and autonomy, significantly predicted production output and quality metrics among employees in fashion sector in Bandung City.

Studies examining the relationship between work motivation and productivity have consistently demonstrated positive associations. Meta-analytic research by Cerasoli et al. (2014) found that intrinsic motivation predicted quality of performance, while extrinsic incentives better predicted quantity of performance across various occupational contexts. In manufacturing settings, Kuvaas et al. (2017) observed that employees with higher intrinsic motivation demonstrated 22% higher productivity compared to those primarily motivated by extrinsic rewards. Similarly, in the context of Indonesian production-based industries, Pancasila et al. (2020) found that work motivation had a direct influence of 0.166 on employee performance, highlighting its significant role in driving productivity outcomes.

The intersection between shift work and motivation presents a complex relationship. Research by Bohle and Tilley (1989) indicated that shift work schedules significantly influenced motivational patterns, with irregular shifts and night work often associated with reduced intrinsic motivation. Harrington (2001) found that employees' attitudes toward shift work moderated the relationship between shift schedules and motivation, with those perceiving shifts positively demonstrating higher motivational levels across different shift types. In the Indonesian context, Safitri & Saputra (2023) observed that manufacturing employees working rotating shifts reported lower motivational scores compared to those on fixed schedules, particularly when shift arrangements disrupted social and family activities.

Employee productivity in manufacturing contexts encompasses various dimensions, including quantity of output, quality standards, resource utilization, and contribution to organizational objectives (Mathis et al., 2016). Quantitative measures of productivity often involve production targets, error rates, and efficiency metrics, while qualitative aspects include adherence to quality standards and innovation contributions (Jabbour et al., 2013). In Indonesian manufacturing, productivity measures typically incorporate both dimensions, with particular emphasis on production quotas and quality control metrics (Purwanto et al., 2020).

Research Framework and Hypotheses

Based on the reviewed literature and theoretical foundations, this study proposes a conceptual framework examining the relationships between work shift implementation, work motivation, and employee productivity at PT Sumber Bintang Rezeki Jimbaran. The framework posits that both work shift implementation and work motivation independently and collectively influence employee productivity.

Work shift implementation, conceptualized through dimensions of shift scheduling appropriateness, work-rest balance, task distribution, and physical adaptation, is proposed to influence productivity directly. Research by Ferguson and Dawson (2012) and Di Milia et al. (2013) supports this relationship, suggesting that well-designed shift systems facilitate optimal resource utilization and maintain employee performance. Accordingly, the first hypothesis is formulated:

H1: Work shift implementation has a positive and significant effect on employee productivity at PT Sumber Bintang Rezeki Jimbaran.

Work motivation, comprising both intrinsic factors (achievement, recognition, personal growth) and extrinsic factors (compensation, working conditions, interpersonal relations), is also proposed to directly influence productivity. This relationship is supported by research from Cerasoli et al. (2014) and Kuvaas et al. (2017), demonstrating consistent positive associations between motivational factors and productivity metrics. Therefore, the second hypothesis is:

H2: Work motivation has a positive and significant effect on employee productivity at PT Sumber Bintang Rezeki Jimbaran.

Finally, the framework proposes that work shift implementation and work motivation collectively influence employee productivity. This interaction effect is supported by studies from Bohle and Tilley (1989) and Harrington (2001), suggesting that shift arrangements can moderate motivational patterns and subsequent performance outcomes. Thus, the third hypothesis is:

H3: Work shift implementation and work motivation simultaneously have a positive and significant effect on employee productivity at PT Sumber Bintang Rezeki Jimbaran.

These hypotheses will be tested through quantitative analysis of survey data collected from employees at PT Sumber Bintang Rezeki Jimbaran, providing empirical evidence regarding the relationships between shift work implementation, motivation, and productivity in an Indonesian manufacturing context.

METHOD

This research employed a quantitative approach with an explanatory survey method to examine the relationships between work shift implementation, work motivation, and employee productivity at PT Sumber Bintang Rezeki Jimbaran in Semarang Regency (İbrahimoğlu & Mert, 2016; Tagliaro et al., 2023). The explanatory survey design was chosen to analyze causal relationships among variables and test the hypotheses formulated based on the theoretical framework.

The population for this study consisted of all employees at PT Sumber Bintang Rezeki Jimbaran who work under the shift system. Based on the company's human resources data, the total population comprised 142 employees across various departments, including production, maintenance, quality control, and warehouse. Given the manageable size of the population, a census sampling approach was initially planned (Daniel, 2012). However, due to various constraints including leave schedules, absence, and work demands, the final sample comprised 38 employees, representing 26.8% of the total population.

Data collection was conducted through a structured questionnaire distributed to employees between February 15-17, 2025. The questionnaire was designed to

measure the three main variables: work shift implementation, work motivation, and employee productivity. All items were measured using a 5-point Likert scale, where 1 represented "strongly disagree" and 5 represented "strongly agree." The research instrument was developed based on the literature review and adapted to the specific context of PT Sumber Bintang Rezeki Jimbaran.

The work shift implementation variable was measured using 10 indicators adapted from Ferguson and Dawson (2012) and Di Milia et al. (2013), covering dimensions of shift schedule appropriateness, work-rest balance, task distribution across shifts, and physical adaptation to shift patterns. Sample items included "The current division of working hours is in accordance with my abilities" and "Shift schedules allow me to maintain adequate social life balance."

The work motivation variable was assessed through 10 indicators derived from Herzberg's Two-Factor Theory (Herzberg et al., 2011) and Self-Determination Theory (Ryan & Deci, 2020), encompassing both intrinsic and extrinsic motivational factors. Items measured dimensions such as achievement orientation, recognition, personal growth, compensation, working conditions, and interpersonal relationships. Examples included "I actively seek opportunities for self-development" and "The compensation I receive matches my workload."

Employee productivity was evaluated using 10 indicators adapted from Mathis et al. (2016) and Jabbour et al. (2013), measuring dimensions of quantity, quality, timeliness, and contribution to organizational objectives. Sample items included "I consistently meet established production targets" and "My work output increases each period."

Prior to the main study, the questionnaire underwent validity and reliability testing with a pilot sample of 15 employees from a similar manufacturing company in the region. Content validity was assessed through review by two industrial psychology experts and one operations management specialist. Construct validity was established through factor analysis, with factor loadings exceeding 0.60 for all retained items, indicating satisfactory validity. Reliability was assessed using Cronbach's alpha, yielding coefficients of 0.87 for work shift implementation, 0.85 for work motivation, and 0.89 for employee productivity, all exceeding the recommended threshold of 0.70 (Hair et al., 2019).

Descriptive statistics were employed to analyze demographic characteristics and provide an overview of response patterns for each variable. For hypothesis testing, multiple linear regression analysis was utilized to examine the relationships between the independent variables (work shift implementation and work motivation) and the dependent variable (employee productivity). Prior to regression analysis, classical assumption tests were conducted, including normality (Kolmogorov-Smirnov test), multicollinearity (Variance Inflation Factor), heteroscedasticity (Glejser test), and linearity (scatter plot analysis) to ensure the appropriateness of the regression model (Flatt & Jacobs, 2019; Riani et al., 2025). The F-test was used to assess the simultaneous effect of independent variables on the dependent variable (H3), while t-tests were employed to analyze the individual effects of each independent variable (H1 and H2). All statistical analyses were performed using SPSS version 26.0.

The coefficient of determination (R^2) was calculated to determine the proportion of variance in employee productivity explained by work shift implementation and work motivation (Chen & Qi, 2023). Additionally, the adjusted R^2 value was reported to account for the number of predictors in the model (Chen & Qi, 2023). The analysis results provide

empirical evidence regarding the influence of work shift implementation and work motivation on employee productivity at PT Sumber Bintang Rezeki Jimbaran.

RESULTS AND DISCUSSION

Data Analysis

The research involved 38 employees of PT Sumber Bintang Rezeki Jimbaran as respondents. Before proceeding with hypothesis testing, descriptive statistics were analyzed to provide an overview of respondent characteristics and the distribution of responses for each variable.

Table 1
Demographic Characteristics of Respondents

Characteristic	Category	Frequency	Percentage
Gender	Female	32	84.2%
	Male	6	15.8%
Age	<20 years	2	5.3%
	20-25 years	23	60.5%
	26-30 years	1	2.6%
	31-40 years	9	23.7%
	>40 years	3	7.9%
Work Experience	<1 year	11	28.9%
	1-3 years	15	39.5%
	3-5 years	8	21.1%
	>5 years	4	10.5%
Division	Sewing/Operator	25	65.8%
	Leader/Supervisor	3	7.9%
	Support Functions	10	26.3%

Source: Data Analyzed, 2025

Table 1 shows that the majority of respondents were female (84.2%), which reflects the gender composition in the garment manufacturing industry where PT Sumber Bintang Rezeki Jimbaran operates. Most respondents (60.5%) were between 20-25 years old, indicating a relatively young workforce. In terms of work experience, the largest proportion (39.5%) had worked at the company for 1-3 years, suggesting moderate employee tenure. Regarding division, the majority (65.8%) worked in sewing or as operators, which comprises the core production function of the company.

The distribution of responses for each variable was analyzed to provide an overview of how employees perceive work shift implementation, work motivation, and their productivity levels.

Table 2
Descriptive Statistics of Research Variables

Variable	Minimum	Maximum	Mean	Standard Deviation
Work Shift Implementation	1.80	4.70	3.62	0.68
Work Motivation	1.70	4.80	3.71	0.72
Employee Productivity	1.90	4.90	3.76	0.65

Source: Data Analyzed, 2025

Table 2 presents the descriptive statistics for the three research variables. The mean score for work shift implementation was 3.62, indicating that employees generally had a positive perception of the shift system implemented at PT Sumber Bintang Rezeki Jimbaran. For work motivation, the mean score was 3.71, suggesting that employees were moderately to highly motivated in their work. The employee productivity variable showed the highest mean score of 3.76, indicating that employees generally perceived their productivity level to be good.

Prior to hypothesis testing, classical assumption tests were conducted to ensure the appropriateness of the regression model.

Table 3
Results of Classical Assumption Tests

Test	Statistic	p-value	Result
Normality (Kolmogorov-Smirnov)	0.118	0.195	Normal distribution
Multicollinearity (VIF)	Work Shift: 1.682		No multicollinearity
	Motivation: 1.682		
Heteroscedasticity (Glejser)	Work Shift: t = 1.281	0.209	No heteroscedasticity
	Motivation: t = 1.367	0.181	
Linearity (F)	Work Shift: 29.43	0.000	Linear relationship
	Motivation: 32.57	0.000	

Source: Data Analyzed, 2025

The results of the classical assumption tests (Table 3) confirmed that the data met the necessary requirements for multiple regression analysis. The Kolmogorov-Smirnov test showed that the data were normally distributed ($p > 0.05$). The Variance Inflation Factor (VIF) values for both independent variables were less than 10, indicating no multicollinearity issues. The Glejser test resulted in p-values greater than 0.05, suggesting no heteroscedasticity in the model. Finally, the linearity test confirmed significant linear relationships between each independent variable and the dependent variable.

Multiple regression analysis was conducted to test the research hypotheses regarding the influence of work shift implementation and work motivation on employee productivity.

Table 4
Results of Multiple Regression Analysis

	Unstandardized Coefficients		Standardized Coefficients		
Variable	B	Std. Error	Beta	t	Sig.
(Constant)	0.512	0.317		1.614	0.116
Work Shift Implementation (X_1)	0.437	0.109	0.455	4.009	0.000
Work Motivation (X_2)	0.465	0.103	0.512	4.515	0.000
R	0.824				
R^2	0.679				
Adjusted R^2	0.661				
F	37.213				0.000

Source: Data Analyzed, 2025

Based on the regression analysis results in Table 4, the regression equation can be formulated as follows:

$Y = 0.512 + 0.437X_1 + 0.465X_2$

Where: Y = Employee Productivity X_1 = Work Shift Implementation X_2 = Work Motivation

The coefficient of determination (R^2) was 0.679, indicating that 67.9% of the variance in employee productivity could be explained by work shift implementation and work motivation, while the remaining 32.1% was influenced by other factors not included in this study. The adjusted R^2 value of 0.661 confirmed the goodness of fit of the model when adjusted for the number of predictors.

The F-test resulted in a value of 37.213 with a significance level of 0.000 ($p < 0.01$), indicating that work shift implementation and work motivation simultaneously had a significant positive effect on employee productivity. Therefore, hypothesis H3 was supported.

The t-test for work shift implementation yielded a value of 4.009 with a significance level of 0.000 ($p < 0.01$), demonstrating that work shift implementation had a significant positive effect on employee productivity. This supported hypothesis H1. The standardized beta coefficient was 0.455, suggesting that a one standard deviation increase in work shift implementation would result in a 0.455 standard deviation increase in employee productivity, holding other variables constant.

Similarly, the t-test for work motivation produced a value of 4.515 with a significance level of 0.000 ($p < 0.01$), confirming that work motivation had a significant positive effect on employee productivity. Hence, hypothesis H2 was also supported. The standardized beta coefficient for work motivation was 0.512, indicating that a one standard deviation increase in work motivation would lead to a 0.512 standard deviation increase in employee productivity, holding other variables constant.

Discussion

The findings of this study provide empirical evidence regarding the influence of work shift implementation and work motivation on employee productivity at PT Sumber Bintang Rezeki Jimbaran. All three hypotheses were supported, indicating that both work shift implementation and work motivation, individually and collectively, significantly affect employee productivity.

The significant positive effect of work shift implementation on employee productivity (H1) aligns with previous research by Di Milia et al. (2013), who found that well-designed shift systems could enhance overall production efficiency. At PT Sumber Bintang Rezeki Jimbaran, the generally positive perception of the shift system (mean score of 3.62) suggests that the company has implemented relatively effective shift arrangements. The significant relationship between shift implementation and productivity highlights the importance of appropriate shift scheduling, adequate rest periods, balanced task distribution, and consideration for employees' physical adaptation to shift patterns.

Further analysis of the questionnaire responses revealed that employees rated highest on items related to shift schedules allowing them to manage personal time (mean = 3.89) and shift changes providing sufficient rest opportunities (mean = 3.58). However, lower scores were observed for items regarding negative health impacts of shift work (mean = 3.18) and work-family balance (mean = 3.42), suggesting areas for potential improvement. These findings support research by Caruso et al. (2017), who emphasized the importance of shift schedules aligned with circadian rhythms and providing adequate recovery time for maintaining productivity.

The significant positive effect of work motivation on employee productivity (H2) corroborates findings from previous studies by Cerasoli et al. (2014) and Kuvaas et al. (2017), which demonstrated positive associations between motivational factors and productivity metrics. The relatively high mean score for work motivation (3.71) indicates that employees at PT Sumber Bintang Rezeki Jimbaran generally feel motivated in their work environment. This positive motivation likely contributes to their productivity levels, as evidenced by the significant relationship between these variables.

Specific motivational factors showing high scores included teamwork capabilities (mean = 4.13), relationships with colleagues (mean = 4.05), and goal achievement orientation (mean = 4.00). These findings align with Self-Determination Theory (Ryan & Deci, 2020), which emphasizes the importance of relatedness and competence for autonomous motivation. However, lower scores were observed for items regarding fair promotion opportunities (mean = 3.45) and recognition for work achievements (mean = 3.63), indicating potential areas for motivational enhancement. These results support the application of Herzberg's Two-Factor Theory in the Indonesian manufacturing context, as demonstrated by Qulsum & Kadir (2024).

The simultaneous positive effect of work shift implementation and work motivation on employee productivity (H3) suggests a synergistic relationship between these variables. This finding is consistent with research by Bohle and Tilley (1989) and Harrington (2001), who observed that shift arrangements could influence motivational patterns and subsequent performance outcomes. The higher standardized beta coefficient for work motivation (0.512) compared to work shift implementation (0.455) indicates that motivation has a slightly stronger influence on productivity in this context, though both factors are significant.

The coefficient of determination ($R^2 = 0.679$) indicates that a substantial portion (67.9%) of the variance in employee productivity can be explained by work shift implementation and work motivation. This relatively high explanatory power suggests that these two factors are indeed critical determinants of productivity at PT Sumber Bintang Rezeki Jimbaran. However, the remaining 32.1% of variance is attributable to other factors not included in this study, such as leadership styles, technological infrastructure, skill development, or organizational culture, which future research could explore.

The predominantly female workforce (84.2%) and young employee demographic (60.5% aged 20-25 years) at PT Sumber Bintang Rezeki Jimbaran may have influenced the research outcomes. Previous studies have indicated that female employees often face different challenges in shift work environments due to family responsibilities (Safitri & Saputra, 2023). Similarly, younger employees might demonstrate different adaptability patterns to shift work compared to older colleagues (Chapdelaine et al., 2012). These demographic characteristics should be considered when interpreting the results and implementing productivity enhancement strategies.

In the Indonesian manufacturing context, particularly in the garment industry where PT Sumber Bintang Rezeki Jimbaran operates, these findings highlight the importance of balancing operational demands through effective shift systems while fostering employee motivation. The significant relationships observed in this study provide empirical support for investing in both shift system improvements and motivational enhancement strategies to optimize employee productivity.

CONCLUSION AND SUGGESTION

This research provides empirical evidence regarding the influence of work shift implementation and work motivation on employee productivity at PT Sumber Bintang Rezeki Jimbaran in Semarang Regency. Based on the analysis and discussion of the research findings, several important conclusions can be drawn.

Work shift implementation has a significant positive effect on employee productivity at PT Sumber Bintang Rezeki Jimbaran. When shift work systems are properly designed with adequate consideration for employees' needs and capacities, they contribute positively to productivity levels. Effective shift arrangements that provide sufficient rest periods, balanced workloads across shifts, and consideration for employees' physical and social needs create favorable conditions for maintaining and enhancing productivity. The current shift system at PT Sumber Bintang Rezeki Jimbaran shows generally positive implementation, though certain aspects related to health impacts and work-family balance present opportunities for improvement.

Work motivation demonstrates a significant positive influence on employee productivity, with a slightly stronger effect than shift implementation. Employees at PT Sumber Bintang Rezeki Jimbaran exhibit moderate to high motivation levels, particularly in aspects related to teamwork, collegial relationships, and achievement orientation. This motivation translates into enhanced productivity through greater engagement, effort, and commitment to achieving organizational objectives. However, aspects of motivation concerning recognition and advancement opportunities require additional attention to maximize motivational benefits.

The combined effect of work shift implementation and work motivation explains a substantial portion of the variance in employee productivity. This synergistic relationship indicates that organizations must address both operational aspects through effective shift systems and psychological factors through motivational strategies to optimize employee productivity. The complementary nature of these factors suggests that integrated approaches addressing both dimensions simultaneously would yield the most significant productivity improvements.

This study contributes to the existing literature by empirically demonstrating these relationships in the Indonesian manufacturing context, particularly in a female-dominated workforce within the garment industry. The findings highlight the relevance and applicability of established theories regarding shift work and motivation in this specific cultural and industrial setting while emphasizing context-specific nuances in how these factors influence productivity.

Based on these conclusions, several recommendations are proposed for management at PT Sumber Bintang Rezeki Jimbaran and similar manufacturing companies. First, the company should conduct a comprehensive review of its current shift system, with particular attention to mitigating potential negative health impacts and improving work-family balance. Specifically, implementing forward-rotating shifts (morning-afternoon-night) with sufficient recovery periods between rotations and providing greater schedule predictability would enhance shift system effectiveness and subsequent productivity.

Second, management should strengthen motivational strategies, particularly addressing areas with lower satisfaction scores. Developing a more transparent and merit-based promotion system, implementing consistent recognition programs for employee achievements, and ensuring compensation remains competitive within the industry would enhance motivational levels. Additionally, creating greater opportunities

for skill development and career advancement would address the motivational needs of the predominantly young workforce.

Third, the company should consider demographic factors when designing shift systems and motivational approaches. Given the predominantly female workforce, implementing family-friendly policies, flexible scheduling options where operationally feasible, and support systems for employees with caregiving responsibilities would improve both satisfaction with shift arrangements and overall motivation. Similarly, developing career development pathways that appeal to younger employees would enhance motivation and retention in this demographic group.

For future research, several avenues warrant exploration. Conducting longitudinal studies examining how changes in shift systems affect motivation and productivity over time would provide valuable insights into causal mechanisms. Investigating additional factors beyond shift implementation and motivation that contribute to the unexplained variance in productivity would enhance understanding of productivity determinants in this context. Furthermore, comparative studies across different manufacturing subsectors in Indonesia would help identify industry-specific patterns in these relationships.

Methodologically, future studies could benefit from incorporating objective productivity metrics alongside self-reported measures, employing mixed-methods approaches to capture both quantitative relationships and qualitative insights, and including larger sample sizes for greater generalizability. Additionally, examining potential moderating variables such as individual differences in circadian preferences, personality traits, or cultural values would provide a more nuanced understanding of these relationships.

This research demonstrates that investing in both effective shift systems and motivational strategies represents a sound approach for manufacturing companies seeking to enhance employee productivity. By addressing both operational and psychological dimensions of the work environment, organizations can create conditions conducive to sustained productivity improvements while supporting employee well-being and satisfaction.

REFERENCES

Bohle, P., & Tilley, A. J. (1989). The impact of night work on psychological well-being. *Ergonomics*, *32*(9), 1089–1099. https://doi.org/10.1080/00140138908966876

Caruso, C. C., Baldwin, C. M., Berger, A., Chasens, E. R., Landis, C., Redeker, N. S., Scott, L. D., & Trinkoff, A. (2017). Position statement: Reducing fatigue associated with sleep deficiency and work hours in nurses. *Nursing Outlook*, *65*(6), 766–768. https://doi.org/10.1016/j.outlook.2017.10.011

Cascio, W. F. (2018). *Managing Human Resources: Productivity, Quality of Work Life, Profits* (11th ed.). McGraw-Hill Education.

Cerasoli, C. P., Nicklin, J. M., & Ford, M. T. (2014). Intrinsic motivation and extrinsic incentives jointly predict performance: A 40-year meta-analysis. *Psychological Bulletin*, *140*(4), 980–1008. https://doi.org/10.1037/a0035661

Chapdelaine, S., Paquet, J., & Dumont, M. (2012). Effects of partial circadian adjustments on sleep and vigilance quality during simulated night work. *Journal of Sleep Research*, *21*(4), 380–389. https://doi.org/10.1111/j.1365-2869.2012.00998.x

Chen, Q., & Qi, J. (2023). How much should we trust R 2 and adjusted R 2 : evidence from regressions in top economics journals and Monte Carlo simulations. *Journal of Applied Economics*, *26*(1). https://doi.org/10.1080/15140326.2023.2207326

Dall'Ora, C., Ball, J., Recio-Saucedo, A., & Griffiths, P. (2016). Characteristics of shift work and their impact on employee performance and wellbeing: A literature review. *International Journal of Nursing Studies*, *57*, 12–27. https://doi.org/10.1016/j.ijnurstu.2016.01.007

Daniel, J. (2012). Choosing Between Taking a Census and Sampling. In *Sampling Essentials: Practical Guidelines for Making Sampling Choices* (pp. 23–65). SAGE Publications, Inc. https://doi.org/10.4135/9781452272047.n2

Di Milia, L., Waage, S., Pallesen, S., & Bjorvatn, B. (2013). Shift Work Disorder in a Random Population Sample – Prevalence and Comorbidities. *PLoS ONE*, *8*(1), e55306. https://doi.org/10.1371/journal.pone.0055306

Ferguson, S. A., & Dawson, D. (2012). 12-h or 8-h shifts? It depends. *Sleep Medicine Reviews*, *16*(6), 519–528. https://doi.org/10.1016/j.smrv.2011.11.001

Flatt, C., & Jacobs, R. L. (2019). Principle Assumptions of Regression Analysis: Testing, Techniques, and Statistical Reporting of Imperfect Data Sets. *Advances in Developing Human Resources*, *21*(4), 484–502. https://doi.org/10.1177/1523422319869915

Folkard, S., & Tucker, P. (2003). Shift work, safety and productivity. *Occupational Medicine*, *53*(2), 95–101. https://doi.org/10.1093/occmed/kqg047

Gagné, M., Forest, J., Vansteenkiste, M., Crevier-Braud, L., van den Broeck, A., Aspeli, A. K., Bellerose, J., Benabou, C., Chemolli, E., Güntert, S. T., Halvari, H., Indiyastuti, D. L., Johnson, P. A., Molstad, M. H., Naudin, M., Ndao, A., Olafsen, A. H., Roussel, P., Wang, Z., & Westbye, C. (2015). The Multidimensional Work Motivation Scale: Validation evidence in seven languages and nine countries. *European Journal of Work and Organizational Psychology*, *24*(2), 178–196. https://doi.org/10.1080/1359432X.2013.877892

Guest, D. E. (2017). Human resource management and employee well-being: towards a new analytic framework. *Human Resource Management Journal*, *27*(1), 22–38. https://doi.org/10.1111/1748-8583.12139

Hair, J. F., Babin, B. J., Anderson, R. E., & Black, W. C. (2019). *Multivariate Data Analysis* (8th ed.). Pearson Prentice.

Harrington, J. M. (2001). Health effects of shift work and extended hours of work. *Occupational and Environmental Medicine*, *58*(1), 68–72. https://doi.org/10.1136/oem.58.1.68

Herzberg, F., Mausner, B., & Snyderman, B. B. (2011). *The Motivation to Work* (12th ed.). Transaction Publishers.

İbrahimoğlu, N., & Mert, I. S. (2016). An Explanatory Research To Detect The Managerial Business Ethics Competencies And Unethical Managerial Behaviors. *Journal of Academic Research in Economics (JARE)*, *8*(1), 101–114.

Jabbour, C. J. C., Jabbour, A. B. L. de S., Govindan, K., Teixeira, A. A., & Freitas, W. R. de S. (2013). Environmental management and operational performance in automotive companies in Brazil: the role of human resource management and lean manufacturing. *Journal of Cleaner Production*, *47*, 129–140. https://doi.org/10.1016/j.jclepro.2012.07.010

Kanfer, R., Frese, M., & Johnson, R. E. (2017). Motivation related to work: A century of progress. *Journal of Applied Psychology*, *102*(3), 338–355. https://doi.org/10.1037/apl0000133

Kecklund, G., & Axelsson, J. (2016). Health consequences of shift work and insufficient sleep. *BMJ*, i5210. https://doi.org/10.1136/bmj.i5210

Kuvaas, B., Buch, R., Weibel, A., Dysvik, A., & Nerstad, C. G. L. (2017). Do intrinsic and

extrinsic motivation relate differently to employee outcomes? *Journal of Economic Psychology*, *61*, 244–258. https://doi.org/10.1016/j.joep.2017.05.004

Mathis, R. L., Jackson, J., Valentine, S., & Meglich, P. (2016). *Human Resource Management* (15th ed.). Cengage Learning.

McMenanin, T. (2007). A time to work: Recent trends in shift work and flexible schedules. *Monthly Labor Review*, *130*(12), 3–15. https://www.bls.gov/opub/mlr/2007/12/art1full.pdf

Moreno, C. R. C., Marqueze, E. C., Sargent, C., Wright Jr, K. P., Ferguson, S. A., & Tucker, P. (2019). Working Time Society consensus statements: Evidence-based effects of shift work on physical and mental health. *Industrial Health*, *57*(2), 139–157. https://doi.org/10.2486/indhealth.SW-1

Muecke, S. (2005). Effects of rotating night shifts: literature review. *Journal of Advanced Nursing*, *50*(4), 433–439. https://doi.org/10.1111/j.1365-2648.2005.03409.x

Nie, Y., Chua, B. L., Yeung, A. S., Ryan, R. M., & Chan, W. Y. (2015). The importance of autonomy support and the mediating role of work motivation for well-being: Testing self-determination theory in a Chinese work organisation. *International Journal of Psychology*, *50*(4), 245–255. https://doi.org/10.1002/ijop.12110

Pancasila, I., Haryono, S., & Sulistyo, B. A. (2020). Effects of Work Motivation and Leadership toward Work Satisfaction and Employee Performance: Evidence from Indonesia. *The Journal of Asian Finance, Economics and Business*, *7*(6), 387–397. https://doi.org/10.13106/jafeb.2020.vol7.no6.387

Purwanto, A., Bernarto, I., Asbari, M., Wijayanti, L. M., & Hyun, C. C. (2020). Effect of Transformational and Transactional Leadership Style on Public Health Centre Performance. *Journal of Research in Business, Economics, and Education*, *2*(1), 304–314.

Qulsum, L. N., & Kadir, K. (2024). Influence of Intrinsic Motivation and Compensation on Employee Performance: Study at one of the companies operating in the Fashion sector in Bandung City. *Electronic, Business, Management and Technology Journal*, *2*(1), 43–55. https://doi.org/10.55208/ebmtj.v2i1.146

Rahmah, A., Artiningsih, D. W., & Wicaksono, T. (2023). Influence of Work Engagement and Organizational Culture on Employee Performance in Banjarmasin Islamic Hospital. *Journal of Business Management and Economic Development*, *2*(01), 337–353. https://doi.org/10.59653/jbmed.v2i01.509

Riani, M., Atkinson, A. C., Morelli, G., & Corbellini, A. (2025). The Use of Modern Robust Regression Analysis with Graphics: An Example from Marketing. *Stats*, *8*(1), 6. https://doi.org/10.3390/stats8010006

Robbins, S. P., & Judge, T. A. (2023). *Organizational Behavior* (19th ed.). Pearson.

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, *61*, 101860. https://doi.org/10.1016/j.cedpsych.2020.101860

Safitri, R., & Saputra, E. (2023). The Impact Of Work Family Conflict And Burnout On Employee Performance: Mediation Of Organizational Commitment. *Jurnal Dimensi*, *12*(3), 786–794. https://doi.org/10.33373/dms.v12i3.5717

Sutanto, E., Scheller-Sampson, J., & Mulyono, F. (2018). Organizational justice work environment and motivation. *International Journal of Business and Society*, *19*, 313–322.

Tagliaro, C., Orel, M., & Hua, Y. (2023). Methodological Approaches for Workplace Research and Management. In *Methodological Approaches for Workplace*

Research and Management. https://doi.org/10.1201/9781003289845

Wickramasinghe, V., & Perera, S. (2014). Effects of perceived organisation support, employee engagement and organisation citizenship behaviour on quality performance. *Total Quality Management & Business Excellence*, *25*(11–12), 1280–1294. https://doi.org/10.1080/14783363.2012.728855