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The Effect of Inventory Control on the Work Productivity of Inventory Division Employees at PT Duta Sentosa Yasa (MR DIY) KBN Marunda

Sabil Wijoyo Kesumo[1], Degdo Suprayitno[2] Wahyuddin Latunreng[3]
[123]STIAMI Institute of Social Sciences and Management, Indonesia
Correspondent : degdo.suprayitno@stiami.co.id[2]

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ABSTRACT: This study examines the effect of Inventory Control on Work Productivity of the Inventory Division at PT. Duta Sentosa Yasa (MR.DIY) KBN Marunda. The population in this study is only employees of the Inventory division. The number of samples used is 65 people who employees of the Inventory division. The sampling technique uses the saturated sample technique. Data analysis used validity test, reliability test, classical assumption test, normality test, linearity test, simple linear regression analysis, coefficient of determination test and t test. The analysis shows that Inventory Control has a positive influence on Work Productivity. The results showed that the validity test that r count is greater than the r table value of 0.244 with a significant level of 5% and n: 65. Thus, the conclusions of this study indicate that there is a significant influence between Inventory Control on Work Productivity of 59.9% while 40.1% is influenced by other variables.

Keywords: Inventory Control, Work Productivity

INTRODUCTION

Every business operating in the manufacturing or service industry has the same goal, namely maintaining the level of competition between companies, obtaining high profits, and minimizing expenses (Abdolazimi et al., 2021; Chołodowicz & Orłowski, 2022; Taleizadeh & Nematollahi, 2014; Teunter & Kuipers, 2022). One factor in the marketing process of a product is the logistics management team, which consists of wholesalers, retailers, wholesale distributors, material procurement, production and distributors (Mishra, Tijerina-Aguilera, et al., 2021; Mishra, Wu, et al., 2021; Simbolon & Lolyta, 2021).

PT Duta Sentosa Yasa (MR DIY) KBN Marunda distributes finished products to customers every day. This inventory of goods must be maintained and controlled by the inventory division in its supervision every day. Inventory control is a very important factor in warehouse management because it can increase operational efficiency and worker productivity (Dollard & Neser, 2013; Kumar & Uthayakumar, 2017; Shu et al., 2017; Taufik & Ahmad, 2014).

The phenomenon that occurs at PT Duta Sentosa Yasa (MR DIY) KBN Marunda is that data discrepancies occur where inventory control is not 100% perfect according to daily targets. This results in the inventory stock in the warehouse being distributed to customers still not being fulfilled perfectly. So it can hamper warehouse work productivity in managing, storing and distributing goods (Annie Rose Nirmala et al., 2022; Gurumurthy et al., 2020; Pouralikhani et al., 2017).

The following are the targets and realization of product control in 2023 at PT Duta Sentosa Yasa (MR DIY) KBN Marunda:

Table 1 Target and Realization of Inventory for 2022-2023

Moon	Sticker Found	Note Stickers Found	Target (%)	Realization (%)
Quarter I	5.083.710	5.221	99,7%	99,92%
Quarter II	2.693.514	6.637	99,72%	99,75%
Quarterly III	1.532.315	4.191	100%	99,73%

Figure 1 Work Productivity Graph

Source: PT Duta Sentosa Yasa (MR DIY) KBN Marunda, 2023

Based on table 1, there is a decrease in the second and third quarters where the realization does not reach 100%. This can have an impact on warehouse work productivity because the availability of finished product inventory is incomplete, then there are also not found stickers where the goods are lost or damaged so it can reduce the realization of the previous target. . Therefore, this can be done by optimizing the use of inventory and reducing the risk of loss or damage to inventory, thereby reducing the cost of replacing goods and increasing operational efficiency and work productivity (Abdulrahim & Yousif, 2023; Anakpo et al., 2023; Fusi & Feeney, 2018; Odiwo et al., 2022).

Several previous studies used as references in this research include research conducted by Widhianingsih & Wahyuni (2023) with an article entitled Increasing Shoe Productivity through Controlling Raw Material Supplies Using the Economic Order Quantity (EQQ) Method (CASE

STUDY: CV YUNANDA, SIDOARJO), Facrureza (2022) with an article entitled Analysis of the Application of Food Raw Material Inventory on the Productivity of the Production Process at Harris Vertu Hotel Harmoni Jakarta, Arbi Sulistiyo & Umar Hamdan Nasution (2022) with an article entitled The Effect of Planning Raw Material Requirements and Controlling Raw Material Inventory on the Smoothness of the Production Process At Sustainable Nature Fresh Medan (Aengchuan & Phruksaphanrat, 2018; Farughi et al., 2014; Woo et al., 2021; Yi, 2018).

There are similarities and differences in the research conducted by previous research and the research conducted by the author. The similarity is that all previous researchers focused on discussing inventory control and work productivity, while the differences between previous research and this research are the variables, research objects and research locations (Galanti et al., 2021; Kharadze et al., 2021; Ssozi & Asongu, 2016).

Based on the phenomenon described above, the author is interested in discussing and explaining it in an article entitled "The Influence of Inventory Control on the Work Productivity of Inventory Division Employees at PT Duta Sentosa Yasa (MR DIY) KBN Marunda" (Gebisa, 2023; Muttaqin, 2022; Sopyani, 2022). The aim of this research is to determine the magnitude of the influence of inventory control on the work productivity of inventory division employees at PT Duta Sentosa Yasa (MR DIY) KBN Marunda.

1. Logistics

a. Understanding Logistics

Logistics is the process of strategically procuring and distributing goods from suppliers, including facilities for businesses and those who provide services to other entities (Bowersox Logistics Management, 2014: 13).

2. Logistics management

a. Management

According to Mawardi (2016), management is a unique process consisting of planning, organizing, moving and monitoring actions carried out to determine and achieve predetermined targets through the use of human resources and other resources.

b. Logistics

According to Dwikora Harjo (2019: 8-9), the tax function is the main use and according to Siahaya (2013), Logistics Management is a science or art and process relating to planning and determining procurement, storage, distribution and maintenance needs and removal of materials/tools.

c. Logistics Management Function

According to Prihantono, C.R. (2013), logistics management functions are a collection of processes that include:

1) Planning function and determining needs.
2) Budgeting function.
3) Procurement function
4) Storage and distribution functions
5) Maintenance function
6) Erase function
7) Control function

3. Inventory Control

Inventory control is a series of control policies to determine the level of inventory that must be maintained, when orders to increase inventory must be placed and how large orders must be held (Almrdof & Attia, 2021; Facrureza, 2022; Sulistiyo & Umar Hamdan Nasution, 2022).

4. Work productivity

According to Sinungan (2014), work productivity is a certain ratio between the results achieved (output) and the resources needed (input).

5. Theoretical framework

This research will use the effect of inventory control on work productivity. The variables that will be used are inventory control (X) and work productivity (Y) as variables in this research. To obtain this data, a set of written questions were used according to the variables to be measured for respondents to answer.

a. Inventory Control

Inventory control is a series of control policies to determine the level of inventory that must be maintained, when orders to increase inventory must be placed and how large orders must be held (Herjanto, 2013). According to research conducted by Assauri (2016:227) inventory control can be measured by several indicators, namely:

1) Budget or production details
2) Raw material purchase price.

3) Costs or expenses in storing raw materials.

4) Supplier accuracy in delivering raw materials.

5) Quantity of raw materials per order.

b. Work productivity

According to Sumarsono (2010) work productivity is the comparison between what is produced and what is put in. According to Handoko (2014) work productivity can be measured by several indicators, namely:

1) Ability

2) Increase yield

3) Work spirit

4) Self-development

5) Stop

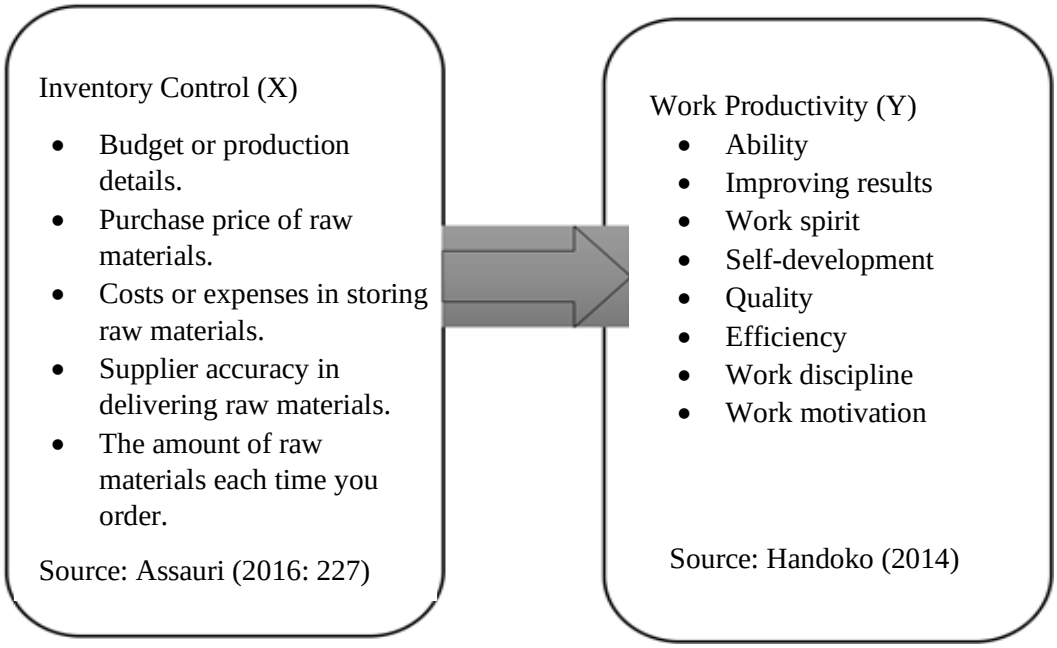
6) Efficiency

7) Work discipline

8) Work motivation

Based on a review of the theoretical basis and previous research, a framework of thought can be prepared as follows:

Chart 1 Theoretical Framework



6. Hypothesis

A hypothesis is a temporary answer to a research problem formulation, where the research problem formulation has been stated in the form of a question sentence. It is said to be temporary, because the answer given is only based on relevant theory, not yet based on empirical facts obtained through data collection. (Sugiyono, 2013:63). Based on the problem formulation stated above, the hypothesis in this research can be concluded as follows:

H0 : There is no significant influence between inventory control (X) on warehouse work productivity at PT Duta Sentosa Yasa (MR DIY) KBN Marunda (Y).

H1 : There is a significant influence between inventory control (X) on warehouse work productivity at PT Duta Sentosa Yasa (MR DIY) KBN Marunda (Y).

METHOD

1. Research Approaches and Types

The research approach carried out by the researcher is a quantitative approach where the researcher will analyze numbers using statistics to measure and obtain research results through questionnaires. Meanwhile, the type of research used by researchers is descriptive, where a research method describes problems in the form of facts that occur. This research was used to test the significant influence of inventory control on the work productivity of the Inventory division at PT Duta Sentosa Yasa.

2. Data Collection Techniques

The data collection techniques used in this research were questionnaires, observation and literature review. Where the data collection technique uses a Likert scale with a value range between one and five (score 1 to 5). The questionnaire that will be used in writing data collection consists of descriptive analysis and special questions.

3. Sampling Techniques

The sampling techniques that will be used are population and sample. The population in this study were employees of the inventory division at PT Duta Sentosa Yasa (MR DIY) KBN Marunda, totaling 65 employees. To determine the sample size, the author used non-probability sampling and used a saturated sample. Research using saturated sampling techniques can only be used if the population to be studied is relatively small. Saturated sampling technique is a sample determination technique where all members of the population are used as samples (Sugiyono, 2017). For this reason, the population and sample in this research can be determined to be employees of the inventory division of PT Duta Sentosa Yasa (MR DIY) KBN Marunda, totaling 65 employees.

4. Data Analysis Techniques

Before calculating the regression equation, both simple regression and multiple regression, the research data is first tested with validity, reliability, normality, autocorrelation, simple linear regression test, hypothesis T test, F test, and determination test.

Validity Test is to ensure that the questionnaire is truly valid. Valid is a measure that shows the consistency of the measuring instrument in measuring the same symptom on other occasions. Research variables are said to be reliability free if the Cronbach alpha value is > 0.7. The normality test is a rule for determining the Asymp value. Sig. (2-tailed) SPSS output is greater than the significance level (0.05).

The autocorrelation test in this research is to determine whether there is a correlation between disturbing variables in a certain period and previous variables. Simple linear regression analysis to determine the effect of one variable on other variables. Hypothesis T test to test the hypothesis regarding the influence of each independent variable partially on the dependent variable. Meanwhile, the multiple correlation coefficient test (R) is to determine how close the relationship is between two variables. Test the coefficient of determination to find out how much endogenous variables are simultaneously able to explain exogenous variables.

5. Research Schedule Location

This research was carried out at PT Duta Sentosa Yasa (MR DIY) KBN Marunda which is located at Jl. Marunda Center area, Blok T, Pantai Makmur, Tarumajaya, Bekasi Regency, West Java 17212, Indonesia. Research Schedule which includes all thesis preparation activities from proposal preparation, preliminary study, reference collection, data collection, thesis preparation and holding the thesis trial.

RESULT AND DISCUSSION

1. Validity test

The validation test results can be seen in Table 2 below:

Table 2 Validity Test Results for Work Productivity Variables

NO	Variable	r Count	r Table	Is
1	Y_1	0,554	0,244	*Valid*
2	Y_2	0,263	0,244	*Valid*
3	Y_3	0,423	0,244	*Valid*
4	Y_4	0,497	0,244	*Valid*
5	Y_5	0,430	0,244	*Valid*
6	Y_6	0,369	0,244	*Valid*
7	Y_7	0,417	0,244	*Valid*
8	Y_8	0,281	0,244	*Valid*
9	Y_9	0,466	0,244	*Valid*
10	Y_10	0,417	0,244	*Valid*
11	Y_11	0,345	0,244	*Valid*
12	Y_12	0,393	0,244	*Valid*
13	Y_13	0,290	0,244	*Valid*
14	Y_14	0,499	0,244	*Valid*
15	Y_15	0,419	0,244	*Valid*
16	Y_16	0,553	0,244	*Valid*
17	Y_17	0,650	0,244	*Valid*
18	Y_18	0,437	0,244	*Valid*
19	Y_19	0,450	0,244	*Valid*
20	Y_20	0,428	0,244	*Valid*
21	Y_21	0,443	0,244	*Valid*
22	Y_22	0,266	0,244	*Valid*
23	Y_23	0,381	0,244	*Valid*
24	Y_24	0,530	0,244	*Valid*

Based on the processing results above, it shows that the influence variable Work Productivity (Y) has a calculated r value > r table 0.244 and a significance value of 0.000 < 0.05, so it can be concluded that the work productivity variable instrument is declared valid.

Table 3 Validity Test Results of Inventory Control Variables

NO	Variable	r Count	r Table	Is
1	X_1	0,522	0,244	*Valid*
2	X_2	0,489	0,244	*Valid*
3	X_3	0,438	0,244	*Valid*
4	X_4	0,505	0,244	*Valid*
5	X_5	0,397	0,244	*Valid*
6	X_6	0,540	0,244	*Valid*
7	X_7	0,438	0,244	*Valid*
8	X_8	0,553	0,244	*Valid*
9	X_9	0,345	0,244	*Valid*
10	X_10	0,438	0,244	*Valid*
11	X_11	0,570	0,244	*Valid*
12	X_12	0,546	0,244	*Valid*

Based on the processing results above, it shows that the inventory control variable (X) has a calculated r value > r table 0.244 and a significance value of 0.000 < 0.05, so it can be concluded that the inventory control influence instrument is declared valid.

2. Reliability Test

The results of the reliability test can be seen in Table 4 below:

Table 4 Results of Reliability Test of Inventory Control on Work Productivity

NO	**Variable**	***Cornbarch's apha***	**Criteria**	**Is.**
1	Inventory Control (X)	0,723	0,6	Reliable
2	Work Productivity (Y)	0,798	0,6	Reliable

The data above shows that the Cornbarch's apha value is > 0.600 for each variable in the study. This shows that the respondents regarding the data are reliable.

3. Kolmograv Normality Test

The results of the Kolmogorov-Simirnov Analysis normality test can be seen in Table 5 below:

Table 5 Normality Test Results of Research Variables

One-Sample Kolmogorov-Smirnov Test
Unstandardized Residual

N			65
Normal Parameters[a,b]	Mean		,0000000
	Std. Deviation		7,08815882
Most Extreme Differences	Absolute		,137
	Positive		,137
	Negative		-,107
Test Statistic			,137
Asymp. Sig. (2-tailed)			,004[c]
Monte Carlo Mr. (2-tailed)	Say.		,158[d]
Confidence	99% Interval	Lower Bound	,148
		Upper Bound	,167

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. Based on 10000 sampled tables with starting seed 2000000.

Based on the table above, the normality test results show a significance value of 0.158 > 0.05. So it can be concluded that the residual value is normally distributed.

4. Autokeralization Test

The results of the autokerlation test can be seen in table 6 below:

Table 6 Autocorrelation Test Results

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,774[a]	,599	,592	7,14419	2,211

a. Predictors: (Constant), INVENTORY CONTROL
b. Dependent Variable: WORK PRODUCTIVITY

Based on the table above, it is known that Watson's Durbin is 2.211 so the D-W number is below -2 which indicates that there is positive autocorrelation.

So the calculation is:

n	= 65
d	= 2,211
dL	= 1,5670
of	= 1,6294
4 - dL	= 4 – 1,5670 = 2,433
4 - dU	= 4 – 1,6294 = 2,3706

From this calculation, it can be said that dU < d < 4-dU so the null hypothesis is accepted, meaning there is no autocorrelation.

5. Simple Linear Regression Analysis

The results of simple linear regression analysis can be seen in Table 7 below:

Table 7 Simple Linear Regression Test Results

Coefficients[a]

CONSTAN		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Say.
1	PRODUCTIVITY WORK	19,692	6,415		3,070	,003
	CONTROL PREPARATION	1,170	,121	,774	9,698	,000

a.Dependent Variable: WORK PRODUCTIVITY

Based on table 7, it can be concluded that the inventory control regression coefficient value is 1.170, an increase of 1% and the constant (a) is 0, so work productivity increases by 1.170. This shows that inventory control makes a positive contribution.

6. Hypothesis T Test

The results of the hypothesis T test can be seen in Table 8 below:

Table 8. Hypothesis T Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Say.
		B	Std. Error	Beta		
1	(Constant)	19,692	6,415		3,070	,003
	CONTROL PREPARATION	1,170	,121	,774	9,698	,000

a. Dependent Variable: WORK PRODUCTIVITY

Given Table T = t (a/2 ; n-k-1)

= t (0,05 ; 65-1-1)

= t (0,025 ; 63)

= 1,99834

Based on table 8, the significant value for the influence of inventory control on work productivity is 0.03 < 0.05 and the calculated t value is 9.698 > 1.996, so Ho is rejected and Ha is accepted or there is an influence of inventory control on warehouse work productivity at PT Duta Sentosa Yasa (MR DIY) KBN Marunda.

7. Coefficient of Determination

The results of the coefficient of determination test can be seen in Table 9 below:

Table 9. Coefficient of Determination Test Results

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,774[a]	,599	,592	7,14419

a. Predictors: (Constant), INVENTORY CONTROL
b. Dependent Variable: WORK PRODUCTIVITY

Based on the output above, it is known that the R square value is 0.599. This means that the influence of the inventory control variable on the work productivity variable is 59.9%, the remaining 40.1% of work productivity is influenced by other factors not included in this research.

PT Duta Sentosa Yasa (MR DIY) KBN Marunda is a branch of MR DIY which provides various tools, household equipment and other needs by implementing inventory control for the work productivity of its employees. Based on the T test, the significance value is 0.03 < 0.05, so it can be concluded that inventory control has a significant influence on work productivity.

The results of measuring and testing the effect of inventory control on the work productivity of the inventory division at PT Duta Sentosa Yasa (MR DIY) KBN Marunda, it was found that there

was a significant influence between inventory control on the work productivity of the inventory division at PT Duta Sentosa Yasa (MR DIY) KBN Marunda of 59.9% and the remaining 40.1% is influenced by other variables not included in the model.

Causally, the increase in the influence of inventory control on the work productivity of the inventory division at PT Duta Sentosa Yasa (MR DIY) KBN Marunda is 19,692 as shown by the simple regression equation Y = 19,692 + 1,170X. Because the value of the regression equation is positive, if the inventory control variable (X) increases, then this increase is offset by an increase in the work productivity of the inventory division at PT Duta Sentosa Yasa (MR DIY) KBN Marunda.

CONCLUSION

The sampling technique uses a saturated sampling technique, a sampling technique where all members of the population are used as samples. The analytical method used is simple linear regression analysis using hypothesis testing, namely the t test. Based on the results of the Simple Linear Regression Analysis, the correlation/relationship value (R) is 0.774. From the output, the coefficient of determination (R Square) is 0.599, which means that the influence of inventory control on the work productivity of the inventory division at PT Duta Sentosa Yasa (MR DIY) Marunda's KBN is 59.9% and the remaining 40.1% is influenced by other variables not examined in this research.

Based on the research results, suggestions can be given employees, then there must be other supports to increase the effectiveness of employee work productivity and from the results of this research, inventory control is smaller than work productivity, so it needs to be improved further in order to achieve maximum results for work productivity.

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