

The Effect of Just in Time Method on Inventory Control in Children's Clothing Production Companies

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ABSTRACT

This research aims to find out how much influence the just-in-time method has on inventory control at the CV children's clothing production company. Elshaddai, North Jakarta. This research uses quantitative methods with a population of 28 respondents. The data analysis technique used in this research is statistics. Meanwhile, the data was tested using the classic assumption test which contains validity tests, reliability tests and normality tests. Determining the results was carried out using a simple linear regression test, then continued with a hypothesis test containing a partial test (t) and a coefficient of determination test. The types of data used in research are primary data and secondary data. Then the data was processed using SPSS statistical analysis. The independent variable in this research is the just in time method, and the dependent variable is inventory control. The results of the research show that there is a significant and positive influence between the just in time method variables on inventory control of 53.4% with an R2 value of 0.534, and based on the results of the t test carried out with the results of the analysis it is known that the t count of 5.453 is greater than the t table of 2.055, then it can be concluded that H0 is rejected and H1 is accepted, which means that the just in time method variable (X) is significant to the inventory control variable (Y).

1. INTRODUCTION

Inventory is one of the important aspects in the smooth running of a company's production activities to meet market demand and needs (Oktaviani et al., 2022). Therefore, companies must implement an appropriate raw material inventory system to avoid delays or excess inventory that can hinder and harm business operations (Oktaviani et al., 2022). An efficient inventory system plays a crucial role in maintaining the smooth running of a company's operations. One method that is often used to create an efficient inventory control system is Just In Time (JIT). This method has become common practice in various industries and is used to ensure the supply of raw materials in accordance with company policies and consumer demand (Adnyana & Sukadana, 2022).

The importance of a proper inventory system is also felt by CV Elshaddai, a children's clothing production company operating in North Jakarta. Despite its efforts to manage its inventory, CV Elshaddai still faces overstock problems that cause an increase in children's clothing production lead time between 4% and 128% of the initial estimate. This increase in lead time has the potential to cause delays in the production process and delivery of goods to customers.

Observations show that the ideal lead time for the average production process is 2-3 weeks after the company receives an order. However, in reality this lead time increased to 3-4 weeks, which caused an increase in stock of 28.30% from January to February. This overstock condition not only increases the risk of damage to goods, but also hampers storage space for new raw materials or products. So in an effort to overcome this problem, CV Elshaddai uses the Gantt Chart method for inventory control. However, the evaluation results show that the Gantt Chart is less effective for managing inventory control in children's clothing production, because it is more suitable for projects with a clear and structured workflow. Therefore, the company switched to the Just In Time method as an effort to improve the inventory control system and reduce existing problems.

Several studies support the implementation of JIT as an effective method in inventory control. A study by Aprilianti and Hidayat (2019) showed that JIT significantly increased production cost

efficiency at PT. Toyota Boshoku Indonesia. Hahury et al. (2022) also found that the implementation of JIT had a positive effect on mineral water inventory control. However, it should be noted that not all studies show the same results. Aznedra & Safitri (2018) found that the implementation of JIT did not provide significant benefits in inventory control or cost efficiency in certain companies.

The scope of this research is limited to CV Elshaddai in North Jakarta, with a focus on the influence of the Just Method. In Time on inventory control in children's clothing manufacturing companies. The data used are primary data obtained directly from the original source without intermediaries.

This study aims to analyze how much influence the Just Method has. In Time on inventory control at CV Elshaddai. The benefits of this study include academic, practical, and policy aspects, and are expected to contribute to the development of science and business practices.

The hypothesis proposed in this study is that there is a significant influence between the implementation of JIT and inventory control at CV Elshaddai, North Jakarta.

2. RESEARCH METHODS

This study is associative with a focus on the causal relationship between the independent variable (Just In Time) and the dependent variable (inventory control) at CV Elshaddai, North Jakarta. The Just In Time (JIT) method is measured through four dimensions: Kanban control, lot size reduction, JIT scheduling, and setup time reduction. Inventory control is assessed based on safety stock, optimal inventory levels, order fulfillment accuracy, and customer satisfaction. Primary data were collected through questionnaires given to 28 employees relevant to inventory control and JIT, as well as through direct observation. The sampling technique used was Saturated Sampling, where the entire population was sampled. Data analysis includes validity tests, reliability tests, descriptive analysis, normality tests, and hypothesis tests (correlation, coefficient of determination, simple linear regression, and partial tests). The study took place from February to March 2024.

3. RESULTS AND DISCUSSION

The general description of respondents provides an overview of the characteristics of respondents who are all employees of CV. Elshaddai. The presentation of the description in this study can be seen below:

Table 1. Description of Respondent Data

Respondents	Amount	Presentation
The questionnaire was distributed	28	100%
Unreturned questionnaires	0	0%
Returned questionnaire	0	0%
Processable questionnaire	28	100%

Based on table 1. above, it explains that the questionnaires distributed were 28 questionnaires with a return rate of 100%, which means that all questionnaires were returned and could be processed. In this study, the characteristics to be known include gender and age of respondents in CV. Elshaddai employees.

Table 2. Description of Respondent Data

Respondent Gender	Amount	Presentation
Man	17	60.8%
Woman	11	39.2%
Total	28	100%

In table 2. it can be seen the description of respondents based on gender from 28 respondents consisting of 17 male respondents or 40.8% and 11 female respondents or 39.2%. This shows that the majority of respondents based on gender are male.

Table 3. Description of Respondent Data

Respondent Gender	Amount	Presentation
Man	17	60.8%
Woman	11	39.2%
Total	28	100%
Respondent Gender	Amount	Presentation

In table 3. it can be seen the description of respondents based on age from 28 respondents consisting of 25% for ages 18-25 years as many as 7 respondents, 21.4% for ages 26-35 years as many as 6 respondents, and a percentage of 53.6% for ages >36 years as many as 15 respondents. This shows that the largest number of respondents based on age is age >36 years.

Table 4. Validity Test X

Statement	r-Count	r-Table	Information
X1	0.740	0.374	Valid
X2	0.794	0.374	Valid
X3	0.651	0.374	Valid
X4	0.795	0.374	Valid
X5	0.832	0.374	Valid
X6	0.651	0.374	Valid
X7	0.757	0.374	Valid
X8	0.750	0.374	Valid
X9	0.725	0.374	Valid
X10	0.820	0.374	Valid
X11	0.706	0.374	Valid
X12	0.784	0.374	Valid

Based on the validity test of the questionnaire above, the Just In Time method variable using the SPSS version 29 method, it can be concluded that the questionnaire is declared valid.

Table 5. Validity Test Y

Statement	r-Count	r-Table	Information
Y1	0.863	0.374	Valid
Y2	0.732	0.374	Valid
Y3	0.840	0.374	Valid
Y4	0.845	0.374	Valid
Y5	0.823	0.374	Valid
Y6	0.767	0.374	Valid
Y7	0.640	0.374	Valid
Y8	0.798	0.374	Valid
Y9	0.832	0.374	Valid
Y10	0.778	0.374	Valid
Y11	0.798	0.374	Valid

Based on the validity test of the questionnaire above, the inventory control variable using the SPSS version 29 method, it can be concluded that the questionnaire is declared valid.

Table 6. Reliability Test X

Reliability Statistics	
Cronbach's Alpha	N of Items
.927	12

Number of Statements	cronbach's alpha	Condition	Information
12	0.927	0.6	Reliable

Based on table 6, the Cronbach's Alpha value is 0.927 on the Just In Time method variable > 0.6. Thus, it can be concluded that the statement in the Just In Time method variable is reliable and meets the requirements of good data quality.

Table 7. Y Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.940	11

Number of Statements	cronbach's alpha	Condition	Information
11	0.940	0.6	Reliable

Based on table 4.7, the Cronbach's Alpha value is 0.940 on the inventory control variable > 0.6. Thus, it can be concluded that the statement in the inventory control variable is reliable and meets the requirements of good data quality.

Just In Time Method Variable Questionnaire Results:

1. The number of Kanbans currently in use is sufficient to meet production needs.

The calculation of the statement above obtained the results that there were 10 respondents who answered the category strongly agree, 10 respondents who answered agree and 6 respondents who answered neutral. Some of the respondents answered the category strongly agree and agree, obtained a value of 4.07 and the number is included in the scale of 3.41 - 4.20 with a Good assessment category.

2. Since the introduction of the Kanban system, production process lead times have been reduced.

The calculation of the statement above obtained the results that there were 7 respondents who answered the strongly agree category, 10 respondents who answered the agree category, 10 respondents who answered the neutral category and 1 respondent who answered disagree. Some of the respondents answered the agree category, obtained a value of 3.82 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

3. The implemented Kanban control system has effectively reduced the number of inventory shortages in the company.

The calculation of the statement above obtained the results that there were 2 respondents who answered the strongly agree category, 17 respondents who answered the agree category, 7 respondents who answered the neutral category and 2 respondents who answered disagree. Some of the respondents answered the agree category, obtained a value of 3.68 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

4. Every children's clothing is produced according to demand and does not cause a build-up of inventory.

The calculation of the statement above obtained the results that there were 10 respondents who answered the strongly agree category, 9 respondents who answered the agree category, and 9

respondents who answered the neutral category. Some of the respondents answered the strongly agree category, obtained a value of 4.03 and the number is included in the scale of 3.41 - 4.20 with a Good assessment category.

5. Lot size reduction strategy has been effective in controlling the amount of inventory produced in the company.

The calculation of the statement above obtained the results that there were 5 respondents who answered the strongly agree category, 11 respondents who answered the agree category, 11 respondents who answered the neutral category and 1 respondent who answered disagree. Some of the respondents answered the agree category, obtained a value of 3.72 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

6. Improvement in order cycle time efficiency was achieved since the implementation of the Lot size reduction strategy.

The calculation of the statement above obtained the results that there were 2 respondents who answered the strongly agree category, 17 respondents who answered the agree category, 7 respondents who answered the neutral category and 2 respondents who answered disagree. Some of the respondents answered the agree category, obtained a value of 3.68 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

7. Costs associated with long delivery lead times can be reduced.

The calculation of the statement above obtained the results that there were 9 respondents who answered the strongly agree category, 8 respondents who answered the agree category, 7 respondents who answered the neutral category and 4 respondents who answered disagree. Some of the respondents answered the agree category, obtained a value of 3.79 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

8. The on-time delivery rate of orders has increased since the company implemented Just In Time Scheduling.

The calculation of the statement above obtained the results that there were 9 respondents who answered the strongly agree category, 10 respondents who answered the agree category, 5 respondents who answered the neutral category and 4 respondents who answered disagree. Some of the respondents answered the agree category, obtained a value of 3.85 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

9. Just In Time Scheduling has increased company productivity by optimizing the use of production capacity

The calculation of the statement above obtained the results that there were 9 respondents who answered the strongly agree category, 14 respondents who answered the agree category, and 5 respondents who answered the neutral category. Some of the respondents answered the agree category, obtained a value of 4.14 and the number is included in the scale of 3.41 - 4.20 with a Good assessment category.

10. With Setup time reduction, companies can optimize machine usage by minimizing preparation time.

The calculation of the statement above obtained the results that there were 9 respondents who answered the strongly agree category, 6 respondents who answered the agree category, and 13 respondents who answered the neutral category. Some of the respondents answered the neutral category, obtained a value of 3.86 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

11. Setup time reduction, has increased production efficiency by reducing the number of setup changes required at the company

The calculation of the statement above obtained the results that there were 10 respondents who answered the strongly agree category, 6 respondents who answered the agree category, 10

respondents who answered the neutral category and 2 respondents who answered disagree. Some of the respondents answered the agree category, obtained a value of 3.86 and this figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

By using setup tools, companies can reduce the time required to make setup changes.

The calculation of the statement above obtained the results that there were 9 respondents who answered the strongly agree category, 10 respondents who answered the agree category, and 9 respondents who answered the neutral category. Some of the respondents answered the agree category, obtained a value of 4.00 and the number is included in the scale of 3.41 - 4.20 with a Good assessment category.

Table 8. Recapitulation of Just In Time Method Variables

No	Indicator	Mark	Interpretation
1	Number of kanbans used	4.07	Good
2	Kanban response time	3.82	Good
3	Amount of inventory shortage	3.68	Good
4	Number of orders	4.03	Good
5	The amount of inventory produced	3.72	Good
6	Order cycle time	3.68	Good
7	Lead timedelivery	3.79	Good
8	Punctuality level	3.85	Good
9	Use of production capacity	4.14	Good
10	Machine preparation time	3.86	Good
11	Number of setup changes	3.86	Good
12	Use of setup tools	4.00	Good
		46.5	Good
Average Interpretation = 46.5/12 = 3.87			Good

From the calculation of the table recapitulation above, it is obtained that the overall interpretation of the indicator is Good, with the highest value obtained by the indicator of production capacity usage with a total of 4.14 and the lowest value obtained by the indicator of the number of inventory shortages and order cycle time with a total of 3.68. So that on this interval scale it has been determined that the results of the interpretation figures for the Just In Time Method variable are 3.87 and this figure is included in the scale of 3.41 - 4.20 with a Good assessment category. Based on the total value, it is known that the Just In Time Method respondent value can affect Inventory Control.

Inventory Control Variable Questionnaire Results:

1. Safety Stockenables companies to deal with uncertainties in order delivery times.

The calculation of the statement above obtained the results that there were 11 respondents who answered the strongly agree category, 9 respondents who answered the agree category, 7 respondents who answered the neutral category and 1 respondent who answered the disagree category. Some of the respondents answered the strongly agree category, obtained a value of 4.07 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

2. Availability of products in sufficient quantities can ensure to meet customer demand.

The calculation of the statement above obtained the results that there were 9 respondents who answered the strongly agree category, 11 respondents who answered the agree category, 7 respondents who answered the neutral category and 1 respondent who answered the strongly disagree category. Some of the respondents answered the agree category, obtained a value of 3.97 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

3. The company's total inventory level is always sufficient to meet customer demand.

The calculation of the statement above obtained the results that there were 9 respondents who answered the strongly agree category, 9 respondents who answered the agree category, 9 respondents who answered the neutral category and 1 respondent who answered the strongly disagree category. Some of the respondents answered the agree category, obtained a value of 3.90 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

4. Inventory levels per product that match customer demand

The calculation of the statement above obtained the results that there were 8 respondents who answered the strongly agree category, 12 respondents who answered the agree category, 7 respondents who answered the neutral category and 1 respondent who answered the disagree category. Some of the respondents answered the agree category, obtained a value of 3.97 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

5. The company was able to achieve the targeted sales level

The calculation of the statement above obtained the results that there were 8 respondents who answered the strongly agree category, 12 respondents who answered the agree category, 6 respondents who answered the neutral category and 2 respondents who answered the disagree category. Some of the respondents answered the agree category, obtained a value of 3.92 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

6. The Company makes every effort to avoid delivery delays when processing customer orders.

The calculation of the statement above obtained the results that there were 8 respondents who answered the strongly agree category, 9 respondents who answered the agree category, 9 respondents who answered the neutral category and 2 respondents who answered the disagree category. Some of the respondents answered the agree category, obtained a value of 3.82 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

7. The company delivered customer orders on time as promised.

The calculation of the statement above obtained the results that there were 7 respondents who answered the strongly agree category, 12 respondents who answered the agree category, 8 respondents who answered the neutral category and 1 respondent who answered the disagree category. Some of the respondents answered the agree category, obtained a value of 3.90 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

8. The company's product return rate is low or infrequent

The calculation of the statement above obtained the results that there were 8 respondents who answered the strongly agree category, 11 respondents who answered the agree category, and 9 respondents who answered the neutral category. Some of the respondents answered the agree category, obtained a value of 3.97 and the number is included in the scale of 3.41 - 4.20 with a Good assessment category.

9. The company delivers orders to customers quickly and on time.

The calculation of the statement above obtained the results that there were 12 respondents who answered the strongly agree category, 6 respondents who answered the agree category, 9 respondents who answered the neutral category and 1 respondent who answered the disagree category. Some of the respondents answered the strongly agree category, obtained a value of 4.03 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

10. The company provides products with the best quality to increase customer satisfaction.

The calculation of the statement above obtained the results that there were 12 respondents who answered the strongly agree category, 9 respondents who answered the agree category, 6 respondents who answered the neutral category and 1 respondent who answered the disagree category. Some of the respondents answered the strongly agree category, obtained a value of 4.14 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

11. The company responds to customer requests quickly and responsively

The calculation of the statement above obtained the results of 12 respondents who answered the strongly agree category, 10 respondents who answered the agree category, 5 respondents who answered the neutral category and 1 respondent who answered the disagree category. Some of the respondents answered the strongly agree category, obtained a value of 4.18 and the figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

Table 9. Summary of Inventory Control Variables

No	Indicator	Mark	Interpretation
1	Order delivery time	4.07	Good
2	Product availability	3.97	Good
3	Total inventory level	3.90	Good
4	Inventory level per product	3.97	Good
5	Fulfilled sales level	3.92	Good
6	Delivery delay rate	3.82	Good
7	Delivery accuracy rate	3.90	Good
8	Product return rate	3.97	Good
9	Delivery speed	4.03	Good
10	Product quality	4.14	Good
11	Responsiveness to customer requests	4.18	Good
		43.87	Good
Average Interpretation = 43.87/11 = 3.99			Good

From the calculation of the recapitulation of the table above, it is obtained that the overall interpretation of the indicator is Good, with the highest value obtained by the responsiveness indicator to customer demand with a total of 4.18 and the lowest value obtained by the Level of late delivery indicator with a total of 3.82. So that on this interval scale it has been determined that the results of the interpretation figures for the Inventory Control variable are 3.99 and this figure is included in the scale of 3.41 - 4.20 with a Good assessment category.

Table 10. Normality Test Results
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual	
N		28	
Normal Parameters ^{a,b}	Mean	.0000000	
	Std. Deviation	5.35114301	
Most Extreme Differences	Absolute	.147	
	Positive	.134	
	Negative	-.147	
Test Statistics		.147	
Asymp. Sig. (2-tailed) ^c		.126	
Monte Carlo Sig. (2-tailed) ^d	Sig.	.124	
	99% Confidence Interval	Lower Bound	.115
		Upper Bound	.132

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Based on table 3.10, the significant value is 0.126, where this value is greater than 0.05, so it can be stated that the data tested is normally distributed.

Table 11. Results of the Correlation Coefficient and Determination Coefficient (R²) Calculation Test

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.730 ^a	.534	.516	5.453

a. Predictors: (Constant), JIT

b. Dependent Variable: PP

From the output above, the correlation coefficient (R) value is 0.730. This value shows that the influence of the Just In Time method on inventory control is very strong. While the determination coefficient value (R²) is R² = 0.534, which means that the Just In Time method variable (X) can explain or explain inventory control (Y) by 53.4%, the remaining 46.6% (from 100% - 53.4%) is influenced by other variables that are not included in the model or equation in this study.

Table 12. Simple Linear Test Results

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.534	6.378		1.495	.147
	JIT	.738	.135	.730	5.453	<.001

a. Dependent Variable: PP

The value of a = 9.534 is a constant. This means that if the variable of the Just In Time Method (X) is equal to <.001, then the inventory control (Y) is 9.534. It is known that the magnitude of the regression coefficient of the Just In Time Method (X) is 0.738 with a positive value. These results indicate that every time there is an increase in the Just In Time Method (X) by one unit, it will be followed by an increase in inventory control (Y) by 0.738 units, or vice versa if there is a decrease in the Just In Time Method (X) by one unit, it will be followed by a decrease in inventory control (Y) by 0.738 units.

Table 13. t-Test Results

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.534	6.378		1.495	.147
	JIT	.738	.135	.730	5.453	<.001

a. Dependent Variable: PP

Based on table 3.13, the Just In Time Method variable has a t-count of 5.453. The t-table value which is the standard for making decisions on the hypothesis is sought by determining df. The df value = nk, n is the number of respondents and k are all variables in this study (df = nk = 28-2 = 26), the t-table value is obtained at a significance level of 0.05, which is 2.055.

4. CONCLUSION

Based on the results of the study, there is a significant and positive influence between the Just In Time (JIT) method and inventory control at CV. Elshaddai. The correlation coefficient (R) value of 0.730 indicates a fairly strong relationship, while the R² value of 53.4% indicates that the JIT variable explains most of the variability in inventory control, with the rest influenced by other factors. The T-

test also shows that JIT significantly affects inventory control, where each one-unit increase in JIT increases inventory control by 0.738 units. These results confirm that the implementation of JIT is effective in overcoming overstock problems and increasing inventory control efficiency in children's clothing production companies.

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