

THE ANALYSIS STUDY OF TECHNICAL EFFICIENCY OF PRODUCTION FACTORS APPLICATION ON YARN PRODUCTION

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Abstract

This study aims to find out the influence of production factors) to the yarn production output at PT Subah Spinning Mills and to find out the technical efficiency level of yarn production factors usage in PT Subah Spinning Mills. The data type which used is the secondary. The time series data used in this research in months is from January 2015 to December 2017, there were 36 series (months). The analysis tools in this study are multiple linear regression and efficiency test. Based on the data processing result, machine work (X2) and the quantity of raw materials (X3) have positives influence to the yarn production output in PT Subah Spinning Mills, while the number of labor (X1) has a negative effect to the yarn production output in PT Subah Spinning Mills. The technical efficiency level of raw materials usage and the machine work were efficient respectively; it means that the raw materials and machine usage in PT Subah Spinning Mills had been classified in the technically efficient category. For the labors factor, the technical efficiency level of the labors usage is inefficient, in order to that, the research recommend the company to put more investment on the machine factors in hope it increasing the amount of yarn production at PT SUBAH SPINNING MILLS. Based on the results of return to scale (RTS) with a value of less than 1, the number of return to scale (RTS) is in decreasing return, which means that if there is an additional production factors, the additional production output will have a less proportion than the previous production.

Keywords: *technical efficiency, production factors*

Introduction

One of the fastest growing Industries in Indonesia today is a textile Industry. The increase of clothes demand overtime becomes the main attraction among business investors. With the growing number of textile companies in Indonesia today, automatically also increased the opportunities for the textile raw materials industry such as yarns.

Yarn will always be needed in clothing industry as it is a core material in clothing production. Clothes are one of the basic human needs with this in mind the increased of clothes demand automatically increasing the yarn demand. With the growing number of people in Indonesia and in the world make this as one of reasons for many inventors to choose yarn production as business field.

Basically, a company always has a target they want to achieve; one of them is to earn high profits with a minimum expense cost that

incurred in the production process. Profit and loss are often used as a measurement to assess a company's performance. One way to minimize the expenditure cost of production is by making efficient input of productions.

Efficiency is the ability to achieve an expected outcome (output) at the expense of minimal input. An activity has been done efficiently if the implementation of the activity has reached the target (Output) with the lowest cost, so efficiency can be interpreted as the absence of waste (Nicholson in Hanifah, 2013).

Today's globalization, where the competitions among similar companies are getting tougher every day, it is very necessary to make an efficient use on the input of production factor. In the Tables 1 that shows the amount of yarn production at PT Subah Spinning Mills between 2013- 2017

Table 1

No	Year	Amount of Production
1	2013	31.346 Bale
2	2014	31.159 Bale
3	2015	34.387 Bale
4	2016	39.389 Bale
5	2017	37.716 Bale

Source: PT Subah Spinning Mills Report 2018

In Table 1 it can be seen that the number of yarn production at PT Subah Spinning Mills fluctuated during the last 5 years. There is a decrease in production in 2013 by 13.38% or 47,472.7 bales and 1.81% or 5,550.90 bales in 2016. This means that the production decrease in 2016 is the largest decrease over the last 5 years

Literate Review

Concept of Production

According to Sri Adiningsih, (2003:7) Production is a process of turning the input into output to increase the goods value. Meanwhile, according to Herjanto (2004) production and operation is an activity related to the creation / manufacture of goods,

services through the process of transformation from the input into output. Production is the end result of economic process or activity by utilizing some input. With this in mind it can be understood that the production activity is to combine various inputs which are also called the factors of production into output so that the value of the goods increases.

Production Function

According to Sadono Sukirno (2013: 195) production function is the relationship between the production factors and the level of production produced. The factors of production are also known by the term input and the amount of production is always referred to as output. The function of

production is expressed by the form of the formula as follows:

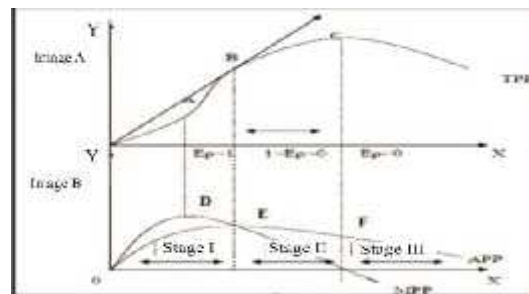
$$Q = f (K, L, R, T)$$

Where K is the amount of capital stock, L is the amount of labor and it encompasses various types of labor and expertise, R is natural sources, and T is the level of technology used. While Q is the amount of production produced by various types of

factors that is jointly used to produce the goods being analyzed the nature of its production.

The equation is a mathematical statement which basically means that the production rate of an item depends on the amount of capital, the amount of labor, the amount of natural source, and the level of technology used. Different amounts of production automatically will require different quantities as well.

Graphic 1



Source: Sukirno in Dewi et al. (2012)

Using the image Graphic 1, we can divide the series of production processes into three stages, stage I, II, and III. Phase I cover the area of production factor utility on the left of point E, where the average production reaches the maximum point. Phase II covers the area of production factor use between point E and F, where the product marginal is between point E and F and the marginal of the productions factors variable is 0, stage II covers the area of production factor use at the right side of point F, where the product's marginal of product function is negative. According to the above phase, it is clear that producer will not produce anything at stage III, because in this stage he will obtain less production if the additional of production factors increase. This means that the producer is acting inefficiently in the utilization of Production factors. In phase I, the average production is increasing along with the additional factors production. Thus make the maximum production efficiency to occur in

the second stage of production (Sudarman, 2000)

Cobb–Douglas Production Function

According to Soekartawi (2003) the Cobb-Douglas function is an equation involving two or more variables, where one variable is called a dependent variable or formulated with (Y) and the other is called an independent variable (X). Mathematically the Cobb-Douglas function could be written into:

$$Q = A K^\alpha L^\beta$$

This can be converted into a linear form:

$$\ln Q = \ln A + \alpha \ln K + \beta \ln L$$

Where Q is the output, L and K are labor and capital goods. (alpha) and (beta) are positive parameters determined by the data. The greater the value of α , the more advanced the technological goods, the parameter α measures the percentage increase in Q due to 1 percent increase in K, while L is constant. Equally on β , it measures the increase parameter in Q cause by an increase of 1 percent L, while K is remain constant, so

and ϵ_L are respectively the elasticity of K and L.

Efficiency Test

Technical efficiency also known through the elasticity of production, in $EP = \epsilon_i$ equation. Elasticity of production is the percentage change of output as a result of the percentage change of input (Soekartawi, 2003). This research is conducted by technical efficiency test by looking at the value of elasticity of independent variables contained in the regression model with the following decision base (Pakasi, et al, 2011):

- 1) $EP > 1$ (stage I) means the use of production factors is not technically efficient
- 2) $0 < EP < 1$ (stage II) means the use of production factors is technically efficient
- 3) $EP < 0$ (stage III) means the use of production factors is technically inefficient

Return to Scale (RTS)

Return to Scale or scale of business is important to know as to know the combination of the use of production factors. The value of Return Scale from the industry can be known from the sum of regression coefficients of all production factors. According Soekartawi (2003) there are 3 possibilities in the value of return to scale, explain as follows:

- a. Increasing RTS ($\epsilon_1 + \epsilon_2 + \dots + \epsilon_n > 1$), is a condition when additional input unit produces more than additional output compare to the previous input unit.
- b. Constant RTS ($\epsilon_1 + \epsilon_2 + \dots + \epsilon_n = 1$), is a condition when each additional input unit produces equal additional output to the previous input unit.
- c. Decreasing RTS ($\epsilon_1 + \epsilon_2 + \dots + \epsilon_n < 1$), is a condition when each additional input unit produces less additional output than the previous input.

Production Factors

Labor

According to Sudarsono (1983), labor is a human resource that carries out the work.

Human resources contain two meanings. First, it is a work effort or service that can be provided in the production process. Human Resources reflect the quality of effort provided by a person within a certain time to produce goods and services. Second, human resource is about human ability to work to provide services or production. Ability to work means able to perform activities that have economic value such as the goods and service production which meet the needs of society.

Labor is a human production factor that directly or indirectly runs the production activities. Labor production factor is also categorized as the original production factors. Factors of labor production contained physical element, mind, and ability possessed by these labors. Therefore, the worker can be grouped by quality (ability and skill) and based on the nature of its work. Based on the quality, the labor can be divided into:

1. An educated labor is a worker that requires a certain education so that it has the expertise in the field.
2. Skilled labor is a worker that requires a course or training in a certain skill areas so that it has skilled in the field.
3. Uneducated and untrained workers (rough labor) are unskilled labor and have no education in a field of work (Sukirno in Hanifah, 2013).

Raw materials

Raw material is one of the most important production factors. The lack of basic materials can resulted in cessation of production process due to the depletion of raw materials. A sufficient basic material is an important factor in ensuring the continuity of the production process. Therefore it is necessary to plan and arrange the quantity and quality of the basic material.

The definition of raw materials according to Kholmi (2009) "Raw materials are materials that forming the large parts of finished products, raw materials processed in manufacturing enterprises can be obtained

from local purchases, imports or self-processing".

There are two kinds of raw materials (Ristono, 2008: 5), as mentions below:

1. Direct raw materials, is raw materials that form part of the finished goods which costs can easily be traced from the cost of the finished goods.
2. Indirect raw materials, is raw materials used in the production process, but difficult to trace costs to each finished item.

Machine Capacity

According to Assauri's opinion in Alfaba (2016: 27), states that a machine is a device powered by a force which used to assist humans in producing a product or parts of a particular product. Capacity is an output stage, an output quantity in a given period, and is the highest possible quantity of output during that period of time (Handoko, 2011: 298).

Research Objection

The purpose of this research is described as follows:

- a. To find out any significant effect from the input of total amount of raw material towards yarn production outcome?
- b. To find out is there any significant effect from the input of total amount of labor towards yarn production outcome?
- c. To find out is there any significant effect from the input average machines work towards yarn production outcome?

- d. To find out is there any significant effect from the input of total amount of raw material, total amount of labor and average machines work simultaneously towards yarn production outcome?
- e. To find out how high is the level of technical efficiency in the input of yarn production factors at PT Subah Spinning Mills?

Research Contribution

The importance of this study is described as follows:

1. For student
It is hoped that this research can improve the knowledge about The Management of company production and the microeconomic theory, and also as one of the requirement to get bachelor degree
2. For PT Subah Spinning Mills
The result of this study can be a suggestion and consideration for the corporate which related to technical efficiency of productions factor on yarn production.
3. For Semarang State Polytechnic
Become one of references to the library which is useful for student, especially those in the last semester of Business Administration

Method

The data type which used is the secondary. The time series data used in this research in months is from January 2015 to December 2017, there were 36 series. The operational definitions of the variables used in this study are as in the Table 2.

Table 2

Variable	Definition	Unit	Scale
Total Yarn Production	Y	Bale	Ratio
Amount of Labor	X1	Man	Ratio
Machine Capacity	X2	Hour	Ratio
Amount of Raw Material	X3	Kg	Ratio

The method of analysis used in this research is multiple linear regression analysis and efficiency analysis, which is used to know the

influence of the amount of labor, the machine production capacity and the amount of raw material to the production volume.

The multiple linear regression models in this study were developed based on the relevant research gap of previous research which has been studied in detail in literature review. Multiple linear regression models of time series data developed in this research is:

$$\text{Ln Total Production} = + 1 \text{ Ln Labor} + 2 \text{ Ln Machine} + 3 \text{ Ln Material} + V$$

Note:

= coefficient constants

1= Regression coefficients of the X1

2= Regression coefficients of the X2

3= Regression coefficients of the X3

V= statistical noise / disturbance term / residual

= quantities to be expected

Findings Discussion

Stages of Multiple Linear Regression Analysis of Time Series Data

Multiple linear regression analysis time series data consists of four stages: theoretical regression model development, ordinary least square test, multiple linear regression analysis and goodness of fit test.

Theoretical Regression Model Development

Multiple linear regression model of time series data developed in this research are:

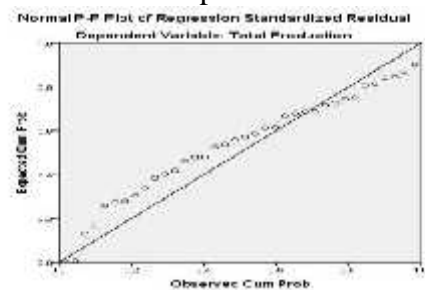
$$\text{Ln Total Production} = + 1 \text{ Ln Labor} + 2 \text{ Ln Machine} + 3 \text{ Ln Material} + V$$

Ordinary Least Square Test Normality Test

According to Ghozali (2018: 161) normality test aims to test whether in the regression model the residual variable has a normal distribution. If this assumption is violated then the statistical test results will be invalid especially for small sample sizes. There are two ways of detecting whether the residual has a normal distribution or not and that is graph analysis and statistical tests.

A more reliable method is to look at a normal probability plot that compares the cumulative distribution with the normal distribution. Normal distribution will form a straight line diagonal while the plotting the data will be compared with the diagonal line. If the data distribution is normal, then the line describing the data will follow its diagonal basis (Ghozali, 2018: 162).

Graphic 2



Source: Secondary data processed, July 2018

Because the graph above has the same principle with Ghozali (2018: 162), it is stated that the data used for the regression equation model is normal.

In addition to using the test chart would be better if the test of normality equipped with statistical tests non-parametric Kolmogorov

Smirnov (KS) with the measurement is that if the sigma value of sig Kolmogorov Smirnov is higher than the standard alpha occur in this study (= 0.05), means there is no problem of normality, or it is said to be normal distributed data (Ghozali, 2018: 167).

Table 3

One-Sample Kolmogorov-Smirnov Test
Asymp. Sig. (2-tailed)
0.077

Source: Secondary data processed, July 2018

The output at Table 3, shows that the significance value (Asymp.Sig. (2- tailed)) is 0.077. Because the significance value is bigger than 0.05 means that the research variable has a normal data distribution.

Multicollonearity Test

Based on the table 4, it can be seen that the VIF and Tolerance values for each research variable are as follows:

1. The Tolerance value for the X1 variable is $0.899 > 0.1$ with VIF value of $1.113 < 10$, means the X1 variable does not contain multicollinearity problems

Table 4

Model	Collinearity Statistics	Collinearity Statistics	
	Tolerance	VIF	
1	Constant		
	Labor	0.899	1.113
	Machine Work	0.794	1.260
	Raw Material	0.865	1.156

Source: Secondary data processed, July 2018

2. Tolerance value for the X2 variable is $0.794 > 0.1$ with a VIF value of $1.260 < 10$, means that the X2 variable does not contain multicollinearity problems
3. Tolerance value for X3 variable is $0.865 > 0.1$ with a VIF value of $1.156 < 10$, means that the X3 variable does not contain multicollinearity problems

Based on the calculation of the VIF and Tolerance values above, it can be concluded that the regression model involving three independent variables (X1, X2, X3) with one

dependent variable (Y) does not contain multicollinearity problems.

Autocorrelation Test

The output at Table 5, shows that the DW value is 1.911. Based on Durbin Watson's table of DU row number 36, column K = 3, the DU is 1, 6539 and DL is 1, 2953 so, the DW value is between $1,6539 < 1,911 < (4 - 1,6539)$ means the regression model have no autocorrelation symptoms.

Table 5

Model	Durbin-Watson
1	1.911

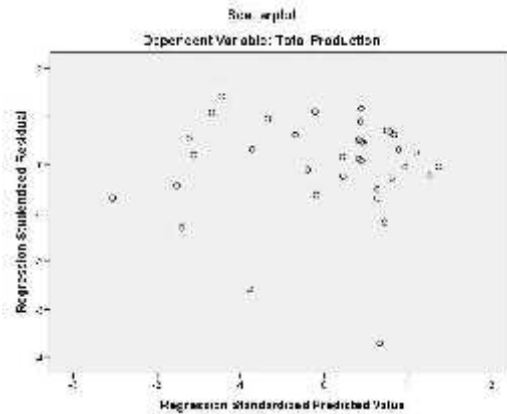
Source: Secondary data processed, July 2018

Heteroscedasticity Test

Based on the scatterplot Graphic 3, it shows that the points do not form a clear pattern. The points spread above and below the

number 0 on the Y axis so it was concluded that there was no heteroscedasticity in the regression model.

Graphic 3



Source: Secondary data processed, July 2018

Based on the Table 6, it can be known:

- 1. The significance value for the X1 variable is $0.783 > 0.05$, means the variable does not contain heteroscedasticity problems
- 2. The significance value for the X2 variable is $0.608 > 0.05$, means the variable does not contain heteroscedasticity problems
- 3. The significance value for the X3 variable is $0.826 > 0.05$, means the variable does not contain heteroscedasticity problems

Table 6

Variable	Sign.
Labor (X1)	0,783
Machine Work (X2)	0,608
Raw Material (X3)	0,826

Source: Secondary data processed, July 2018

Based on the calculation of the significance value, it can be concluded that the regression model involving three independent variables (X1, X2, X3) with one dependent variable (Y) does not contain heteroscedasticity problems.

Multiple Linear Regression Interpretation
 Estimation of the regression model is an estimation of a regression equation that explains the ability of independent variables to predict the dependent variable. The Table 7, is the estimation of the equation.

Table 7

Analysis Result		Value	Sign.
Adjusted R ²		0,465	
F test		11,121	0,000
t test:			
1.	Constanta	6,416	0,064
2.	(X ₁)	-0,273	0,594
3.	(X ₂)	0,055	0,015
4.	(X ₃)	0,266	0,001

Source: Secondary data processed, July 2018

Based on the Table 7, the equation can be written as follows:

$$\text{LnY} = 6.416 - 0.273 \text{ LnX1} + 0.055 \text{ LnX2} + 0.226 \text{ LnX3}$$

The estimated model of the multiple linear regression equation above is:

- 1) Constants (0) of 6,416 means that if the X1, X2 and X3 are considered constant or 0, then the amount of Total Production (Y) is 6,416.
- 2) The regression coefficient of X1 is -0,273 stating that every 1% increase in Labor results in a decrease in Total Production (Y) by 0,273. This means that if the Labor rises, the total production will increase, and vice versa.
- 3) The machine regression coefficient (X2) is 0,055 states that every 1% increase in machine work hour results in an increase of total production (Y) by 0, 55. This means that if the machine hour work raises, total production will increase.
- 4) The raw material regression coefficient (X3) is 0,226 states that every 1 % increase will increase the total production (Y) by 0,226. This means that if the raw material increase, the total production will increase.

Goodness of Fit Test

T Test

Based on the table 7, the result of t test is as mention follows:

- 1) Hypothesis 1 (Labor)

Based on the results of the t test, it shows that the value of t counts at -0,539 with a probability value of 0,594. When compared with t table and probability value t with a significance level 0,05, it shows insignificant results; because the calculated value of -0,539 is smaller than t table 2,03452 and the probability of t 0,594 is bigger than the significance level of 0,05. This shows that the Labor variable has a negative and insignificant effect on the amount of yarn production so that the null hypothesis (H01) is accepted and the alternative hypothesis (HA1) is rejected which states that the amount of raw material has a negative effect on the number of yarn production in PT Subah Spinning Mills. The results of this study are in accordance with the results of the study of Widyanto (2018) which states that the Labor variables insignificantly affect tobacco production in Munggangsari Village at Magelang and the results of Kune's (2016) study which also states that the Labor

variables insignificantly and negatively affect the spinach production at Bitefa Village at Timor .

The incompatibility of hypotheses with the results of the existing analysis is

caused by the conditions in the field, where the higher total amount of labor has produce less amount of production compare to the lower number of labor.

Table 7

Var.	T _{count}	T _{table}	Sign Result	Sign Value
(X1)	-0,539	2,0345 2	0,594	0,05
(X2)	2,581	2,0345 2	0,015	0,05
(X3)	3,580	2,0345 2	0,001	0,05

Source: Secondary data processed, July 2018

- 2) Hypothesis 2 (Machine work)
Based on the results of the t test, it shows that the value of t counts at 2,581 with a probability value of 0,015. When compared with t table and probability value t with a significance level 0,05, it shows positive significant results; because the calculated value of 2,581 is larger than t table 2,03452 and the probability of t 0,015 is smaller than the significance level of 0,05. This shows that the machine work variable has a positive and significant effect on the amount of yarn production so that the null hypothesis (H01) is rejected and the alternative hypothesis (HA1) is accepted which states that the machine work has a positive and significant effect on the number of yarn production at PT Subah Spinning Mills.
- 3) Hypothesis 3 (Raw Material)
Based on the results of the t test, it shows that the value of t counts at 3,580 with a probability value of 0,001. When compared with t table and probability value t with a significance level 0,05, it shows positive significant results; because the calculated value of 3,580 is larger than t table 2,03452 and the

probability of t 0.001 is smaller than the significance level of 0,05. This shows that the raw material variable has a positive and significant effect on the amount of yarn production so that the null hypothesis (H01) is rejected and the alternative hypothesis (HA1) is accepted which states that the amount of raw material has a positive and significant effect on the number of yarn production at PT Subah Spinning Mills

F Test

Based on Anova test or F test on the Table 8, it can be seen that the calculated F value 11.121 is higher than F table which is only 3.28 from the significance level of 0.05. While the significance value of the F test is 0,000 which is smaller than the significance level of 0.05. From the analysis above, it can be conclude that the variable amount of raw material, the amount of labor and the machine work hour has a significant effect on the amount of yarn production, so the alternative hypothesis (HA4) can be accepted which states that the amount of raw material, the amount of labor and the machine work hour simultaneously affect the amount of yarn production at PT Subah Spinning Mills.

Table 8

Model	F _{count}	F _{table}	Sign. Result	Sign. Value
Regression	11,121	3,28	0,000	0,05

Source: Secondary data processed, July 2018

Determination Coefficient

Based on Table 16 or the R² Results Analysis, it can be seen that the adjusted R² value is 0.465, which means that the variability in yarn production at PT Subah Spinning Mills can be explained by the variability in the

amount of raw material, the amount of labor and the machine work hour by 46,5% while the remaining 53,5% (100% -46,5%) explained by other variables that are not include in the regression model such as capital, method, energy and information.

Table 9

Adjusted R Square
0,465

Source: Secondary data processed, July 2018

Efficiency Test

Technical efficiency also known through the elasticity of production, in EP = i equation. Elasticity of production is the percentage change of output as a result of the percentage

change of input (Soekartawi, 2003). The Table 10 is the results of the technical efficiency test using yarn production factors at PT Subah Spinning Mills.

Table 10

Variable	Coeff.	Justification	Stage
X1	-0,273	Ep<0	III
X2	0,055	1>Ep>0	II
X3	0,226	1>Ep>0	II

Source: Secondary data processed, July 2018

- a. In Table 10 it can be seen that the estimated elasticity value of raw Labor is -0.273. This shows that the use of the production factor of labor quantities is technically inefficient, because the Ep value is less than 0 (Phase III). It is said to be inefficient because the average input use of labor is relatively too much when compared to other inputs, so the company is not possible to continue the production, due to the addition of average input of labor will reduce total production (TPP) and the company will experience a loss (MPP <0).
- b. In Table 10 it can be seen that the estimated value of the elasticity of the machine work is 0.055. This shows that the use of production factors is efficient because the Ep value is between 1 and 0 (Phase II). It is said to be efficient because the addition of input in the amount of machine work hour has begun to reduce both APP (Average Physical Product) and MPP (Marginal Physical Product), but even so the value of both is still positive. In this area, the optimum

level of production factors (APP> MPP) will be achieved.

- c. In Table 10 it can be seen that the estimated elasticity value of the amount of raw material is 0,226. This shows that the use of production factors is efficient because the E_p value is between 1 and 0 (Phase II). It is said to be efficient because the addition of input in the amount of raw material has begun to reduce both APP (Average Physical Product) and MPP (Marginal Physical Product) but even so the value of both is still positive. In this area, the optimum

level of production factors (APP> MPP) will be achieved.

Return to Scale Test

Return to Scale or scale of business is important to know as to know the combination of the use of production factors. The value of Return Scale from the industry can be known from the sum of regression coefficients of all production factors. The Table 11 is the results of the return to scale test using yarn production factors at PT Subah Spinning Mills.

Table 11

Variable	Coeff. β	Justification	Stage
X1	-0,273	$E_p < 0$	III
X2	0,055	$1 > E_p > 0$	II
X3	0,226	$1 > E_p > 0$	II

Source: Secondary data processed, July 2018

From the table 11, it can be seen that the value of β_1 is -0,273, the value of β_2 is 0,055 and the value of β_3 is 0,226, so the value of return to scale (RTS) is 0,008 ($\beta_1 + \beta_2 + \beta_3$). This shows that the business scale of PT Subah Spinning Mills is classified as decreasing return to scale, which means that if there is an additional production factors, the additional production output will have a less proportion than the previous production. Based on the results of return to scale (RTS) with a value of less than 1, the business conditions at PT Subah Spinning Mills need to be more observe regarding its production activity. This is in accordance with the research of Hidayat (2008) with the results of the RTS calculation value of less than 1, which said that the condition of the Batik tulis production has not yet reach its full potential and need to have more observation on the production activity.

Conclusion

Based on the results of the analysis that has been carried out on the use of factors of

production in the PT Subah Spinning Mills from January 2015 - December 2017 it can be concluded that:

- 1) Factors of production of machine work hour (X2) and raw materials (X3) have a positive and significant effect on the number of yarn production at PT Subah Spinning Mills, while the production factor of Labor (X1) has a negative and insignificant effect on the amount of yarn production at PT Subah Spinning Mills.
- 2) For the Production factors of raw materials (X1), number of workers (X2) and average machine working hours (X3) simultaneously have a significant effect on the number of yarn production at PT Subah Spinning Mills.
- 3) The level of efficiency on the use for raw material is 0.226 and machine work is 0,055 which means that the use of raw materials and machine work hour at PT Subah Spinning Mill is classified as efficient because the coefficient value or E_p is in accordance with the standard of $1 > E_p > 0$. For the amount of labor, the

level of efficiency is -0, 0273 which means that the use of labor input factors is not technically efficient because of $E_p < 0$. Even so, the return to scale (RTS) value is 0,008 which mean that the business condition at PT Subah Spinning Mills is in the position where the return value to scale (RTS) is less than 1.

Recommendation

Based on the conclusions obtained from the analysis of the use of garment production factors in PT Subah Spinning Mills between January 2015 - December 2017, the advice that can be submitted is in the use of labor inputs, companies need to reduce hiring the labor due to the usage of labor has a negative effect on the production because according to the findings that the yarn production with a higher labor produce less production than the one with the lesser number, which is why, a close number of labor is much prefer than the excess labor. Meanwhile, the input of raw material and machine work are already efficient, in order to that, the research recommend the company to put more investment on the machine factors in hope it increasing the amount of yarn production at PT SUBAH SPINNING MILLS.

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