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LABOUR PRODUCTIVITY IN MICRO AND SMALL INDUSTRIES (RESEARCH ON LEATHER CRAFTSMEN IN MAGETAN REGENCY)

Abstract: The productivity level of labours in Micro and Small Industries (MSI), especially in leather craftsmen in Magetan regency, has increased significantly. Based on the results of research conducted through the use of panel analysis with the model equation using The Redundant Fixed Effect (RFE) and Hausman test, where the equation model for labour productivity comes from the ratio output formula for determinants that are still related and relevant to production. The results obtained by applying the Fixed Effect Model (FEM) method, show that the independent variable factors, such as capital per labour, number of labours, innovation, learning by doing, training, and the level of education in senior high school, are found to have an influence which is good at increasing productivity of labours. While at the junior high school level, it does not affect the productivity level of labours working in micro and small industries, leather craftsmen in the Magetan Regency.

Keywords: Labour Productivity; MSI; Panel Analysis; FEM; RFE; Hausman Test.

1. INTRODUCTION

The commencement of the ASEAN Economic Community (AEC) in 2015 had an impact on increasing the industry in each country in the free market, where there was an increasingly widespread industrial relationship and the occurrence of economic transactions in various fields that occurred. The opening of an economic system in certain regions will accelerate the pace of economic development, which has the potential to increase domestic economic growth and opportunities to increase export-import trade between countries. Increasing the growth of the creative industry also occurs in MSI, to advance national economic growth. Micro and small industries are needed, especially in underdeveloped countries and those that are beginning to develop. However, there are a number of weaknesses that occur, such as inaccessible market access, small capital owned, limited technology development and ownership, and poor industrial management skills. During the previous economic crisis, the existence of micro and small industries was very important for improving the national economy. This is because the micro and small industries still use the main raw materials from local sources. As a result, the industry is more reliable and resilient to the effects of global economic turmoil, which greatly affects economic stability nationally with a decline in people's purchasing power.

National economic growth is driven by increased productivity in the industry.

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Based on Table 1, in 2015 the number of MSI was 99.32%, while the number of medium and large industries was 0.68% of the total industry as a whole, while employment in MSI was 37.12 %, in medium and large industries is 62.88% of all industrial sectors of labour. However, the industrial output of 88.26% is owned by medium and large industries, while the remaining 11.74% is owned by the output of MSI. In Indonesia, large industrial sectors, it is very easily affected by the impact of globalization, especially with the level of competitiveness of groups whose hierarchy is above the top of the pyramid, which is due to the large industrial sector still relying on very high imported raw materials.

Table 1: Quantity Of Unit, Labour, And Output On Medium And Big Industry And Micro And Small Industry In Indonesia Country (2015)

Industry	Unit		Labour		Output	
	Unit	%	People	%	Rp	%
Medium and Big Industry	25.249	0,68	5.156.672	37,12	4.286.862.000	88,26
Micro and Small Industry	3.668.873	99,32	8.735.781	62,88	570.366.901	11,74

Source : Indonesian Central Bureau of Statistics (2017)

Increased productivity can be interpreted as an increase in quantity and quality, which can also be interpreted as labour effectively and efficiently. Human resources and technology are one of the factors that have an influence in developments in the industry, especially in the MSI leather craftsmen. In addition, human resources also contribute to productivity improvement in product yields. The level of education can increase the productivity of the labour, which will also increase the provision of wages obtained by these labours. Meanwhile, achievement of education level (such as senior high school or university level) qualifies that the labour is considered a potential labour. In this case, it means that the level of education can increase labour productivity and income generated, however, the level of education can play a difficult role for leaders when it will observe directly the potential capabilities of the labour. In fact, when leaders can determine the quality of labours, the company does not need to rely on third party certification (Borjas, 2000).

Innovation can be interpreted as a result of the quality and quantity of work, so a technological innovation in the production process of a company still requires a quality labour (Solow, 1971). On the other hand, technological innovation in the production process also results in companies having to spend a lot of money to overcome the automation process which results in a decrease in the quality of work. Rocha et al. (2014), Kellog, (2009); Levitt et al. (2013) stated the concept of learning by doing, the higher the productivity of labours, the more the level of experience gained, which has a positive effect on task efficiency. In contrast, Argote et al. (1990) stated that learning by doing does not accumulate continuously and the results are known to be the same among companies, where there is a possibility of a reduction in knowledge. Another research conducted by Chiang (2004), emphasized that learning by doing, can reduce knowledge.

1.1. Micro And Small Industries In Magetan Regency

The definitions of MSI in Indonesia are as follows: (a) Micro companies are traditional industries and are privately owned, and have assets of at least 50 million rupiah and the value of sales at the end of the year does not exceed 300 million rupiah. (b) Small companies are owned by individuals or a form of the company, but are not owned by large and medium-sized companies or are subsidiaries. Has a minimum of 50 million

rupiahs, and does not exceed 500 million rupiahs, and has a year-end sales value of 300 million to 2.5 billion rupiahs. To be noted that the net assets and the value of the sales figures set at the end of the year may change according to existing conditions, and with the direction of the President. (Law of the Republic of Indonesia Number 20 of 2008). The industrial profile in Magetan Regency until 2016 is still dominated by MSI. Seen in Figure 1, the number of

additional MSI continued to increase from 2010 to 2016. In 2015 the number of formal MSI in Magetan Regency was 808 units; and in 2016 there was an increase of 56 units, to 864 units. Likewise, the number of labours absorbed by the MSI continues to progress, increasing from 5,567 labours in 2015 to 5,868 labours in 2016, which means that the MSI have absorbed 117 potential new labours (Magetan Regency Central Bureau of Statistics, 2016).
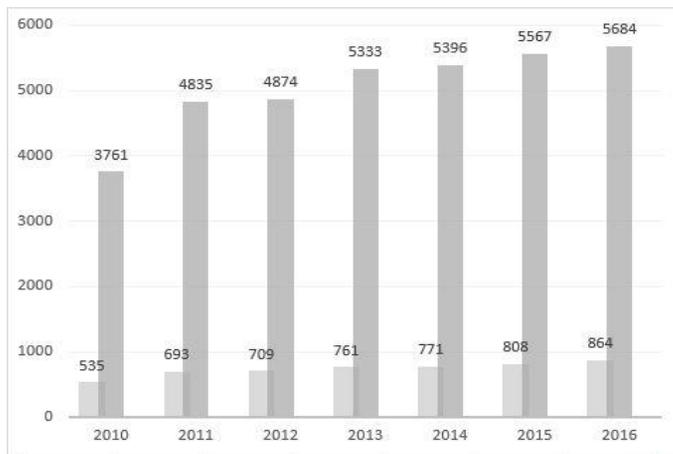

Figure 1. MSI In Magetan Period 2010-2016
Source: Magetan Regency Central Bureau of Statistics. (2016)

Based on data obtained from the Magetan Regency Central Bureau of Statistics (2016) it was reported that there was an increase in the number of business units, the number of labours, and the amount of production of MSI leather craftsmen. On the other hand, there was a decline in the level of

productivity per labour in 2013 to 2015, while in 2016 it increased slowly from 86.45,304,794 to 90,055,167,580. The report on MSI leather craftsmen in Magetan Regency for the 2013-2016 period are as table 2 shows.

Table 2: Productivity Of Micro And Small Leather Craft Industry In Magetan (2013-2016)

Year	Units	Labour	Output	Productivity
2013	172	465	69.750.000.000	150.000.000,000
2014	178	819	72.183.139.500	88.135.701,465
2015	220	876	75.708.567.000	86.425.304,794
2016	220	876	78 888 326 800	90.055.167,580

Source: Magetan Regency Central Bureau of Statistics (2017)

Therefore, this research was conducted to analyze various types of factors that are considered to affect the productivity of labours in MSI leather craftsmen, Magetan

Regency in terms of capital per labour, labour, innovation, learning by doing, labour training, and level of education.

2. LITERATURE REVIEW

When talking about MSI, labour productivity is a major concern to increase the yield of the business. Similarly, because of the size of economic development, an increase in labour productivity will also contribute significantly to national income. if so, various factors that influence the increase in labour productivity have become very attractive to many researchers. basically, these factors are local. In other words, these factors have a variety of differences from one region to another, from a variety of businesses and even if research is carried out on the same business depending on the conditions and background that influence Therefore, in the literature most studies are conducted in various countries. In this research, the perspective that applies to MSI in leather craftsmen is considered. Although, the number and groups of factors studied are different in each research, but data collection and the method used is very similar.

2.1. Labour Productivity Determinant

Labour productivity determinants in this research began by implementing measurements of the Cobb Douglass production function. The production functions obtained by Cobb Douglas are often used by researchers in empirical research. Work productivity per unit on Average Productivity Labour (APL) is the total quantity of production (Q) where the total product produced is divided by the amount of labour (L) used, where there are three parts of the production area (Pindyck & Rubinfeld, 2009):

a. Region I: total productivity (TP), average productivity (AP) and marginal of productivity (MP) rise, then decrease until MP = AP (increasing rate). The value of production elasticity is Ep> 1

b. Region II: TP rises, but AP decreases and MP decrease to zero (decreasing rate).

The value of elasticity of production is 1 <Ep<0

c. Region III: TP and AP decrease while MP is a negative value (negative decreasing rate). The value of production elasticity is Ep<0

Productivity can be defined as the ratio of output compared to the input of partial (labour). Productivity is influenced by capital per labour, labour, innovation or development, learning by doing, training of labours and education level of labours.

2.2. Innovation

Greenhalgh and Rogers (2010), Kurt and Kurt (2015) defines innovation as the application of new ideas for products, processes or other aspects of company activities that have a positive impact on increasing company value added and also stimulating benefits obtained for consumers or other companies that have cooperated. There are two important elements of innovation: innovation in products and innovation in the production process. Product innovation is the introduction of new products, new types or new designs, while the production process innovation is the development of new processes, new techniques in making products or presenting new services. The essence of the impact of product innovation and production process innovation is the emphasis on production costs incurred by the company, in order to become more competitive in competition in the global market. The process of innovation in the company begins with conducting research and development activities based on market surveys, analyzing consumer demand, developing new ideas, experiences with consumers, and designing new products.

2.3. Learning By Doing

The increase in knowledge or labour experience results from learning by doing. The opinion used is that learning by doing is

a product of the experience gained during the production process, where labours face challenges and possibly try to solve problems. Therefore, it is expected that the development of the production process is possible through the production process itself further, and in the end it will also create an increase in the performance of the production process itself. As Kellogg and Whiteford (2009), also Rocha et al. (2014) acknowledge that doing the same or similar tasks can increase company MFPs (Multi Factor Productivity) because companies can identify improvement processes that increase production speed (reduce input costs) and improve quality.

2.4. Level Of Education

At a certain point, the level of education and training positively has an impact on increasing income for the labour and for companies that benefit in many ways especially in terms of product innovation. The level of education, based on the idea that along with the increasing labour education, it can also increase productivity of labours and also increase income received (Borjas, 2000). Hua (2005) also expresed that educational attainment (such as senior high school or having a university degree) is considered to make the labour qualified as a potential labour, or in other words it says that education increases productivity and income.

2.5. On Job Training

Most labours improve their skills after completing their education, especially through On Job Training (OJT) program conducted by the company. Therefore, it is clear that on job training is an important part of developing human resources. There are two types of on job training: (1) training in general and (2) training specifically. Training in general is a type of training that benefits all, both labours and companies, namely entrepreneurship programs. After

training, products have added more value, increasing margins. As a result, many companies are willing to pay labours wages equal to the value added of marginal products of labours or pay higher wages because productivity increases after training. Meanwhile, special training is a type of training that only increases productivity in today's companies where labours work, and training scores are lost after labours leave the company. As a result, alternative labour wages (i.e. the wages other competitors are willing to pay) do not depend on training and are the same as their pre-training productivity (De Grip & Sauermann, 2013).

3. EMPIRICAL EVIDENCE

The results of the research conducted indicate that there is a positive influence on labour productivity through the level of education, learning by doing, expertise and innovation in technology, the result, in line with research which conducted by Schultz (1961), Malmir et al. (2012), also Hall et al. (2009). There are two factors that influence labour productivity, namely internal and external factors. Some internal factors in the company are known such as Human Resources (HR), Capital Per Labour, Information Technology (IT), Research and Development (R&D), learning by doing, innovation and several external factors such as competition, policy or regulation government, and market flexibility (Syverson, 2011).

Next, The short term labour productivity growth can be analyzed, while in the long term it cannot be analyzed because labour productivity is unstable, indicating that there is a positive relationship between innovation and work productivity (Kurt & Kurt, 2015). In line with the results research, Long and Anh (2017) also found that innovation has a positive effect on labour productivity, which in their research adds company size, location of companies and industrial sectors, which also has an impact on increasing innovation

and labour productivity on small and medium industries.

Productivity resulting from the relationship between petroleum-producing companies and drilling contractors, significantly increases productivity when they summarize the work experience together. Once, two companies combine joint work experience, the result of the main amalgamation of intellectual capital gained exceeds that of partners with other companies. In this case, if cooperation is stopped, then intellectual capital will also be destroyed, then it leads to a fatal condition, namely a decrease in productivity. Based on the data, this shows that oil production companies are more comfortable working with drilling contractors who qualify because they have a lot of work experience compared to contractors with relatively less experience (Kellogg & Whiteford, 2009).

Labour training has a positive and significant impact on blue-collar labours, while not having an impact on executives and permanent employees (Colombo & Stanca, 2014). Similarly, the intensity of labour training also affects productivity. Last, research conducted by Hua (2005) stated that senior high school education level has a good influence on efficiency growth and technological progress, while elementary and junior high school education has an adverse effect on efficiency.

4. DATA AND RESEARCH METHODS

4.1. Data

In this study, sampling was done by using purposive samples. The selection of purposive samples is considered to understand that the information needed can be obtained from business people and meet the criteria that have been determined before (Augusty, 2006).

This research explores the factors that affect productivity per labour from MSI leather craftsmen in Magetan Regency such as capital per labour, labour, and innovation, learning by doing, training, and education level using the regression panel. The research was conducted in the leather crafts centers in three different villages, namely; Magetan, Selosari and Mojopurno villages. The population in this research was all micro and small leather craft industries in Magetan Regency with a total of 220 craftsmen.

Based on the Slovin formula, it is known that the number of samples is 142. Furthermore, this research applies cluster sampling as a research technique (Husein, 2004).

$$(1) \quad n = \frac{N}{(1+(Nxe^2))}$$

Where:

n : Sample

N : Size of population

e : Margin of error 5%

This research uses primary data where the data collection method used is a questionnaire in which the items in question relate to labour, capital per labour, experience, innovation and level of education that affect MSI productivity leather craftsmen in Magetan Regency.

4.2. Research Methods

The research model estimation technique uses two approaches, which is a panel regression to answer research objective, in which there are internal factors that influence the productivity of MSI leather craftsmen in Magetan Regency.

In panel data regression there are three methods used, namely the first is the pooled least square (PLS) approach which simply pooled all time series and cross section data. Second, the fixed effect approach takes into account the possibility that researchers face omitted variables, where omitted variables may change the intercept time series or cross

section. The fixed effect model adds dummy variables to allow changes to this intercept. Third, the random effect approach improves the least square process efficiency by taking into account the errors of the cross section and time series. The random effect model is a variation of the generalized least square estimate. The panel data model for each regression technique is as follows :

a. Pooled Least Square

$$(2) \quad Y_{it} = \beta_1 + \beta_2 + \beta_3 X_{it} + \ldots\ldots + \beta_n X_{nit} + \mu_{it}$$

b. Fixed effect

$$(3) \quad Y_{it} = \alpha_1 + \alpha_2 D_2 + \ldots\ldots + \alpha_n D_n + \beta_2 X_{2it} + \ldots\ldots + \beta_n X_{nit} + \mu_{it}$$

c. Random Effect

$$(4) \quad Y_{it} = \beta_1 + \beta_2 X_{2it} + \ldots\ldots + \beta_n X_{nit} + \varepsilon_{it} + \mu_{it}$$

The superiority of panel data regression method is first, panel data regression is able to take into account individual heterogeneity explicitly by allowing individual specific variables. Second, the ability to control individual heterogeneity, in turn, makes panel data can be used to test and build more complex behavioral models. Third, panel data regression based on repeated cross section observations (time series), so that the panel data regression method is suitable to be used as a research of dynamic adjustment. Fourth, the higher number of observations has implications for data that provide more information, more variability, diminishing colinearity between variables, and increasing degree of freedom, so that estimation results can be obtained more efficiently. Fifth, panel data regression can be used to research complex behavior models. Sixth, panel data regression can minimize the bias that might be caused by individual data regression. The advantages mentioned above have implications for not having to test classic assumptions in the panel data model, according to what is in some of the literature used in this research (Vella & Verbeek, 1999; Gujarati, 2003; Wibisono, 2005).

Through three approaches used to the panel data method, two approaches that are commonly used to estimate regression models with panel data are Fixed Effects Model approaches and Random Effects Model approaches. To determine the method between Pooled Least Squares and Fixed Effect is to use Redundant Fixed Effect Test, while the Hausman test is used to choose between Random Effects or Fixed Effects. The null hypothesis of the Redundant Fixed Effect test is:

H0 = Pooled Least Square Model (PLS)
H1 = Fixed Effects Model (FEM)

Based on the Redundant Fixed Effect test, if we get a Chi-Square value of less than 0.05 then we reject the H0 hypothesis which states we must reject the PLS technique, so we accept the H1 hypothesis which states we must use the Fixed Effect model for estimation techniques in this research.

While the Hausman test is used to choose between the fixed effect method or the random effect method by looking at the Chi-Square value in the Hausman test. The null hypothesis of the Hausman test is:

H0 = Random Effect Model (REM)
H1 = Fixed Effect Model (FEM)

If the Chi-Square value is less than 0.05 then H0 is rejected and the fixed effect model is more appropriate to use (Aulia, 2004). The Hausman test in this research was carried out through the program application Eviews 7.

The production function formula is simply, the output produced, and combined with physical capital (K) and labour input (L). The amount of labour is intended to represent the size of labour input but this simplification depends on the assumption that labour is homogeneous. This

measurement looks at the importance of human capital obtained through education, training, and skills. The results of research conducted by Romer (1989), show that the quality of human capital has a positive effect on increasing labour productivity. Seeing the quality of the addition of labour is important to ensure that estimates of work productivity are not biased. The Cobb Douglas production function formula can be written as follows (Solow, 1971):

$$(5) \quad Y_t = AK_t^{\alpha} L_t^{\beta}$$

Where:
A : Efficiency parameter
L : Quantity of labour
K : Capital labour
Y : Output per labour
T : Trends

The results of research conducted by Lucas (1988), get the results that the workforce is different based on the increase in human capital. The production function in this case takes into account the quality of labour, therefore, it can be written as follows:

$$(6) \quad Y_t = AK_t^{\alpha} (uhL)_t^{\beta}$$

Where:

uhL : Labour Effectiveness

The term u is the time allocated to produce output, $(1 - u)$ is the time allocated for labour capital investment, h is the supply of labour capital. $uhL = L*$, is the effectiveness of labour. The production function based on the effectiveness of labour can thus be written as follows:

$$(7) \quad Y_t = AK_t^{\alpha} (L_t^*)^{\beta}$$

To analyze how the increase in labour capital is through a function formula of labour effectiveness, L * refers to two levels of education expressed as:

$$(8) \quad L_t^* = L_t^{\theta_J}, J = 1 \text{ and } 2$$

Where:

$L_t^{\theta_J}$: Proportion of labour from different level education

$J = 1$ and 2 : 1 is Junior High School level, 2 is Senior High School level

By entering (4) into (3), we obtain:

$$(9) \quad Y_t = AK_t^{\alpha}(L_t^{\theta_1} L_t^{\theta_2})^{\beta}$$

To get an increase function of labour productivity, both sides (6) are divided by Lt, and are written as follows:

$$(10) \frac{Y_t}{L_t} = \frac{AK_t^{\alpha}(L_t^{\theta_1} L_t^{\theta_2})^{\beta}}{L_t}$$

The formula function equation (7) can be rewritten as follows:

$$(11) \frac{Y_t}{L_t} = A\left(\frac{K_t}{L_t}\right)^{\beta} L_t^{\beta\theta_1} L_t^{\beta\theta_2}$$

Based on (8), the panel estimation model in this research is obtained by taking a log form from both sides of the equation. In this research, productivity can be formulated through an output ratio formula for certain factors or all related factors relevant to production (Syverson, 2011). Henceforth in this research includes additional other variables that affect productivity, namely innovation, experience, training and education level into the model as follows:

$$(12) \ln\left(\frac{Y_{it}}{L_{it}}\right) = lnA + \alpha \ln\left(\frac{K_{it}}{L_{it}}\right) + (\alpha + \beta - 1)\ln(L_{it}) + \gamma_1 I_{it} + \theta_1 lnLD_{it} + \theta_2 lnPL_{it} + \theta_3 lnPL_{1it} + \theta_4 lnPL_{2it} + \varepsilon_{it}$$

Where:

$\ln(Y_{it}/L_{it})$: log productivity (total output labour) in company i in 2015

$lnLD_{it}$: experience on company i in 2015 and 2016

$\ln PL_{it}$: training followed by IMK i in 2015 and 2016

$\ln P_{1it}$ who : level of education for labour graduate from junior high school

$\ln P_{2it}$ who : level of education for labour graduated from senior high school

$\gamma 1 I_{it}$: dummy for Innovation variables

$\ln(K_{it}/L_{it})$: log physical capital per labour

$\ln(L_{it})$: log labour

ε_{it} : error terms

α, β : elasticity of capital and labour productivity

$(\alpha + \beta - 1)$: Coefficient $\ln(L_{it})$

5. RESULT AND DISCUSSION

5.1. Summary of Statistics

Descriptive analysis was carried out using descriptive statistics that produced average, maximum, minimum, and standard deviation values to describe the research variables so that they were contextually easy to understand (Ghozali, 2013). The results of the descriptive statistics in table 3 show that,

a. The average mean value productivity of MSI leather craftsmen in Magetan Regency, is 18.62788 with a standard deviation of 0.303175, a minimum value of 16.65139, a median of 18.72079 and a maximum value of 19.81940.

b. Meanwhile, capital per labour has an average mean value of 15.24349 with a standard deviation of 0.305066, a minimum value of 14.332634, a median of 15.332964 and a maximum value of 17.06975.

c. Then, the labour variable has an average mean value of 1.151185 with a standard deviation of 0.479183, a minimum value of 0.693147, a median of 1.098612 and a maximum value of 2.995732.

d. Meanwhile, the average mean innovation variable is 0. 985915 and the standard deviation is 0.118047, the minimum value is 0.00000, the median is 1.000000 and the maximum value is 1.000000.

e. In addition, the average mean value learning by doing variable is 3.207247 with a standard deviation of 0.346785, a minimum value of 2.708050, a median of 3.135494 and a maximum value of 3.713572.

f. The training variable has an average mean value of 0.958085 and standard deviation of 0.321570, a minimum value of 0.000000, a median of 1.098612 and a maximum value of 1.386294.

g. Finally, the average mean value of the education level variable for junior high schools is 0.484631 while for senior high schools, the average value is 0.371783, with a standard deviation of 0.528364 for the junior high school level and 0.513619 for the senior high school level.

Table 3. Descriptive Statistic Of Variable

Variable	Mean	Std.dev.	Min.	Median	Max
Labour Productivity	18.62788	0.303175	16.65139	18.72079	19.81940
Capital per labour	15.24349	0.305066	14.32634	15.32964	17.06975
Labour	1.151185	0.479183	0.693147	1.098612	2.995732
Innovation	0.985915	0.118047	0.00000	1.000000	1.000000
Learning by Doing	3.207247	0.346785	2.708050	3.135494	3.713572
Training	0.958085	0.321570	0.000000	1.098612	1.386294
Junior High School	0.484631	0.528364	0.000000	0.693147	2.397895
Senior High School	0.371783	0.513619	0.000000	0.000000	2.302585

Source: Calculated by the author

5.2. Estimation Result Of Productivity Model Per Labour Toward Micro And Small Industries Leather Crafts On Magetan Regency

The Redundant Fixed Effect Test and Hausman Test results determined that the productivity output equation model of labour in MSI leather craftsmen in Magetan Regency was obtained using the Fixed Effect Model (FEM) method (Based on table 3 that the RFE value and Hausmant Test are 0.0000 <0.05). The results of the analysis are shown in table 4

Table 4 : Labour Productivity Equation

Independent Variable	Coefficient	Prob.
C	14.18577	0.0000*[i]
LNKPERL	0.289932	0.0000*[4]
LNL	-0.849807	0.0000*[4]
INNOV	0.274725	0.0113**[4]
LNLD	0.149017	0.0813***[4]
LNPL	0.185962	0.0006*[4]
LNP1	0.073148	0.1241
LNP2	0.103310	0.0211**[4]
R-squared	0.888834	
F-statistic	7.293226	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	3.972028	
RFE	0.0000	
Hausman Test	0.0000*[4]	

Notes: ***$p < 0,1$; **$p < 0,05$; *$p < 0,01$
Source: Calculated by the author

Based on table 4

1. The t-statistic test is used to determine whether the independent variables which are included in the model partially have a significant effect on the dependent variable. This research uses $\alpha = 1\%$ or 99% confidence level, $\alpha = 5\%$ or 95% confidence level, and $\alpha = 10\%$ or 90% confidence level. Also at result table, it is known that the probability of t-statistics for capital variables per labour is 0.0000 (significant at $\alpha = 1\%$ in a positive direction) or significant at a 99% confidence level, which means that the capital variable per labour has an effect on productivity per labour in the MSI leather craftsmen in Magetan Regency. Labour variable has a probability of t-statistics of 0.0000 (significant at $\alpha = 1\%$ with negative direction) or significant at 99% confidence level, which means that labour variables affect productivity per labour MSI leather craftsmen in Magetan Regency. Innovation variables have a t-statistical probability t of 0.0113 (significant at $\alpha = 5\%$ in a positive direction) or significant at a 95% confidence level. This means that the innovation variable has an effect on productivity per Labour of MSI leather craftsmen in Magetan Regency. Learning by doing variables has a probability of t-statistics value 0.0813 (significant at $\alpha = 10\%$ in a positive direction) or significant at a 90% confidence level). This means that the learning by doing variable has an effect on productivity per labour of MSI leather craftsmen in Magetan Regency. The training variable has a probability of t- statistical value 0.0006 (significant at $\alpha = 1\%$ in a positive direction) or significant at 99% confidence level). This means that training variables affect productivity per labour of MSI leather craftsmen in Magetan Regency. Labour variable with senior high school graduation rate has a statistical probability of 0.0211 (significant at $\alpha = 5\%$ in a positive direction) or significant at a 95% confidence level. This means that the variable labour with senior high school graduation rates affect productivity per labour MSI leather craftsmen in Magetan Regency. While the variable labour with junior high school graduation is not significant with a probability t-statistical value 0.1241 which means that the variable labour with junior high school graduation rate does not affect productivity per labour MSI leather craftsmen in Magetan Regency.

2. The results of the F-statistical test are used to determine whether the independent variables simultaneously influence the dependent variable. Based on the results of the least square panel regression test with the fixed effect model (FEM) productivity per labour MSI leather craftsmen in Magetan Regency has a probability value of 0.0000 significant at $\alpha = 1\%$ or at a 99% confidence level which means that the variable independent, namely capital per labour, labour, innovation, learning by doing, training, labour with junior high school graduation and labour with high school graduation simultaneously influence the dependent variable namely productivity per labour MSI leather craftsmen in Magetan Regency.

5.3. Discussion

In the table 4 shows the result R-squared is 0.888. This means that this panel data model can be used to explain total work productivity in amount of 88.8%, while the remaining 11.2% is explained by other variables in the research.

While capital per labour has a significant and positive influence ($p < 0.01$) on labour productivity in the MSI of leather craftsmen in Magetan Regency with a coefficient of 0.289932. This means, when the capital per labour increase 1% in number, it will also increase labour productivity by 0.289%. The results of this research are in accordance with the production function of Cobb Douglas's theory that with an increase in the amount of capital per labour will increase MPL or increase capital per labour will increase labour productivity, similar with research result from Mankiw (2006).

In this research also found that the MSI of leather craftsmen in Magetan Regency needed large capital of fund. Most of the capital fund owned by the MSI of leather craftsmen in Magetan Regency, comes from their own capital fund and loans which obtained from banks. Local governments,

through the relevant departments provide loans with soft interest under certain conditions. Some MSI of leather craftsmen prefer to borrow from banks rather than through the government, on the basis of ease of procedure if borrowing from a bank.

Also in this research found, an increase in labour has a negative influence ($p < 0.01$) on labour productivity at MSI of leather craftsmen in Magetan Regency with a coefficient value of -0.849807. This means, when the labour increase 1% in number, it will also decrease labour productivity by -0.849%. Theoretically, it should be, when an increase the number of labours, reducing marginal productivity labour. Based on the results of the research, it can be seen that the productivity elasticity of labour in the MSI of leather craftsmen in Magetan Regency is negative, namely in region III where when inputs (labour) are added it will result in a reduction in production (Pindyck & Rubinfeld, 2009).

Still in this research, the result found for innovation has a positive influence ($p < 0.05$) on labour productivity in the MSI of leather craftsmen in Magetan Regency with a coefficient of 0.274725. This means, when the Innovation increase 1% in number, it will also increase labour productivity by 0.274%. But leather craftsmen in this case are still less innovative, meaning craftsmen must increase investment in innovation to introduce new products or the process of using new technology. Production technology innovations or product innovations which used still using the old one. Theoretically, innovation will encourage increased labour productivity, in line with results research from Hall et al. (2009), also Long and Anh (2017), while Nedic et al. (2014) also stated that collabouration of SME's which supported by informational technologies, as the result can improve the innovation for productivity growth and competitiveness.

From the model research found, learning by doing has a positive influence ($p < 0.1$) on

the labour productivity of the MSI of leather craftsmen in Magetan Regency with a coefficient of 0.149017. This means, when learning by doing increase 1% in number, it will also increase labour productivity by 0.149%. In the aspect of learning by doing significantly has a positive impact on the productivity of labours to perform the same or similar tasks, being able to increase the company's productivity. Companies can effectively identify improvement processes that increase production speed (reduce input costs) and improve quality, the results of this research are similar to research result conducted by Kellog and Whiteford (2009), and Solow (1971).

Based on FEM estimation, it was also found that the training had a positive effect (p <0.01) on increasing the productivity of the MSI of leather craftsmen in Magetan Regency with a coefficient of 0.185962. This means, when training increase 1% in number, it will also increase labour productivity by 0.185%. It is clear that training is a component, especially of labours, which forms at least an increase in labours' skills. General training is a more useful type of training (that is, in increasing productivity). Training held by the local government in Magetan Regency, which includes things such as entrepreneurship training while special training such as sewing training, shoe making training, making shoe soles training and so on. Labours can increase their productivity through on job training.

Nowadays, the owners do not have an awareness of the importance of training assume that when there are training invitations from the industry and trade departments for example, they do not send their labour because it assumes that training time will reduce production in the short run. But it is very profitable in the long run because training can improve skills and innovations that contribute positively to increasing productivity. training on labour has a positive and significant impact on

productivity, Colombo & Stanca (2014), De Grip & Sauermann (2013).

The last, research results of the least square panel test with the Fixed Effect Model (FEM) model show that senior high school education has an influence (p <0.05) on the productivity of micro and small industry labours in the Magetan Regency with a coefficient of 0.103310. This means, when education level increase 1% in number, it will also increase labour productivity by 0.103%. Education level increases labour productivity and also increases wages. This research was also supported by Hua (2005) whose results showed that university education level had a good effect on efficiency growth and technological progress. Meanwhile, the junior high school education level variable has no effect (p> 0.1) on the productivity of the MSI of leather craftsmen in Magetan Regency.

6. CONCLUSION AND RECCOMENDATION

Through the Cobb Douglas production function it is known that the factors that influence the productivity of micro and small industrial leather labour in Magetan, including several aspects; capital per labour, labour, innovation, learning by doing, training and high school education which play a major role in the presence of leather artisans in the national industry. There is also a sizable social aspect of MSI. While wages in developing countries in some business activities tend to be lower than wages in developed countries in the same leather value chain activities. Without proper policy and direction, many countries often lack the skills to include higher value-added activities, for example, in terms of designing a product and marketing it, and what is better is the contribution that will be made if there is no micro and small industry in a country. Indonesia with adequate public policies and the private sector has used the opportunities provided by temporary trade preferences for MSI to improve the value added chain; Other

developing countries have used trade preferences to attract a very important part of their manufacturing base but may still have to make full use of the opportunities offered to develop dynamically and diversify into other activities when they are faced with competition from other countries.

The potential in the leather industry has a contribution in supporting growth and development in the long term, but not only depends on investors, but also on the quality of the products produced and the effectiveness of the policies and support of government institutions. Conversely, aspects of labour have a negative effect on labour productivity in the micro and small leather industry in Magetan. In the same party, junior high school education does not affect the productivity of micro and small leather industrial labour in Magetan because of the productivity elasticity of negative labour. This means that it is not possible to increase output by increasing input (labour) because it decreases, as a result, this research suggests to increase productivity through improving the quality of human resources through innovation, education, training in collabouration with local governments through BPTIK LIK (Technical Implementation Center for Industrial Leather Craft - Small Industrial Environment) Magetan Regency.

6.1. Research Implication

1. The government should increase the amount of capital assistance with soft interest and facilitate the procedure of obtaining business credit for MSI of leather craftsmen in Magetan Regency in obtaining capital assistance.

2. The micro and small industries of leather craft in Magetan Regency should strive to increase innovation not only in the development of existing products in the form of design, but also in the introduction of new products in the form of diversification of leather products and new production technologies in the form of adopting production leather machinery which collaborating with the Technical Implementation Center for Industrial Leather Craft - Small Industrial Environment (BPTIK-LIK) Magetan Regency specifically in the Field of Research and Development and related Universities.

3. Local governments with related parties should increase the amount of training needed by MSI of leather craftsmen in Magetan Regency.

4. The micro and small industries of leather craft in Magetan should prioritize the strategy of empowering the HR field with alternative education and basic training in collaboration with Leather Craft Center, namely the Technical Implementation Center for Industrial Leather Craft - Small Industrial Environment (BPTIK-LIK) Magetan Regency and Related Universities.

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Research Questionnaire

LABOUR PRODUCTIVITY IN MICRO AND SMALL INDUSTRIES
(RESEARCH ON LEATHER CRAFTSMEN IN MAGETAN REGENCY)

Answer the following question by filling in the answer or giving a check mark (√) to the column provided below!

1. **Respondent Identity**

   Name (May Not Be Filled)   :
   Age   :
   Gender   : ( ) Male   ( ) Female
   Company name   :
   Company's address   :
   Duration of the Company   :
   Last Education   :

   ( ) No school   ( ) Elementary   ( ) Junior High School
   ( ) Senior High School   ( ) Bachelor   ( ) Master
   ( ) Doctor

2. **Human Resources**

   Total Man Power

   a. In 2015

No	Attribute	Male		Female	
		Person	Wages/Day	Person	Wages/Day
1	Sol Maker				
2	Cup Maker				
3	Finishing				
4	Foreman				
5	Others				

   b. In 2016

No	Attribute	Male		Female	
		Person	Wages/Day	Person	Wages/Day
1	Sol Maker				
2	Cup Maker				
3	Finishing				
4	Foreman				
5	Others				

c. Labour Education Level (2015)

No	Education Level	Male		Female	
		Person	Wages/Day	Person	Wages/Day
1	Junior High School				
2	Senior High School				
3	Bachelor's Degree				
4	Others				

d. Labour Education Level (2016)

No	Education Level	Male		Female	
		Person	Wages/Day	Person	Wages/Day
1	Junior High School				
2	Senior High School				
3	Bachelor's Degree				
4	Others				

3. Capital

a. Physical Capital (2015)

No	Type of capital	Size	Nominal Value
1	Land	(m2)	Rp.
2	Building	(m2)	Rp.
3	Machine/Equipment		Rp.
4	Transportation		Rp.
5	Others		

b. Physical Capital (2016)

No	Type of capital	Size	Nominal Value
1	Land	(m2)	Rp.
2	Building	(m2)	Rp.
3	Machine/Equipment		Rp.
4	Transportation		Rp.
5	Others		

c. Machine and Equipment (2015)

No	Attribute	Quantity	Unit Price
1	Sewing Machine		Rp.
2	Skiving Machine		Rp.
3	Press Machine		Rp.
4	Others		Rp.

d. Machine and Equipment (2016)

No	Attribute	Quantity	Unit Price
1	Sewing Machine		Rp.
2	Skiving Machine		Rp.
3	Press Machine		Rp.
4	Others		Rp.

1) How Rupiahs amount for Initial capital?
2) How Rupiahs amount of capital at the moment?
3) Do you have any credit capital? How many Rupiahs?
4) Are there difficulties in obtaining capital credit?
5) From where you get the capital credit?
6) Have you ever received a subsidy in the form of capital from the government? How Many? From Which Government Company?

4. Innovation

1) Are during 2015 company investing in new product introduction?
2) Are during 2016 company investing in new product introduction?
3) Are during 2015 company add or using newest innovation production technology?
4) Are during 2016 company add or using newest innovation production technology?
5) Are during 2015 company do existing product development?
6) Are during 2016 company do existing product development?
7) Does the company's existing product have copyright?
8) If the existing product have copyright, how did you first take care of copyright?
9) What do you think is the use of copyright?

5. Training

If you have been and / or are currently taking training, fill in the following table

No	Name of Training	Year	
		2015	2016
1			
2			
3			
4			

6. Experiences

a. In 2015

1) How long have you work in leather craft industry?
2) Are there any obstacle that occured? What kind obstacle, please explain.
3) How are you trying to overcome the obstacle that have occured so far?

b. In 2016

1) Are there any obstacle that occured? What kind obstacle, please explain.
2) How are you trying to overcome the obstacle that have occured so far?