

The Effect of Capital, Labor and Raw Materials Toward Production Value (Study on Tapioca Flour Industry in Margoyoso District, Pati Regency)

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Abstract

Tapioca flour industry had a significant contribution toward the surrounding residents economy because it is able to absorb a significant amount of labor. This study aimed to determine the effect of capital, labor and raw materials toward the production of tapioca flour industry in Margoyoso District, Pati Regency. This study used the Ordinary Least Square (OLS) method, namely multiple linear regression analysis. The results of this study indicated that there was a positive and significant influence of capital, labor and raw materials toward the value of tapioca flour production in Margoyoso District, Pati Regency. Capital had the most dominant influence on tapioca flour production.

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INTRODUCTION

The number of small industries is increasing and its existence become one of the solutions to reduce unemployment while at the same time moving the economy, and also potentially causing environmental pollution. The clean production concept approach has the opportunity to be accepted by industry players because in addition to contributing to the improvement of environmental performance, cleaner production also contributes to increasing production efficiency which will increase profits and industrial competitiveness.

Tapioca flour is a tempting commodity. Its mostly used for the agrochemical industry such as making MSG, then the food industry such as for noodles, and also chemical industries such as cosmetics. Even tapioca flour is also used by the wood industry.

Food needs are primary needs that must be fulfilled. One of the most consumed food needs is the basic needs of carbohydrates. The most consumed carbohydrate besides rice and corn is cassava. Cassava is sold in many processed form. One of the most processed forms of cassava that is consumed is tapioca flour. In Indonesia, tapioca flour is widely used as food materials. The followings are. descriptions about the use of tapioca flour for various food products, including:

- a. Tapioca floor is used as traditional food products materials such as biji salak, kue lapis and crackers.
- b. Tapioca flour is used as materials of modern food products, such as instant milk porridge, seasoning flour, biscuits and meat products.
- c. Tapioca starch can be processed into modified starch that is the basic ingredient of bread making, ice cream and candy.
- d. Tapioca flour can be processed as starch hydrolyzate, the basic ingredient of formula milk making, soft drinks, sauces and jelly.
- e. Tapioca flour can be processed into food preservatives or MSG (Monosodium Glutamate). (Zairina, Chumaidah, 2015)

The potential of PPSP tapioca flour production is very large but it is still constrained by the market because large industries that are used tapioca flour as main ingredients do not want to absorb the processed products of local farmers.

In Paper Industry, it is used as pulp adhesion material. While the in Flavoring Industry (MSG), tapioca flour is the raw material for making MSG. In Industrial Sorbitol, Dextrin, Amilum etc. used tapioca flour as raw material. Meanwhile, the HFS (High Fructose Syrup) Industry, its used as a raw material for making sweeteners in the beverage and candy industry. (Sutikno, 2017).

In 2018, BPS recorded 375,590 tons of cassava starch valued at US \$ 185.6 million entering Indonesia as imported goods. While the amount of exports in the same period was much smaller, it is only 8,090 tons or US \$ 5.28 million. This means that the ratio of palm starch imports reached 45x than exports. (Ardyansyah, 2019). The increasing of demand for the domestic food industry makes Indonesia must bring in wheat from abroad. Based on Indonesian Flour Association data (APTINDO), In 2017 Indonesia's wheat imports volume increased by around 9% to 11.48 million tons from the previous year. Likewise, the value increased 9.9% to US \$ 2.65 billion. Indonesia's biggest wheat imports come from Australia, it is reaching 4.23 million tons or around 37% of total imports. The second largest wheat imports are from Ukrainians weighing 1.98 million tons or around 17% and the third from Canada reaching 14.7% of total imports. Based on the use of domestic wheat profile, large and modern industries that use high-tech machinery, handled professionally, as well as by companies listed on the exchange only reach 34%. While the remaining 64% is actually used by small industries. Among others, for the manufacture of bakery businesses, biscuits and cakes.

Table 1. Indonesian Wheat Import in 2017

Year	Amount
2013	6.750.000
2014	7.500.000
2015	7.500.000
2016	10.500.000
2017	11.500.000

Source: Statistics Central Agency 2017

The limited cassava as raw material for tapioca flour causes the tapioca flour processing industry in Indonesia has not been able to complete the needs in the market. So the

productivity of tapioca flour must still be exported.

The research by Suismono and Misgiarta (2009) by title Cassava Flour Modified agroindustry development (Bimo-Cf Flour) the research stated that price of cassava flour modified it depends to cassava price. The result of the study are line with research conducted by Robert Asnawi (2013) by title analysis function cassava farming of production and tapioka flour industry from the public in Lampung District. Research stated tapioka flour industry (ittara) very depend of raw materials total. Robert Asnaw explain that profit from tapioca flour industry not giving benefits to cassava farmer just up to owner tapioka flour industry.

From this, the theoretical basis that is used in this study is the Cobb Douglas theory. The Cobb-Douglas production function is an equation that involves two or more variables called the dependent variable and the independent variable. The completion of the relationship between the dependent and independent variables can be solved by regression analysis. In the Cobb Douglas production function apply a constant return to scale so that it can illustrate changes in output as a result of changes in inputs easily.

If the input rises all of capital (K), labor (L), and technology (A), then output will also increase (Joesron and Fathorozi 2003: 104). The settlement of the relationship between X and Y is usually by regression, i.e. variations of Y will be influenced by variations of X. As for the Cobb Douglas production function as follows:

$$Q = K^{\alpha} L^{\beta}$$

Where:

Q= Output

K= capital input

L= labor input

α = capital input elasticity

β = labor input elasticity

Q are output quantities and L and K are labor and capital goods (alpha) and (betha) are positive parameters determined by the data. The production function is always expressed in the form of a formula, which is as follows:

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

Where :

K= Total capital stock

L= Number of workers

R= Natural wealth

T= Technology level used

From the various explanations above, it can be seen that production is the last result of economic processes or activities by utilizing several inputs or inputs to increase benefits by combining the factors of production (Seoharno, 2007: 113). In this study, the unit of production is expressed in terms of rupiah or called the value of production obtained from the product between the amount of production produced and the product selling price. Whereas the production function referred to here are factors affecting the production which is including capital, labor, raw materials and technology.

RESEARCH METHODS

This research was a quantitative approach that was to test the hypothesis of an existing theory. The population in this study were the tapioca flour industry in Margoyoso District Pati District with a total population of 271 industries. Sampling used slovin formula so that the number of samples obtained is 73 industries. The data source of this study used a questionnaire with the sampling technique was proportional random sampling. The study used descriptive analysis and tests of classical assumptions and used multiple linear regression analysis.

The results of the normality test with the Kolmogorof-Smirnof calculation obtained significance values its above 0.05. This meand that residual data were normally distributed. The results of multicollinearity test gained tolerance value> 0.10 and vif value of each independent variable was <10, then it does not contain multicollinearity and the regression model does not contain heterocedasticity.

Hypothesis test results which were include the F test, t test, and R2 tests basically indicate whether all of independent variables have an influence together on the dependent or dependent variable.

Equation from ordinary least square metod from the research:

$$\ln Y = \alpha + \ln \beta_1 X_1 + \ln \beta_2 X_2 + \ln \beta_3 X_3 + e$$

Note :

$\ln Y$ = Produksi Value

α = Constanta

$\beta_1, \beta_2, \beta_3$ = coefficient regression

X1, X2, X3 = Capital Variabel, Labor, and Raw materials

e = disturbance error

RESULT AND DISCUSSION

Regression analysis aimed to investigate whether among existed variables have a relationship and what was the form the relationship. In this study there are one dependent variable and three independent variables, so that the regression used was multiple linear regression. This analysis was used to determine the magnitude of influence from capital variables (X1), labor (X2) and raw materials (X3) on the value of production (Y) in tapioca tepug industry in Margoyoso District, Pati Regency, it can be seen the following results:

Tabel 2. Result of Multiple Linear Regresion Analysis

Variable	Regression coefficient	t count	Standard error	Sig
(Constant)	-7.886			
LnAsset	0.625	7.931	0.079	0.000
Labor	0.255	2.846	0.090	0.006
LnRaw Material	0.297	3.772	0.079	0.000

Source: processed in 2019

Based on the regression test results above obtained the following equation :

$$Y = -7,886 + 0,625 \text{ Ln}X_1 + 0,255 X_2 + 0,297 X_3$$

The Effect of Capital, Labor, and Raw Materials on Production Value in Tapioka Flour Industry in Margoyoso District, Pati Regency

Capital, labor, and raw materials are interrelated production factors in the production process, this is in accordance with Cobb Douglas's theory which shows that production is influenced by several inputs. The results of the statistical F test (simultaneous test) shows that the significance value of 0,000 is smaller than 0.005, so the first hypothesis is accepted. This means that there is an influence of capital, labor, and raw materials on the value of production in the tapioca flour industry in Margoyoso sub-district, Pati regency. This means that the higher the capital, labor, and raw materials, the value of production

in the tapioca flour industry in Margoyoso sub-district in Pati regency is higher, and vice versa.

The adjusted R2 results show that 92.30% of the production value in the tapioca flour industry in Margoyoso sub-district of Pati regency can be explained by independent variables, namely capital, labor and raw materials. While the remaining 7.7% is explained by other variables outside the research model. Referring to these results simultaneously the independent variables affect the value of production in the tapioca flour industry in the Margoyoso sub-district of Pati regency, then these three variables must become particular concern for the tapioca flour industry business owners to increase the value of tapioca flour production in the Margoyoso sub-district of Pati regency.

The results of this study are in accordance with Cobb Douglas's theory which states that production is influenced by two or more variables. Also in the production function shows the relation between the factors of production and the level of production produced where the factors of production are known as input and the amount of production is referred as output. In the production theory, production is influenced by several factors of production such as capital, labor and raw materials and the technology used (Sukirno, 2006: 195). As in this study the variables used are capital, labor, and raw materials.

Besides confirming the theory, the results of this study are in line with research conducted by Herawati (2008) and stated that the variables of capital, labor, raw materials and machinery have a significant effect toward production. Similarly, the results of Kesumadinata (2011) research stated that simultaneously labor, working capital, and technology significantly influence the production of shoes in the District of West Denpasar. Nugroho (2014) states that production is influenced by capital, labor and technology by 87%. Other research conducted by Dwi Firiana, et al (2014) also states that capital, labor and raw materials have a positive and significant effect on production. The results of Arum *et-al* (2011) research stated that simultane usly raw materials (cassava) and water significantly influence the tapioca flour production.

The Effect of Capital Toward Production Value in Tapioka Flour Industry in Margoyoso District, Pati Regency

In this study capital has a coefficient value 0.625 it means that if capital rises by 1% then the value of production will increase by 0.625%. This shows that the production value in the tapioca flour industry will increase along with the increase of capital in the business. While the partial effect of capital on production value is 47.74%. The quite dominant influence of capital on production value shows the importance of capital position in production process in the tapioca flour industry in Margoyoso sub-district.

The results of this study are in accordance with Cobb Douglas's theory which states that production output is influenced by capital. In addition, Riza Fachrizal (2016) stated that capital take effect and significant toward the value of production. The results of this study are also consistent with research conducted by Putu Santi Vinaryanti and Ida Bagus Darsana (2018) which stated that capital is the most dominant factor in production, compared to labor and raw materials. Other research conducted by I Komang Adi Wirawan, Ketut Sudibia and Ida Bagus Putu Purbadharmaja (2015) stated that capital of work had the most dominant influence toward production value of wood sculpture craftsmen in the city of Denpasar. Research from Budiana, Rusdarti (2011) and Winarsih (2014) stated that capital of work take effect to production.

This means that the higher the capital owned, the higher the value of production produced and vice versa the lower the capital owned, the lower the value of production produced. High capital will increase the amount of production so that the value of production will also increase. It is because the production process requires costs used to purchase supporting materials, equipment and pay employee salaries. If the amount of available capital can meet all needs in the production process, the production process will run smoothly and will affect the increase in production value. So if the tapioca flour industry owners want to increase the value of tapioca flour production obtained, then they must increase the amount of capital in their production process. By increasing capital, the value of production will rise, because in this study

capital and production value have a direct relationship. That is, if capital rises will affect the value of production obtained.

The Effect of Labor on Production Value in Tapioka Flour Industry in Margoyoso District, Pati

The results of the study based on the t test obtained a significance value of 0.006 which is greater than 0.005, this means the third hypothesis was rejected. These results indicated that labor does not take effect toward value of production in the tapioca flour industry in Margoyoso District. This means that if there is increasing labor by one person, it does not affect the value of production which assumed other variables are fixed. With an average salary is Rp. 70,000 - Rp. 85,000 per day.

The size of the salary given by a business to its workers will affect the productivity level of employees' work (Setiadi, 2009). When a worker feels comfortable with the salary received, his productivity at work is expected to increase. This is inseparable from the condition that salaries are a person's main goal at work. In addition, rewards for labor performance are often applied in the form of higher salaries. Thus there seems to be a reciprocal aspect between salaries and labor productivity. When workers feel comfortable with salaries received, their productivity at work is expected to increase. So that when the level of income is sufficient, it will cause work concentration and rally the ability possessed to increase labor productivity so that the value of production produced rises.

In addition, discipline at work is a matter that affects the value of production produced in a business. Discipline is one of the traits that must be processed by labor which closely related to the value of production produced. Most of the labor comes from the environment around the tapioca flour industry, so they do not appreciate work time.

The results of this study are not in accordance with the Cobb Douglas theory where if there is an increase in labor input the output produced will also increase. But other research states the same results as this study, as well as research conducted by Arisanti (2008) and Amelia (2016) also states that labor does not affect the production. In line with research conducted by

Saraswati (2013) states that labor does not affect the value of production. The results of a study conducted by Noviana Fitri Kasari (2017) state that labor does not affect the value of batik production in Pilang Village, Masaran District, Sragen Regency.

The Effect of Raw Materials on Production Value in Tapioka Flour Industry in Margoyoso District, Pati Regency

The results of the study based on the t test results obtained significance of 0,000 less than 0.005 which means that the fourth hypothesis is accepted and significant. These results indicate that the raw material has a partial effect toward the production value in the tapioca flour industry in Margoyoso District, Pati Regency. This means that the more raw materials used, the more production value is produced and conversely the lower the raw material used, the lower the value of production produced. The partial effect is 17.05%. The coefficient value of raw materials is 0.297, it means that if there is an increase in raw materials by 1 percent, the value of production will increase by 0.297 percent with the assumption that other variables are fixed. The results of this study are consistent with Cobb Douglas's theory which states that production output is influenced by raw materials.

Raw materials have a positive and significant effect toward production. This explains that the higher the use of raw materials, the level of production also increases. The results of this study informed the theory of production which states that the level of production depends on the number of factors of production used, one of them is raw material. In addition, this research is also supported by the opinion of Mintaroem (2003) which states that the availability of raw materials affects the amount of production produced. Raw materials are production factors that have the greatest influence toward production (Samad and Patwary, 2003). Aside from confirming Cobb Douglas's production theory, the results of this study are also in line with the results of other studies concerning production, such as research conducted by Prianata (2011) which states that raw materials have a positive and significant effect on the production of the Furniture industry in the City of Denpasar. In line with that Akbar (2017)

and Wulandari et al (2017) claimed that there is an influence of raw materials on production. Other studies also states the same results, such as research conducted by Ngatindriatun (2011) which states that raw materials affects and significant on batik production in Semarang. Raw materials affect the value of production, because raw materials as the main ingredients that are processed together with other supporting materials to be an output in a production process. Other research conducted by Agustina and Kartika (2018) states that simultaneously labor, capital and raw material have a positive and significant effect, and the most dominant variable influencing production is the raw material.

CONCLUSSION

From the results of the study, it can be concluded that capital and raw materials have the strongest influence toward the value of production compared to labor. While labor does not affect the value of production. For tapioca flour industry owners, it is expected that the results of this research can optimize the capital allocated for tapioca flour production. In addition, the limitation of raw materials is also the duty of the government to add land to grow tapioca flour raw materials, cassava. Without that domestic tapioca flour industry cannot meet domestic needs so we still have to import from abroad.

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