



Effect of Capital, Manpower and Raw Materials on Production and Income of Ukir Kayu Crafts Industry



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Abstract

The purpose of this study was to analyze the effect of capital, labor, and raw materials on production in the *ukir kayu* industry in Sukawati District, Gianyar Regency. The data analysis technique used in this study is path analysis. Capital, labor and raw materials directly have a positive and significant effect on production in the wood carving industry in Sukawati District, Gianyar Regency. Capital, labor, raw materials and production directly have a positive and significant effect on income in the carving woodwork industry in Sukawati District, Gianyar Regency. Capital, labor, and raw materials have an indirect effect on income through the value of production in the carving woodwork industry in Sukawati District, Gianyar Regency.

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1 Introduction

Capital contributes to increasing production growth. Increased production may reflect an increase in the production of household income (Diewert & Fox, 2015). As for Riyanto (2001) in Herawati (2008) (in Lesmana, 2014; Aggarwal, 2017), working capital is costs incurred for company operations in one period (short term) including cash, inventory, accounts receivable, building depreciation and machine depreciation. This shows that working capital is expected to be able to accelerate the production and sales process, which in turn can quickly return capital and profits because it is used in daily production processes such as payment of employee wages, purchase of raw materials, transportation, and others (Nuryani *et al.*, 2018; Pattiasina *et al.*, 2019).

Labor can be affected by production and income. Cobb-Douglas theory which states that capital affects production output. This shows the higher capital will be able to increase production output, this is because in the production process requires costs that are used for labor and the purchase of raw materials and equipment (Sulistiana, 2013; Nneka *et al.*, 2016; Putra & Sedana, 2019). The number of workers is very influential on income, if the work user increases, the results of the production of goods will increase and affect the increase in income of the entrepreneur, and vice versa

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when the labor used decreases or is small, then the production results obtained are few or the workmanship is not timely, resulting in entrepreneur income will decrease.

Raw materials are also an important factor affecting production and income. According to Mutiara (2010), raw materials have a high influence on production, because if raw materials are difficult to find, producers will stop the production process, and vice versa if raw materials are easy to obtain, the production process will run smoothly. The greater the number of raw materials, the greater the number of products produced, so that the greater the amount of income received from production. The raw material is the amount of material needed to carry out the production process within a certain period (Siswanta, 2011; Asa & Sari, 2019; Gorda *et al.*, 2018).

Hypothesis

- H1: Capital, labor and raw materials directly have a positive and significant effect on production in the wood carving industry in Sukawati District, Gianyar Regency;
 H2: Capital, labor, raw materials, and production directly have a positive and significant effect on income in the carving woodwork industry in Sukawati District, Gianyar Regency;
 H3: Capital, labor, and raw materials have an indirect effect on income through the value of production in the wood carving industry in Sukawati District, Gianyar Regency.

2 Materials and Methods

This research was conducted in Sukawati District, Gianyar Regency, Bali Province. Sukawati District was chosen as a research location, because Sukawati District is one of the centers of traditional handicraft business in Bali which has become a hereditary tradition, one of which is famous for its wood carving. The industry is supported by existing raw materials so that it can be known whether capital, labor, and raw materials affect production and income in this study area. The population used is the wood carving industry in Sukawati District, Gianyar Regency. The sample in this study was the entire *ukir kayu* craft industry in Sukawati District, Gianyar Regency, so this study was included in the study of saturated sample populations. The research with population saturated sample method was chosen because in Sukawati District there are 100 *ukir kayu* craft industries. The analysis technique in this study uses path analysis.

3 Results and Discussions

The Effect of Capital (X1), Labor (X2), and Raw Materials (X3) on Production Value (Y1).

Table 1
Path Coefficient I

Regression	Std. coefficient	Std. Error	t	Sig.
$X_1 \rightarrow Y_1$	0,217	0,073	3,211	0,002
$X_2 \rightarrow Y_1$	0,525	0,088	6,365	0,000
$X_3 \rightarrow Y_1$	0,250	0,030	2,592	0,011

Primary Data, 2019

Information:

X_1 = Capital

X_2 = Labor

X_3 = Raw Material

Y_1 = Production Value

Based on table 1 it can be explained that the variable capital, labor, and raw materials have a positive and significant effect on the production value in the *ukir kayu* industry in Sukawati District, Gianyar Regency.

The Effect of Capital (X1), Labor (X2), Raw Materials (X3) and Production Value (Y1) on Income (Y2)

Table 2
Path Coefficient

Regression	Std. coefficient	Std. error	T	Sig.
X ₁ → Y ₂	0,431	0,247	2,959	0,004
X ₂ → Y ₂	0,085	0,016	1,978	0,041
X ₃ → Y ₂	0,610	0,088	3,444	0,001
Y ₁ → Y ₂	0,134	0,010	2,021	0,046

Primary Data, 2019

Information:

X₁ = Capital

X₂ = Labor

X₃ = Raw Material

Y₁ = Production Value

Y₂ = Income

Based on Table 2 it can be explained that the variable capital, raw material labor and production value have a positive and significant effect on income in the *ukir kayu* industry in Sukawati District, Gianyar Regency.

Table 3
Path Coefficient III

Regression	Std. coefficient	Std. error	T	Sig.
X ₁ → Y ₁	0,217	0,073	3,211	0,002
X ₂ → Y ₁	0,525	0,088	6,365	0,000
X ₃ → Y ₁	0,250	0,030	2,592	0,011
X ₁ → Y ₂	0,431	0,247	2,959	0,004
X ₂ → Y ₂	0,085	0,016	1,978	0,041
X ₃ → Y ₂	0,610	0,088	3,444	0,001
Y ₁ → Y ₂	0,134	0,010	2,021	0,046

Data Primer, 2019

Information:

X₁ = Capital

X₂ = Labor

X₃ = Raw Material

Y₁ = Production Value

Y₂ = Revenue

Based on Table 3 explains that the variable Capital (X1) has a positive and significant effect on Production Value (Y1), Labor (X2) has a positive and significant effect on Production Value (Y1), and Raw Materials (X3) has a positive and significant effect on Production Value (Y1). Capital variable (X1) has a positive and significant effect on income (Y2), Labor (X2) has a positive and significant effect on income (Y2), Raw Materials (X3) has a positive and significant effect on income (Y2), and production value (Y1) a positive and significant effect on income (Y2).

Tabel 4
Direct Effect, Indirect Effect and Total Effect

Variable	Effects		Total Effect
	Direct	Indirect	
X1 → Y1	0,217	-	0,217
X2 → Y1	0,525	-	0,525
X3 → Y1	0,250	-	0,250
X1 → Y2	0,431	0,036	0,467
X2 → Y2	0,085	0,070	0,155
X3 → Y2	0,610	0,033	0,643
Y1 → Y2	0,134	-	0,134

Primary Data, 2019

Information:

X1 = Capital

X2 = Labor

X3 = Raw Material

Y1 = Production Value

Y2 = Income

Based on Table 4 shows the direct effect of variable X1 on variable Y1 is 0.217. There is no indirect effect so the total effect is 0.217. The direct effect of variable X2 on variable Y1 is 0.525. There is no indirect effect so the total effect is 0.525. The direct effect of the X3 variable on the Y1 variable is 0.250. There is no indirect effect so the total effect is 0.250.

The direct effect of variable X1 on variable Y2 is 0.431. The indirect effect of X1 on the variables Y2 through Y1 is 0.036. Therefore, the total effect of X1 on the variables Y2 through Y1 is 0.467. The direct effect of the X2 variable on the Y2 variable is 0.085. The indirect effect of X2 on the variables Y2 through Y1 obtained was 0.070. Therefore, the total effect of X2 on the variables Y2 through Y1 is 0.155.

The direct effect of the X3 variable on the Y2 variable was 0.610. The indirect effect of X2 on the variables Y2 through Y1 is 0.033. Therefore, the total effect of X3 on the variables Y2 through Y1 is 0.643. The direct effect of the Y1 variable on the Y2 variable was 0.134.

Standard Estimated Error Value

To find out the value of e1 which shows the number of production variable variances that are not explained by the variables Capital (X1), Labor (X2) and Raw Materials (X3) are calculated by:

$$e_1 = \sqrt{(1 - R_1^2)}$$

$$e_1 = \sqrt{(1 - 0,944)}$$

$$e_1 = 0,329$$

Meanwhile, to find out the value of e2 which shows the income variable variance that is not explained by the variables Capital (X1), Labor (X2) and Raw Materials (X3) are calculated using the formula:

$$e_2 = \sqrt{(1 - R_2^2)}$$

$$e_2 = \sqrt{(1 - 0,864)}$$

$$e_2 = 0,503$$

Model Validity Test

To check the validity of the model, there are indicators to carry out checks, namely the coefficient of determination of the total results as follows.

$$R^2_m = 1 - (e_1)^2 - (e_2)^2$$

$$R^2_m = 1 - (0,329)^2 - (0,503)^2$$

$$R^2_m = 0,972$$

Information:

R^2 m: The coefficient of total determination

e_1, e_2 : Standard estimated error value

Based on the results of the calculation of the coefficient of total determination, it is found that the diversity of data that can be explained by the model is 97.2 percent or in other words the information contained in the data is 97.2 percent can be explained by the model, while the remaining 02.8 percent is explained by other variables, not in the model.

4 Conclusion

The results found that capital had a positive and significant effect on production in the wood carving industry in Sukawati District, Gianyar Regency. The greater the capital spent, then the production of wood carving craftsmen will be higher. The labor force has a positive and significant effect on production in the wood carving industry in Sukawati District, Gianyar Regency. The more labor productivity will increase. Raw materials have a positive and significant effect on production in the wood carving industry in Sukawati District, Gianyar Regency. The more raw materials used, the production will increase.

The results of this study also found that capital has an indirect effect on income through production in the wood carving industry in Sukawati District, Gianyar Regency. The nominal amount of capital spent will affect its income, thus indirectly the production of *ukir kayu* craftsmen will increase. Workers have an indirect effect on income through production in the wood carving industry in Sukawati District, Gianyar Regency. The number of workers who are adequate and contribute maximally will affect the results of their income, thereby indirectly increasing production. Raw materials have an indirect effect on income through production in the wood carving industry in Sukawati District, Gianyar Regency. More raw material expenditure will affect its income, thus indirectly the production of *ukir kayu* will increase.

Conflict of interest statement

The authors declared that they have no competing interest.

Statement of authorship

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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