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Factors Affecting Vanilla Farm Productivity in Bali

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Abstract

The main problem of vanilla farming is the lack productivity of vanilla farmers as indicated by the decreasing productivity every year. This research was conducted in Gianyar Regency, Bali, Indonesia. Data used in this research are primary data and secondary data. While the sample in this study is vanilla farmers, amounting to 160 people. This research used descriptive analysis and inferential statistics by using path analysis. The findings of this research are the average productivity level of vanilla farm in Gianyar Regency is good enough, it is very effected by the amount of capital, technology, training through entrepreneurial variable. Second, the calculation result shows technological and training variables have direct and significant effect to entrepreneurship, while capital variable indirectly effect entrepreneurship. Third, capital variables, technology, training and entrepreneurship have a direct and significant effect on productivity. Fourth, the results of indirect calculating indicates that the variable amount of capital, technology, and training on productivity has indirect affect through entrepreneurship variable.

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INTRODUCTION

Vanilla plants usually found in the tropics including Indonesia. Vanilla seeds offer not only delicacy when added to food or drink but it also beneficial for health, among others, as follow makes brain function sharper in work because of natural antioxidants in vanilla which also improves cognitive function. Vanilla serves as an inflammatory agent such as ginger, but it is believed more stronger than ginger. Furthermore, vanilla can maintain the health of the nervous system. Vanilla seeds encourage the nervous system to work more optimally. Besides that, vanilla is also used as a medicine to relieve symptoms of hysteria. Stress and overcome impotence. Vanilla aroma helps the brain relax, vanilla-like smells that help relieve the mind. For pregnant women, vanilla helps to reduce complaints in early pregnancy (Plantation Indonesia Office, 2016).

Bali is one of the provinces in Indonesia that has the potential to fulfill the world demand for vanilla. Moreover, the trend of a number manufacturers in the world has begun to glance at the natural vanilla (vanilla original) instead of using vanilla substitution material that previously had many industry glances. However, the most important is how to package these superior plantation products to be able to produce good quality. If that meets, then it is not impossible that this plantation export will be able to beat the export of other commodities.

Agricultural productivity includes agricultural products that can be managed, in addition to agricultural productivity is also not separated from the

socio-economic factors that exist around it (Paulino, 2014; Doss, 2018). Factors affecting productivity in agriculture includes the amount of training and farming experience. The low level of training is one of the causes of low productivity of farmers (Abdul-Razak & Kruse, 2017; Wessel & Quist-Wessel, 2015). In addition, training and experience in farming will help farmers to make informed decisions in farming (Kilpatrick & Rosenblatt, 1998). The longer farming experience that is owned by farmers then tend to have the highest skills.

The role of capital for the growth of the agricultural sector is very important, capital contributes greatly in terms to accomplishment infrastructure, operating costs, and labor. Most vanilla farmers are residents living in mountainous areas or villages far from the city, the financial capacity of farmers makes it difficult for farmers to get business capital assistance from official financial institutions, so that production needs makes it difficult to improve the system in the development of vanilla plantations in Bali Province.

Another factor affecting vanilla farm productivity in Bali is the low use of technology in managing agricultural products (Widanta, 2017). Low technology will affect to the final product and affect to the productivity of vanilla plantations. Research conducted by Nurrahma & Melati (2013) indicates that the low productivity of farming in Gianyar Regency in 2015 is caused by many farmers who use simple traditional tools in the management of farm produce, such as drying, packing and shipping to exporters which often result in goods being damaged, and its value decreases. Besides that, Vedal & Flaten (2014); Darmadji (2016); Faria & Mixon (2016); Wulandari et al. (2017) stated that entrepreneurship has a positive effect to farming productivity. The role of entrepreneurship influences to farmers behaviour in order to increase it outcome and definitely affect to ensure of using their bugdet constraint so that they can maximize profitability Zimmerer & Scarborough, (2008). Gianyar regency is one of the regencies most of its people are farmers, some work in tourism sector. Its location was chosen as a research location because gianyar regency is a vanilla producing region in Bali Province with stable production from year to year.

METHOD

This research undergo path analysis to provide the correlation between independent variables X_1 (capital), X_2 (technology), X_3 (training) toward Y_2 (productivity) through intervening variable namely Y_1 (Entrepreneurship). The relationship between variables was constructed by previous research and theories. The Sample of this research are 160 farmers who manage vanilla farmland in Gianyar regency and calculating the number of samples by using Slovin's formula with error level of 5 percent. The sampling technique that used in this research is accidental sampling. This technique is conducted by grouping sample based on the agricultural area so that represents the population. The data collected by observation, questionnaire, and in-depth interview. Thus, it will be interpreted by every single variable to find out the suitable theoretic and empirical model so that can be arranged based on the purpose of the research

Hypothesis

H_1: Capital, training, and technology have a positive effect on vanilla farm entrepreneurship in Gianyar Regency.

H_2: Capital, training, technology, and entrepreneurship have a positive effect on productivity of vanilla farm in Gianyar Regency.

H_3: Capital, training, and technology indirectly affect the productivity of vanilla farming through entrepreneurship in Gianyar Regency.

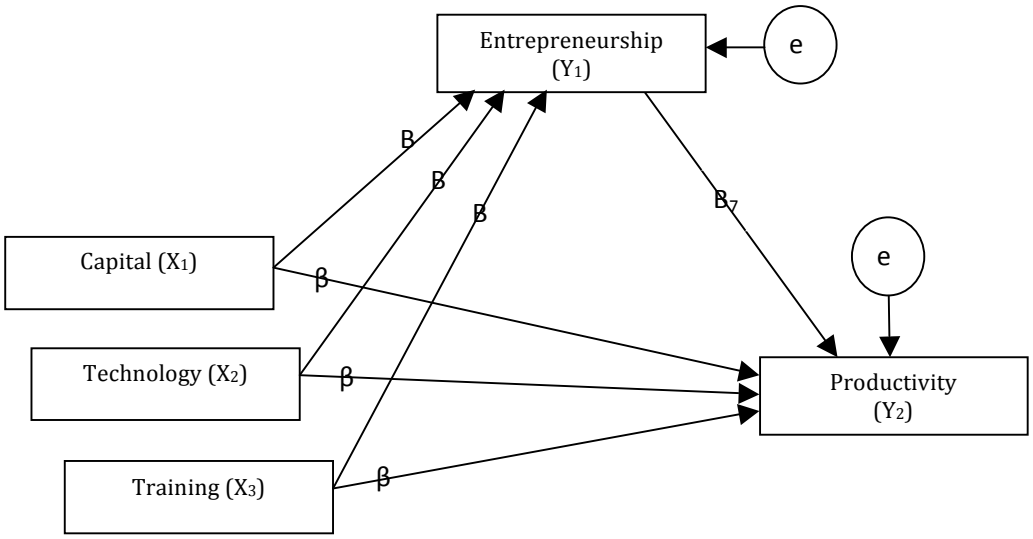

Figure 1. Model of direct and indirect effect between variables

$Y_1 = \beta 1\ X1 + \beta 2\ X2 + \beta 3\ X3 + \varepsilon 1$ …… (1)

$Y_2 = \beta 4\ X1 + \beta 5\ X2 + \beta 6\ X3 + \beta 7\ Y1 + \varepsilon 2$ …… (2)

Where:
X_1 = Capital
X_2 = Technology
X_3 = Training
Y_1 = Entrepreneurship
Y_2 = Productivity
β_1, β_2, β_3, β_4, β_5, β_6, and β_7 = path coefficient
$\varepsilon_{1 \text{ and }} \varepsilon_2$ = inner residual

RESULTS AND DISCUSSION

Farming involving farming communities has a high growth rate, but in 2013 had suffered a severe decline. A fairly stable sector of growth is tourism, which appears to increase steadily above 4 percent annually to 11 percent in 2016. The phenomenon in Gianyar Regency is an existing processing industry driven by a small craft industry that accentuates artistic elements.

The productivity of vanilla farmers in Gianyar Regency greatly affects the economic development in agriculture. Agriculture that became the largest sector in Bali should be very productive because it is a livelihood for most people. Based on the research results, it can be stated that the level of productivity is good enough owned by 70 farmers with a percentage of productivity of 61 to 80 percent, it shows that the level of productivity of vanilla farmers in Gianyar Regency is good enough.

The results in the area also showed that the lowest productivity level was 37 percent and the highest productivity level approximately 92 percent. It identifies that there are still some farmers whose productivity is less than 50 percent, the factors that led to this occurrence include the lack of farmers' ability to innovate and manage vanilla plants in a more modern and efficient way in order to increase productivity.

The calculation of path coefficients in this study using multiple regression aims to know and to analyze the amount of capital, technology, training, entrepreneurship, and productivity then the program used is the Analysis Moment

of Structural (AMOS) program to the structural equation model as presented in the analytical technique table 1.

Table 1. Hypotesis Testing Result

Regression			Path Cofficient	C.R.	P Value	Description
1	---	1 x	-.219	5.233	***	Not Significant
1	---	2 x	.051	1.337	.061	Significant
1	---	3 x	.764	18.299	***	Significant
2	---	1 x	.189	2.195	.028	Significant
2	---	2 x	.019	.264	.072	Significant
2	---	3 x	.013	.090	.020	Significant
2	---	1 y	.255	1.688	.091	Significant

*** sig alpha (< 0,001)

Based on table 1 it can be concluded that the variable amount of capital has a negative effect on entrepreneurship. This is shown by the parameter coefficient of -0.219. While technology variable with parameter coefficient 0.051 and training variable with parameter coefficient equal to 0.764 have a positive effect to entrepreneurship variable and significant at 5 percent. Capital, technology, training, and entrepreneurship have a positive effect on productivity. This is indicated by the parameter coefficient of 0.189 for the variable of capital amount, parameter coefficient 0.019 for technology variable, parameter coefficient 0.013 for training variable, and parameter coefficient 0.255 for entrepreneurship variable. All variables have direct and positive effects on productivity and are significant at 5 percent.

Table 2. Indirect Effect

Regression			Mediating	Path Coefficient
X_3	→	Y_2	Y_1	0.195
X_2	→	Y_2	Y_1	0.013
X_1	→	Y_2	Y_1	0.056

Source: Primary Data, 2018

Table 2 provides information about the results of the effect of the amount of capital indirectly and have a significant effect on productivity through entrepreneurship variable. Beta value resulting from the effect of the amount of capital to productivity is positive at 0.082 and the value of beta resulting from the effect of the amount of capital to productivity through entrepreneurial variable is positive that is 0.195. This means that the intervention of entrepreneurial variables reinforces the effect of the amount of capital on productivity causing the productivity of vanilla farmers to increase. Testing the effect of technology indirectly and have a significant effect on productivity through entrepreneurial variables. Beta value resulting from the effect of technology on productivity is positive by 0.003 and the value of beta resulting from the effect of the amount of capital to productivity through entrepreneurial variable is positive that is 0.013. This means that the

intervention of entrepreneurship variables reinforces the effect of technology on productivity causing the productivity of vanilla farmers to increase. Testing the effect of training indirectly and have a significant effect on productivity through the level of entrepreneurial variables. Beta value resulting from the effect of training on productivity is positive at 0.036 and the value of beta resulting from the effect of training on productivity through entrepreneurial variables is positive that is 0,056. This means that the intervention of entrepreneurial variables reinforces the effect of training on productivity leading to increased vanilla farm productivity.

The determinant coefficient (R2) is the model ability to explain the effect of the independent variable on the dependent variable.

Table 3. Square Multiple Correlations

Variable	R Square
Entrepreneurship (Y1)	0.769
Productivity (Y2)	0.591

Source: Primary Data, 2018

Based on the table 3, it can be seen that the R-square value of 0.769 for the entrepreneurial variable (Y_1) means that the regression model has good good-fit where the entrepreneurial variable can be explained by the variable amount of capital, technology, and training equal to 76.90 percent and 23.10 percent is explained by another variable not examined in this model. The value of R square of productivity (Y_2) is 0.591 which means regression model has good goodness fit where productivity variable can be explained by variable amount of capital, technology, and training equal to 59.10 percent and 40.90 percent explained by others variable not examined in this model.

The productivity of vanilla farmers in Gianyar Regency of Bali Province greatly effects the economic development in agriculture in Bali Province. Agriculture that became the largest sector in Gianyar Regency should be very productive because it is a livelihood for most people. From the research results can be seen in Table 1. that the level of good productivity is owned by 70 farmers with a percentage of productivity of 61 to 80 percent, it shows that the level of productivity vanilla farmers in Gianyar Regency is good enough. The results in the area also showed that the lowest productivity level was 37 percent and the highest productivity level was 92 percent. It identifies that there are still some farmers whose productivity is less than 50 percent, the factors that led to this occurrence include the lack of farmers' ability to innovate and manage vanilla plants in a more modern and efficient way in order to increase productivity.

From the interview result is known that variable amount of capital, technology, training, and entrepreneurship have a positive effect on productivity. Farmers who have a large amount of capital if they are able to manage finances well then can increase productivity, capital is one of the main factors that determine whether a business is able to grow better, but in this case farmers must be able to manage finances professionally without mixing personal financial. The technology used will directly affect the productivity level of vanilla farming, the higher the technology, it should produce more efficient products, but should be coupled with the readiness of farmers in using more advanced and modern technology. Training directly affects on productivity because with the training of a farmer will get more knowledge that will be useful in managing farming, the more training that followed by the farmer the higher the productivity of his farming, provided that farmers want to follow the training seriously. Entrepreneurial variable is the main variable that can effect productivity, because entrepreneurial variables include how a person in

doing efficiency and continuous maintenance in business, without any entrepreneurial variables, vanilla farming will be difficult to grow and increase productivity.

The results of this study indicate that the effect of the amount of capital to productivity through entrepreneurial variables. The increasing of productivity is effected by the amount of capital must be through entrepreneurial variables, because entrepreneurial variables affect how a farmer in managing his finances, even though the farmer has a large amount of capital, if not have entrepreneurial spirit, then productivity will not increase. From the interview results can be taken conclusion that the amount of capital directly and indirectly affect productivity through entrepreneurial variables. Farmers consider the need for high capital should be followed by a high entrepreneurial spirit, the selection of superior seeds, checking the plants regularly will be able to increase the productivity of vanilla farming in Gianyar Regency.

Technology indirectly becomes the determinant of one's productivity in conducting economic activity. The emphasis on efficiency and effectiveness of business activities in line with the kind of technology that is capable of being used. Technology is a person's asset in the production process, the higher the technology then the activities performed will be more effective. From the interview result, it can be concluded that farmers who own modern machines must still evaluate and learn about the use of machines, because although the machine is very good, not necessarily able to increase productivity if not accompanied by entrepreneurial variables such as learning machine use, seed selection, and other farm development processes.

Training can be done both inside and outside of work. Training conducted outside the work is generally formal. When formal training is actually associated with its use in daily work it can be concluded that the level of one's productivity is also proportional to the amount and duration of formal training obtained. The results of this study are supported by Kesavan & Swaminathan, (2008); Lukuyu et al., (2012); Schreinemachres et al. (2016) which proves that most farmers who often get training have a high motivation to improve farm productivity so as to improve the economic welfare. Calculation through path analysis shows that training has a direct and indirect positive effect on productivity through entrepreneurial variables. This means there is a direct relationship between training on productivity through the strengthening of intervening entrepreneurial variables. The more training that will follow will increase the knowledge and skills of farmers on increasing farm productivity, farmers who follow the training of most of the productivity of farming increases. The training will increase the productivity shown by the entrepreneurial spirit of farmers.

CONCLUSION

It can be concluded that the productivity rate of vanilla farmers is good enough and affected by several factors namely capital, technology, training and entrepreneurship. Based on the result, it can be seen that technology and training significantly affect to entrepreneurship. While capital not having an effect to entrepreneurship. This finding shows that the farmers which have big capital tend to manage well their field when it is encouraged by their willingness to organize more efective and efficient. Another result showed that capital, technology, training, and entrepreneurship directly affect to productivity. However, the entreprenurship variables play a role as intervening variable and productivity variable as dependent variable. Moreover, it has the meaning that entrepreneurship variable has the function to involve between independent and dependent variable.

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