The Influence of Environment and Entrepreneurship Factors toward the Farming Performance
(Case on Manager Farmers of Cloves Plantation in Buleleng Regency, Bali Province)

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Abstract
The aims of this research are to analyze the influence of the physical and economic environments toward the entrepreneurship of farmers and farming performance then to analyze the influence of the entrepreneurship of farmers towards farming performance. This research is conducted in Buleleng Regency as the largest producer area of cloves in Bali Island. Three villages selected as location that representing the Buleleng Regency. Farmers sample determined at each village with simple random sampling method. The analysis method that used in this research is Structural Equation Modelling (SEM) with four latent/unobserved variables. The result of this research shows that the physical and economic environments influence on entrepreneurship of farmers with different direction. The physical environment has negative influence on entrepreneurship of farmers, while the economic environment has positive influence towards entrepreneurship of farmers. Physical and economic environments have no influence towards the farming performance, but the physical and economic environments have indirect influence on farming performance through entrepreneurship. This is means that the higher value of the physical and economic environments, the higher value of farming performance, if the value of entrepreneurship also high. The entrepreneurship has positive influence on farming performance.
Keywords: physical environment, economic environment, entrepreneurship, farming performance

1. Introduction

For Indonesia, the clove is one of the agricultural commodities that have high economic value and strategic because this commodity is a mixture of cigarette manufacture, drugs and essential oil. Cigarette industry that the mostly raw materials use clove, this matter is proved in 1998, that this industry is able to survive to face the economic crisis that hit Indonesia that time. This situation encourages the rapid growth of the new cigarette industries. In 1999, no less than 70 mills have contributed to the new players in the cigarette industry in Indonesia. This effected on the increasing of primary raw materials need, which is cloves.

The need of clove commodity that rapidly growth and start to improving the sales price of cloves which reached IDR 98,000 per kg by the end of 2010 is an opportunity for the farming development of clove in the country. This opportunity must be accompanied by improving the farming performance of cloves commodities through the efforts of business environment improvement, which is the improvement of the economic and physical environments of cloves commodities.

The efforts to improve the physical and economic environments clove commodity would not work if the clove farming is still managed by farmers who do not have the entrepreneurship competence. The paradigms of farmers' behavior today still consider that farming of clove commodity is a production business, which serves only to produce as much. Market, marketing, and processing of agricultural products are beyond the reach of their business concerns, which resulted in very small opportunity of farmers for creativity and initiative in making decisions.

Optimizing the clove farming as a business that produces a product that has economic value and provide the maximum income for farmers, requiring farmers who have entrepreneurship competencies that farmers who have the motivation, innovation, managerial competence and courage to take the risks.

One of the clove production centres in Bali Province is Buleleng Regency. The cloves farming in Buleleng Regency is a little bit different from the picture in the general agriculture in Indonesia that have constrained by the narrowness of the average land holding. On the cloves farming in Buleleng Regency encountered many family farm that has mastery of the extensive farming area.

Physical and economic environments which is an indicator of the business environment, very supportive of commodities cloves farming in Buleleng Regency, but the support of physical and economic environments of commodities cloves farming in Buleleng Regency was not followed by an increase in entrepreneurship farmers. The average of entrepreneurship farmers level is still low, it is seen from the low motivation, lack of innovation, the courage level to take the risk is low and it has not been an unqualified farmers who can manage the farming

activities in accordance with the rules of management that concerning the business plan, coordination, the ability to supervise and partnering.

The effort to improve of farming performance will not be successful if it is only supported by the business environment without being accompanied by an increase in entrepreneurship farmers. The support of business environment must be followed by the support of an entrepreneurship farmers, because both of them will obtained the best solution from the problems that occur in the clove farming so that it will be able to increase the income, productivity, business growth and product quality which is an indicator of farming performance.

Based on the description above, the main research problems can be formulated as follows: "The extent to which the environment and entrepreneurship farmers factors can increase the farming performance of cloves commodities, which in turn will increase the income of farmers in Buleleng Regency".

Important research question is the extent to which the factors of physical and economic environments affect the entrepreneurship farmers and farming performance, and what degree of entrepreneurship farmers affect the farming performance.

2. Methodology

2.1 Research Location

Buleleng Regency is purposively selected with consideration of: (1) the largest producing area of cloves in Bali, amounting to 2,449.296 tons (48.08%) of the total production of 5,110.8 tons of Bali cloves, (2) farming of cloves able to absorb the labor of 723.382 people, is greater than the other farming commodities, (3) clove farmers in Buleleng Regency have a relatively extensive plantations and have a high degree of economic compared with farmers outside of Buleleng Regency or the other plantation commodities farmers.

District location is selected based on the extensive farming area of cloves (Statistics of Bali Plantation, 2011). Selected district is the Busungbiu District (the area with the lowest acreage) and Banjar District (the area with the largest acreage).

2.2 Sampling Method

The population of this research is the owner farmers of the clove farming with the characteristics of farming acreage greater than 3 hectares in three selected villages. Sample farmers determined at each village with the simple random sampling method. Calculation of the number of samples in each village was determined using the formula of Parel, et.al, (1973):

$$n = \frac{NZ\sigma^2}{Nd^2 + Z^2\sigma^2}$$

Descriptions:

n   =   the amount of sample farmers manager size overall

N   =   the number of total farmer manager population

Z   =   the value of normal distribution (Z) of 1.96 at 95% confidence level

σ^2 =   Diversity (variance) of population

d^2 =   Tolerance of deviation (maximum error) that considered acceptable by 0.1 (10%)

Variance of unknown population estimated by the sample variance (S2) defined by the formula:

$$S^2 = 1/\text{n-1} \sum\left(Xi - \overline{X}\right)^2$$

Therefore, the aim of the research is to look at the farming performance, the variety used in the determination of the sample is wide diversity of farming land ownership. Determination of variance (diversity) is conducted by taking the sample of 20 farmers in each village as the temporarily sample. With a total of 60 farmers as the temporarily sample variance S^2 is obtained, further substituted in the formula:

$$n = \frac{NZS^2}{Nd^2 + Z^2S^2}$$

After conducted the research and calculation, the value of $S^2 = 0.42$. With a population of N = 648 people, the obtained sample size n = 150 people. Thus, the sample must be added another 90 people to reach the number of 150 people.

2.3 Collecting Data Method

The method of primary data collection in this research including the interview and observation methods. Directly and in-depth interviews were conducted with a sample of farmers based on the list of questions/questionnaire about the condition of the business environment, entrepreneurship and performance level of the cloves commodities farming. In addition to interviews also conducted observations of clove farming activities that

conducted by manager farmers in Buleleng Regency.

Secondary data is collected from various government agencies reports such as Statistics of Buleleng Regency, Plantation Office of Buleleng Regency, Offices of Busungbiu, Banjar and Buleleng Districts. Secondary data is also obtained from the other relevant publications such as, literature references, journals and research reports.

2.4 Analysis Method

The method of analysis used in this study is Structural Equation Modelling (SEM) with four latent/unobserved variables. These four latent variables that cannot be measured directly, but must be measured using 35 manifest/observed variables. The use of Structural Equation Modelling (SEM) method for each objectives, are presented as follows.

2.4.1 The Analysis of Factor Influence of Business Environment Against Entrepreneurship Farmers

To analyze the influence of the physical environment (X_1), and the economic environment (X_2) on entrepreneurship farmers (X_3) used the equation:

$X_3 = \gamma_1 X_1 + \gamma_2 X_2 + \zeta$

Where:

X_1 is the physical environment.

X_2 is the economic environment.

X_3 is entrepreneurship farmers.

γ is the path coefficient that describes the influence of exogenous variables on endogenous variables.

ζ is the error term associated with the endogenous latent variables.

2.4.2 Analysis of Factor Influence of Business Environment Against Farming Performance

To analyze the influence of the physical environment (X_1) and the economic environment (X_2) against farming performance (Y) used the equation:

$Y = \gamma_3 X_1 + \gamma_4 X_2 + \zeta$

where:

X_1 is the physical environment

X_2 is the economic environment

Y is farming performance

γ is the path coefficient that describes the influence of exogenous variables on endogenous variables.

ζ is the error term associated with the endogenous latent variables.

2.4.3 The Influence Analysis of Entrepreneurship Against Farming Performance

To analyze the influence of entrepreneurship (X_3) against farming performance (Y) is used the equation:

$Y = \alpha X_3 + \zeta$

where:

X_3 is entrepreneurship farmers

Y is farming performance

α is the path coefficient that describes the influence of the endogenous variables on other endogenous variables

ζ is the error term associated with the endogenous latent variables

2.4.4 Structural Equation Modelling (SEM)

This research is concluding four latent variables, physical environment (X1), the economic environment (X2), entrepreneurship (X3) and farming performance (Y). These four latent variables cannot be measured directly, but is formed through the dimensions observed directly are referred to as manifest variables. These four latent variables measured in this research with 35 manifest variables, namely:

a. The physical environment latent variables (X1) is formed by the manifest variables.
    Availability of labor used in the farming process (X1.1), the availability of fertilizer in the around of the farming location (X1.2), price affordability of production facilities (X1.3), the type, condition and adequacy of transportation owned (X1.4), the type and condition of the equipment used in the farming process (X1.5), the condition of the internet and television ((X1.6), the availability of newspapers and magazines (X1.7), the availability of telephone or hand phone(X1.8), support the extension agencies in find business partners (X1.9), support the extension agencies in increasing farmers' income (X1.10) and support the extension agencies to the development of farmers' knowledge (X1.11).

b. Economic environment latent variables (X2) is formed by the manifest variables.
    Credit facility (X2.1), bureaucratic loan facility (X2.2), relief in repayment of loans from financial institutions (X2.3), the number of marketing channels used by farmers to market their products (X2.4), market information on the respective each level marketing organizations (X2.5), the number of buyers or traders (X2.6), access to the merchant (X2.7), the support of national and local governments in the provision of production facilities and infrastructure (X2.8)

c. Entrepreneurship latent Variable (X3) is formed by the manifest variables.
    The ability to conduct business planning (X3.1), the ability to coordinate the areas that are the responsibility

(X3.2), the ability to partner (X3.3), the farmer wishes to conduct the trial innovations individually or in groups (X3.4), product innovation (X3.5), the process innovation (X3.6), administrative innovation (X3.7), the attitude of the decision-making of resource allocation (X3.8), the attitude toward the opportunities (X3.9) and the courage to conduct stock (X3.10).

d. The farming performance latent variable (Y) is formed by the manifest variables.
    Income (Y1), production (Y2), asset growth (Y3), satisfaction as farmer (Y4), product quality (Y5) and productquality (score)

The physical environment (X1), the economic environment (X2) and entrepreneurship (X3) are an inter-related components that influence farming performance (Y). In the schematic of connectivity path diagram of the physical environment, economic environment, entrepreneurship and farming performance are presented in Figure 8. Path diagram in Figure 8 can be translated into a structural equation as follows:

$$Y = \gamma_1 X_1 + \gamma_1 X_2 + \alpha_1 X_3 + \varphi_1(X_1 * X_3) + \varphi_2(X_1 * X_2) + \varphi_3(X_2 * X_3) + \zeta$$

where:

X_1 is the physical environment
X_2 is the economic environment
X_3 is entrepreneurship
Y is farming performance
ζ is the error term associated with the endogenous latent variables
γ is the path coefficient that describes the influence of exogenous variables to the endogenous variables
α is the path coefficient that describes the influence of the endogenous variables on other endogenous variables
φ is the correlation coefficient

The software used to analyze the data is the AMOS program (Analysis of Moment Structures) (Rokhman, 2008). According Sangen, (2005), AMOS is able to complete the complex model with a multi-dimensional process and various causality patterns that hierarchical. Data in the form of observable and unobservable unconstrained by the absence of correlation between the error and simultaneous testing.
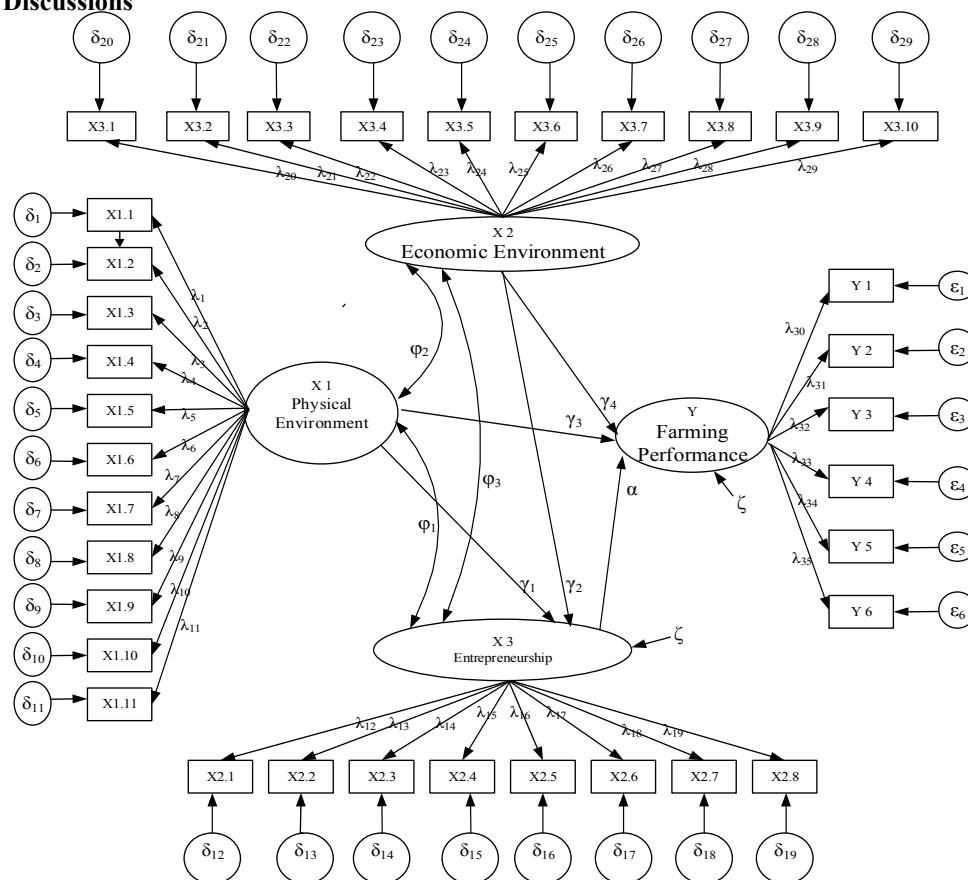
3. Results and Discussions

Figure 1. Path Diagram of Structural Equation Modelling Effects of Physical Environment (X1), Economic Environment (X2) and Entrepreneurship Farmers (X3) Against Farming Performance (Y)

3.1 Influence of Physical Environment (X1) and Economic Environment (X2) Against Entrepreneurship (X3)
3.1.1 Influence of Physical Environment (X1) AgainstEntrepreneurship (X3)

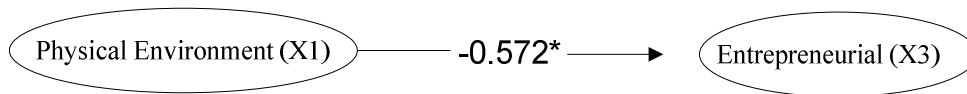Physical Environment (X1) —— -0.572* ——▶ Entrepreneurial (X3)

Figure 2. Influence of Physical Environment (X1) Against Entrepreneurship (X3)

Based on the analysis results, the physical environment (X1) influences toward entrepreneurship (X3). Coefficient of correlation between Physical Environment (X1) with Entrepreneurship (X3) is equal to -0572 with the p-value of 0.000. P-value of <0.05 indicates that the Physical Environment (X1) influence on Entrepreneurship (X3). The coefficient is negative indicating their relationship is inversely proportional. This means that the higher the value of the Physical Environment (X1), the lower the value of Entrepreneurship (X3). The results are consistent with research conducted by (Syahza, 2003) which states that physical environment factors consist of the availability of facilities, infrastructure, information and education institutions significantly influence the entrepreneurship competence. But in this research is obtained inversely proportional relationship between the physical environment (X1) againstentrepreneurship (X3), because of the physical environment that supports (fertile, rich in water resources, open access to capital and economic information) would cause a person who living near the less motivated to adopt innovation in utilizing its resources, which in turn will influence the their skills and capabilities.

3.1.2 The Influence of Economic Environment (X2) Against Entrepreneurship (X3)

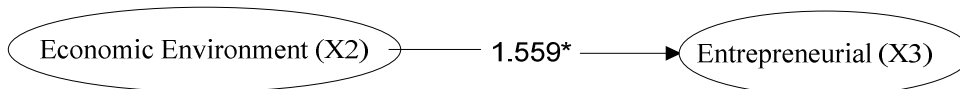Economic Environment (X2) —— 1.559* ——▶ Entrepreneurial (X3)

Figure 3. The Influence of Economic Environment (X2) Against Entrepreneurship (X3)

Based on the analysis results, the correlation coefficient between the Economic Environment (X2) with Entrepreneurship (X3) is equal to 1.559 with p-value of 0.000. P-value of <0.05 indicates that the Economic Environment (X2) influence on Entrepreneurship (X3). Coefficient is positive indicates the both relationship in the same direction. It means that the higher value of Economic Environment (X2) the higher value of Entrepreneurship (X3).

The results are consistent with the findings, recent research conducted by Priyanto (2004) which states economic environment factor significantly influence the entrepreneurship, with the dominant factor shaping the economic environment is the market structure, the price of input-output conditions and access to capital. But in this research the dominant factor shaping the economic environment is the support of national and local governments in the provision of production infrastructure and the availability of many marketing channels that can be selected by farmers.

3.2 Influence of Physical Environment (X1) and Economic Environment (X2) Against Farming Performance (Y)
3.2.1 Influence of Physical Environment (X1) Against Farming Performance (Y)

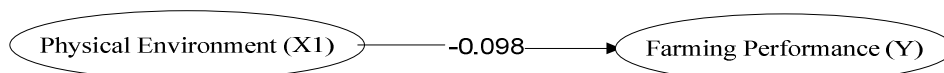Physical Environment (X1) —— -0.098 ——▶ Farming Performance (Y)

Figure 4. Influence of Physical Environment (X1) Against Farming Performance (Y)

Based on the analysis results, the coefficient of correlation between the Physical Environment (X1) with Farming Performance (Y) is equal to -0098 with a p-value of 0.216. P-value> 0:05 indicates that the Physical Environment (X1) does not influence the farming performance (Y). This means that the high and low values of Physical Environment (X1) does not influence the level of farming performance value (Y).

Research results show that the physical environment (X1) has no direct effect thatnegatively towards farming performance (Y). Based on the analysis the indirect influence between the physical environments (X1) toward Farming Performance (Y) through Entrepreneurship (X3), the coefficients obtained by the indirect effect of -0546.

Physical Environment (X1) —— -0.572* ——▶ Entrepreneurial (X3) —— 0.955* ——▶ Farming Performance (Y),

Figure 5. The Indirect Influence between Physical Environments (X1) Against Farming Performance (Y) through Entrepreneurship (X3)

The existence of the indirect effect is due to a variable that is between the physical environment (X1) and farming performance (Y), namely entrepreneurship (X3). This means that the physical environment (X1) will be

able to improve the farming performance as long as farmers are able to improve their entrepreneurship competence.

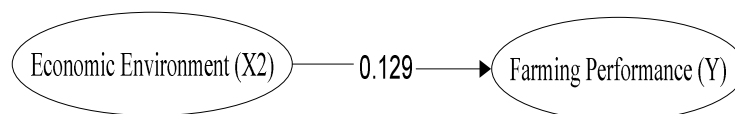*3.2.2 Influence of Economic Environment (X2) Against Farming Performance (Y)*

Figure 6. Influence of Economic Environment (X2) Against Farming Performance (Y)

Based on the analysis results, the coefficient of relationship between Economic Environment (X2) with Farming Performance (Y) is equal to 0.129 with p-value of 0.259. P-value> 0.05 indicates that the Economic Environment (X2) does not affect the farming performance (Y). This means that regardless of the value of Economic Environment (X2) will not affect the Farming Performance (Y).

Figure 7. The Indirect Influence between Economic Environments (X2) Against Farming Performance (Y) through Entrepreneurship (X3)

Based on the results of the analysis of the indirect influence between Economic Environment (X2) towards Farming Performance (Y) through Entrepreneurship (X3), the indirect effect coefficient obtained by 1.527. Because the direct influence (Economic Environment (X2) towards Entrepreneurship (X3), and Entrepreneurship (X3) towards Farming Performance (Y)) are both significant, it can be concluded that there are significant indirect effect between Economic Environment (X2) towards Farming Performance (Y) through Entrepreneurship(X3). This means that the higher the value of Economic Environment (X2), the higher the value of Farming Performance (Y), if the value of Entrepreneurship (X3) is also high. The results are consistent with the findings, recent research conducted by Priyanto (2004), which states that the economic environment is not directly influence towards business performance.

3.3 Influence of Entrepreneurship (X3) Against Farming Performance (Y)
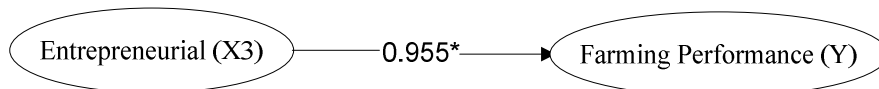
Figure 8. Influence of Entrepreneurship (X3) Against Farming Performance (Y)

Based on the analysis results, the coefficient of relationship between entrepreneurship (X3) with farming performance (Y) is equal to 0.955 with a p-value of 0.000. P-value <0.05 indicates that entrepreneurship (X3) effect on farming performance (Y). The coefficient is positive indicating the direction of their relationship. This means that the higher the value of entrepreneurship (X3) the higher the value of farming performance (Y). The results are consistent with the findings, recent research conducted by Welsa (2006), which states that entrepreneurship has a significant influence on the business performance.

5. Conclusion

Physical environment that supports (fertile, rich in water resources, open access to capital, economics information and others) would cause a person that living near the less motivated to adopt innovations in utilizing its resources, which in turn will affect the entrepreneurship competence. Government support in the provision of production infrastructure and the availability of many marketing channels that can be selected by the farmers will be able to increase the competence of entrepreneurship farmers.

The good or poor physical environment will not affect the farming performance, entrepreneurship competence required to manage the problems of the physical environment in order to improve farming performance. Economic environment that supports not necessarily be able to improve the farming performance, but needed the farmers who have the entrepreneurship competence to manage the physical environment in order to increase the income of farmers. Entrepreneurship competence can improve farming performance in order to achieve an increase in farmers' income.

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